

**A Pedagogy of Love:
Reflections on 25 years of informal vocational education and training
practices in the commercial fishing industry in South Africa**

A thesis submitted in fulfilment of the requirements of the degree of

DOCTOR OF PHILOSOPHY

of

RHODES UNIVERSITY

by

ROBIN ANNE FERGUSON

18f4109

February 2023

Supervisor:

Distinguished Professor Heila Lotz-Sisitka

ABSTRACT

This thesis is a reflection of informal vocational education and training (IVET) practices conducted by the Researcher in the commercial fishing industry between 1995-2021. Fourteen interventions took place during this time which involved several hundred sea-going employees who are disadvantaged by low levels of literacies and low/no Internet Computer Technology connectivity. The Production Programme was chosen as the focus of study and draws upon the influence of the other thirteen programmes. The purpose of the Production Programme was to teach technical fish processing skills to the production management teams and factory hands who work in the factories on board the vessels. The programme ran for five years and evolved through three distinct generations.

At the heart of this work lies the question: ‘What made these programmes successful?’ This is an intra-programmatic study and seeks to identify the pedagogical practices which promoted or confounded the efficacy of the Production Programme; and based upon this understanding how such programmes could be improved, transferred, and taken to scale. These questions are both descriptive and explorative in nature.

IVET is regarded as training which takes place outside of the formal South African National Qualifications Framework. This work is relevant because approximately 80% of sea-going staff neither finish school, nor get the opportunity of Post School Education and Training by going to a university, a technical institution, or a community college. This statistic is reflected in the general population (Department of Higher Education and Training [DHET], 2022). There is a fine line between being employed and unemployed for people working at this level in the formal economy which makes this project relevant to youth or persons who are ‘not in employment, education or training’ too. This means that for most South African adults IVET presents a significant opportunity for post-school education. Therefore, it is important to answer the questions raised above to rapidly improve inclusion of the majority of South Africans into meaningful education which improves livelihoods.

The Theory of Practice Architectures (TPA), from the collection of social-material practice theories, is the conceptual framework for this thesis. The smallest unit of analysis of TPA are practices which may be ‘sayings/thinkings’, ‘doings’, or ‘relatings’. These practices bundle together into practice arrangements and form practice architectures. The reason that TPA was chosen was that practices were the only data available as we (learners, managers, facilitators, and me) knew what we had said/thought or done, and we were aware of the relationships between us over the years as the fourteen interventions played out. Under conventional research circumstances data would be collected in real time, however in this project, most of the data is historical. In addition to the fundamental building blocks of TPA, the theory is embedded in a Theory of Education. There have also been contemporary enhancements to the TPA which were significant to this study, for example, the Ecologies of Practices, a Trellis of Practices which Support Professional Learning, Middle Leadership, Travelling Practices, and moves towards transformative or transgressive education using the TPA in IVET.

This is empirical, qualitative research and an ethnographic case study was chosen as the research design which is a methodology particularly suited to answering both descriptive and explorative questions. Nine methods for data collection were used, namely an historical reflective narrative; two focused-group interviews; three individual interviews; four Whatsapp videos; one WhatsApp voice note; two mobisodes; ten questionnaires; 29 documents; and 16 photographs. Because this data was collected under Covid-19 pandemic conditions, two conceptions were employed to guide the generation of data under these uncertain and constrained conditions. These were firstly, the ‘methodology of chance’ which allowed for a ‘methodological agility’; and secondly, the idea of ‘information power’ which is helpful in deciding on how much data is enough. In order to be explicit concerning a key research activity, the approach and method used to review the literature is explicated. Key practices were identified in the data set and described; and then the data was analysed using heuristics provided by TPA theorists. Seven Tables of Invention were used to synthesise the data arising from these practices. An eighth Table of Invention was used to synthesise all the practices and practice arrangements characterised; and to indicate how these evolved over time and space. The data description and analysis is supported by eight Analytic Memos, a comprehensive Data Code Table and a hyperlink to a data repository which provides access to oral and video material.

The findings distinguished five key practices and practice arrangements which were: Practices of the Creation of Courseware; Practices of Teaching and Learning; Practices of Assessment; Practices of Love; Practices of Management. The thesis title is reflective of the impact which love has upon the pedagogical process of IVET. Based upon the analysis and synthesis of the corpus of data, practices which either promoted or confounded the Production Programme became visible; it is these insights which inform future improvements to similar programmes. Emanating from these findings, two overarching practice architectures (PA) were identified which restrained the Production Programme in the same manner that the banks of a river restrain a river, and yet simultaneously, are changed by the river over time. These are the PA of Methodology and Methods and the PA of Maturing Ecologies of Practices. The inferences drawn from the data were achieved through the use of deductive, inductive, and abductive reasoning.

My claim to new knowledge is a lamination of a practical contribution on one side of the coin, and a theoretical contribution on the other side of the coin. **The PA of Methodology and Methods provides a practical mechanism to create, deliver and assess IVET.** This is done by explicating the three practice architectures which constitute the overarching PA of Methodology and Methods which are, the PA of Informality; the PA of Range, and the PA of Relationality. An IVET programme constitutes Ecologies of Practices. **The theoretical conception of the overarching PA of Maturing Ecologies of Practices provides a conceptual tool which enables the transferring and scaling of IVET programmes.** It does this by providing theoretical indicators to establish the ‘state’ of an IVET programme as it matures over time from a pioneer state to a settler state. An IVET educator can then work towards creating a PA which is conducive for a mature ecologies of practices to form; and the programme can then be transferred and/or taken to scale, if this is desirable in the particular context. The power of my claim to new knowledge does

not lie on one side or the other of the coin, but in the lamination of the practical and theoretical contributions put to use in the service of IVET.

This thesis concludes with a number of theoretical and practical recommendations which are loosely grouped according to ‘sayings/thinkings’, ‘doings’ and ‘relatings’ in deference to the value of TPA to this thesis. An urgency is conveyed in these recommendations as there is an immediate need to improve the livelihoods of ordinary South Africans. One of the ways of doing this is through informal ‘education for living well’ which contributes to a ‘world worth living in’.

Key words

informal vocational education and training; workplace education; Theory of Practice Architectures; Ecologies of Practices; qualitative empirical study; case study; historicity; courseware creation; teaching and learning; assessment; transferring; scaling; commercial fishing; Persons who are not in Employment, Education or Training; Post School Education and Training

ACKNOWLEDGEMENTS

A PhD is done in community. I regard the completion of this PhD as a unified and collective effort which makes these pages of formal acknowledgements the most consequential pages in the document presented.

From Industry

I begin by acknowledging the I&J Limited shore-based and sea-going staff who have laboured beside me for most of my adult life, from age 30-years to age 55-years. Thank-you for the exceptional opportunity of working with the Company to pioneer innovative informal vocational education and training with the long-view in mind. Together we achieved many firsts in the deep sea trawl industry. Thank you for your willingness to try new ways of learning; for allowing a ‘non-fishing’ woman on board and in the bridge many times; and for answering all my shore-to-ship voice calls, WhatsApp messages and emails. Thank you for all you have taught me. I particularly wish to note the ‘cellophane people’, the sea-going staff, and the Cape Town Fishing operational managers for the great fun this has been, for the many laughs and for the deep sense of affection amongst us, and for the love of the work which kept us reaching beyond the horizon again and again. I&J Limited need to be recognised for their long-term commitment to staff training and development.

In particular, I wish to thank Charlene Coetzee, in her capacity as the Resource Manager, and Kevin Gaynor, in his capacity as courseware developer, and intrepid sea-going and shore-based facilitator. We have worked hard together, thank you – and I suggest we have made a difference to the lives of those at sea ‘working the fish’.

From the Academy

To the Distinguished Professor Heila Lotz-Sisitka, this PhD would not have happened without you, for sure! I am extraordinarily fortunate to have been gifted with an exceptional supervisor of world acclaim. Thank you for believing in my topic and being prepared to take me on and for giving me your most precious resource, time. I trust that this PhD will prove to be a worthy investment of your brilliant mind and resources. Thank you for leading me, provoking me, pushing me one step at a time on this PhD journey, and especially for helping me to take two significant intellectual jumps which are mentioned elsewhere in this thesis. Thank you too for giving me the freedom and room to find my own voice. And for saving me from the Disaster of the Rabbit Holes. Your kindness, generosity of heart and easy grace shines through and were especially appreciated when times were really tough. I have included the first correspondence which we had (cf. Appendix 1) to preserve the artefact which marked the beginning of this PhD journey. We have done what we set out to do. Thank you, thank you for getting me here.

I wish to acknowledge the substantial funding which I have received through the South African Research Chairs Initiative of the National Research Foundation Chair: Global Change and Social Learning Systems. This funding permitted me to move from part-time study to full-time study on the PhD in the final 12 months of this research project. The singular focus has afforded me the opportunity to complete the study in just over four years; however, more importantly, this level of focus increased my depth of thinking and, I believe, the quality of my contribution to new knowledge. I am most appreciative, thank you.

In the process of my doctoral studies I gained a new family – the Environmental Research and Learning Centre community. It is my happy place. I found myself in a community of Critical Friends who were generous beyond countenance, brilliant of mind, and piercing but always, always kind in their feedback. It is a community which exemplifies solidarity, where there is lots of laughter and there are often parties. It is a deep privilege to be drawn into a community who have been working together and in the same direction on environmental education for over 30 years together. And here I am thinking particularly of the (Dancing) Dean-Professor Rosenberg and Distinguished Professor Lotz-Sisitka. I was singularly fortunate to be a member of the Environmental Learning and Research Centre and the Rhodes University Centre for Post-Graduate Studies during the lockdown months. The Academy went well beyond the call of duty to move students and our activities online which increased the communitarian nature of the Environmental Learning and Research Centre to a greater breadth and depth than in pre-Covid times. The tri-annual PhD Weeks were profoundly helpful for my studies. Without this rich and diverse family, I would not have produced this PhD.

I was fortunate to be invited to the table of the VET 4.0 Research Project. Participating in a number of the events provided me with a ‘big picture’ on formal VET in four VET projects running in Uganda and South Africa. These intellectual gifts I received from this ‘high octane’ group of senior researchers are reflected in my writings and in particular in the recommendations of this study. Thank you.

And then there was PEP – the Pedagogical Education and Praxis International Research Network – which took me under their collective wing. I was swept into a community which embraced me and my study and who took me with them to the forefront of the Theory of Practice Architectures. Being part of PEP, without question, elevated this work! Please read Section 4.2.3 “Meeting the PEPpers”. A special debt of gratitude goes to Emeritus Professor Stephen Kemmis and Dr Susanne Francisco for drawing me in and so generously sharing their time and research. Thank you!

The Centre for Researching Education and Labour runs an annual seminar series on VET-related topics given by renowned South African and international speakers. I benefitted enormously from these lectures as they broadened my understanding of formal VET and the labour market. I am particularly indebted to Dr Presha Ramsarup for a number of conversations concerning formal and informal VET. The impact of these discussions is perhaps unknown to her but was seminal in my thinking.

The Schatzki's Reading Group: Thank you for including me in the reading group. It was an extraordinary privilege to participate in the group and to be exposed to authors I read and to hear their ideas and scholarly arguments first hand.

The last word must go to my 'Editor Extraordinaire', Kim Ward, who has added so much to this PhD through her tireless work right to the very end, her intuitive sense of this kind of research, and her sharp eye. Thank you Kim.

To Friends and Extended Family

I am in the fortunate position of not being able to determine the line between extended family and friends where some family members have become intimate friends, and where some friends have become closer than family.

- To my cousin and life-long friend, Andrew who is the Angel with Devil Horns and who has always, always had my back and spoken uncomfortable truths to me.
- To the Three Tarts, Chez and Charms (and me) who meet every Saturday morning to drink good coffee and to put the world right in the way that only women I have known for close on 40 years can do. You both epitomise the love, loyalty and acceptance of life-long friends who have become family to me.
- To Tania, my friend and advocate and the one whose mind is razor sharp and whose tongue is gentle, and whose validation I find so grounding.
- To Cynthia Gcwabe, thank you for caring for me, my Loved Ones and our space. You contribute to our home which is a peaceful dwelling space and an undisturbed place of rest.
- To Lynette, who has helped me find my way when I have felt lost and overwhelmed by my circumstances. As I have said many times, you have saved our lives in so many ways and you continue to do so.
- To Karen my long-standing friend and sister who has always believed in me and inspired me to reach for my potential as a woman.

I am abundantly rich in longstanding and deep friendships. Thank you friends for your unwavering support and encouragement through this long, and at times lonely journey.

For the Love of Sport

Thank you sporting buddies for keeping me sane and healthy! To the Walkie-Talkie Runners for the many miles on the road in the early mornings and for 'always having something to celebrate'. To the Sports Science Swimming Squad and Coach Gary for pushing me beyond my limits, and for sharing the sheer joy of being in the water. To the Skipper and Crew of Mr B (ocean-going yacht) for the exciting racing on Wednesday evenings and for the multi-day race to Mykonos towards the end of my PhD when I particularly needed to feel the wind and taste the salt. And for Skipper Tony for allowing

me to dive off the boat into the mighty Atlantic Ocean for a swim. The time with you all brings me such delight and it has refreshed me over the years of this research journey.

To 'My Nuclear Family and other Animals'¹

This was an inter-species effort. Thank-you to the Black Cat and the Ginger Cat who kept watch with me; and for reminding me that sometimes it is important to simply stretch out on the carpet and lie in the sun.

To my parents, Stuart (aged 90-years) and Marion Ferguson who set me up with a happy childhood nurtured by your strong marriage of equals. You provided me with a sound education and let me loose on the world to seek adventure. I will always be Your Daughter. I will always know that I am loved and celebrated by you both. To my daughters, Charlie and Jesse, you are indeed the strong, brutally intelligent, wild, free and fierce women celebrated by Wagner's in his orchestral composition, Ride of the Valkyries! Thank you for your loyalty and love which is unwavering. Thank you too for the many, many days and nights you put up with Mama working at the dining room table while you claimed you were *starving*. It is over ... for now.

Our team of five has weathered many frightening and ground-shaking storms and many happy, happy 'champagne days' together too. This has drawn us into an impenetrable iron-clad inter-generational ring of fire. I am so grateful for all you do for me emotionally, materially and in every way – I am indeed held by a tight and dense web of old and young lives. Thank you – this work is dedicated to you Four.

¹ From the title of Gerald Durrell's book about his life in Corfu.

DEDICATION

This thesis is dedicated to the four most important people in my life:

my parents, Stuart and Marion Ferguson

and

my daughters, Charlie and Jesse Ferguson

for all you are

for all you will be

and

for decades of loving me into being and becoming

TABLE OF CONTENTS

ABSTRACT	i
ACKNOWLEDGEMENTS	iv
DEDICATION.....	viii
TABLE OF CONTENTS	ix
LIST OF TABLES	xix
LIST OF FIGURES	xx
LIST OF PHOTOGRAPHS.....	xxi
LIST OF ACRONYMS	xxii
GLOSSARY.....	xxiii
CHAPTER 1: INTRODUCTION.....	1
1.1 Introduction to Chapter 1	1
1.2 Orientation to this PhD Project.....	1
1.2.1 To begin	1
1.2.2 Personal and Professional Interest	2
1.2.3 The Research Journey in Brief.....	3
1.2.4 Finding Self-critique and Failures and Defining Successes in the IVET4 Programmes.....	3
1.2.4.1 Self-critique and Failures in the IVET4 Programmes	4
1.2.4.2 Success in the IVET4 Programmes.....	5
1.2.5 Does this Research Matter? And to Whom?	6
1.2.6 What's Love Got to Do With It?.....	10
1.3 Quality, Ethics, Positionality and Reflection	10
1.3.1 A Quality Framework	11
1.3.2 Ethics.....	13
1.3.3 Positionality and Reflection-Diffraction.....	14
1.3.4 Explanation of Terms used for Participants in this Research.....	16
1.4 Research Questions.....	16
1.4.1 Main Question.....	17
1.4.2 Sub-Questions	17
1.5 Research Scope	17
1.6 Identifying the Gap and Contribution of this Research Project to New Knowledge	20
1.6.1 Identifying the Gap	20
1.6.2 Contribution to New Knowledge	21
1.6.2.1 Main Claims	21
1.6.2.2 Incidental Contributions.....	21
1.7 Conclusion to Chapter 1	23
CHAPTER 2: CONTEXTUAL BACKGROUND	26
2.1 Introduction to Chapter 2	26
2.2. Theme One: Sustainability and Education.....	26
2.2.1 Sustainability.....	26

2.2.2 Education for Sustainability and VET	27
2.2.2.1 Terms	27
2.2.2.2 Timeline	28
2.2.2.3 VET and Education for Sustainability in South Africa.....	28
2.2.3 The Trojan Horse of IVET4.....	29
2.3 Theme Two: The Contours of Vocational Education and Training.....	32
2.3.1 Defining Formal, Informal, and Unformal VET for the Purpose of this Study	32
2.3.1.1 Formal VET	32
2.3.1.2 Informal VET.....	33
2.3.1.3 Unformal VET	34
2.3.2 An Overview of the Contours of Four Generations of VET in Africa.....	34
2.3.2.1 VET 1.0.....	34
2.3.2.2 VET 2.0.....	34
2.3.2.3 VET 3.0.....	35
2.3.2.4 A Segue from VET 3.0 to VET 4.0 and Justification for the Use of the Term IVET4	35
2.3.2.5 VET 4.0.....	36
2.3.2.6 Southern African Scholarship concerning Informal VET in the Contexts of Sustainability	37
2.3.2.7 The Education of VET Educators in Australia	37
2.3.3 VET Adaption Response to the Covid-19 Pandemic.....	38
2.3.4 Critical Capabilities Approach to VET	38
2.3.5 VET 4.0 Africa Collective	39
2.4 Theme Three: South African Commercial Fishing Industry	43
2.4.1 South African Deep-Sea Trawl Industry.....	43
2.4.2 I&J Limited.....	45
2.5 Theme Four: Allied Concepts	46
2.5.1 Internet Computer Technology Mediated Learning.....	46
2.5.2 Management and Organisational Studies.....	46
2.6 Conclusion to Chapter 2.....	48
CHAPTER 3: HISTORICAL REFLECTIVE NARRATIVE	49
3.1 Introduction to Chapter 3	49
3.1.1 Starting at the Beginning.....	49
3.1.2 The Relationship between History, Practice Theory and TPA	50
3.1.3 Leaving Imprints – Changing Practice.....	51
3.2 Arriving: The Girl in the Photograph	51
3.3 Programme One: Labour Relations Act for Sea-going Staff.....	53
3.3.1 What Happened? IVET4 Programme	53

3.3.2 How did Programme One influence my Education Theory and Praxis as an IVET Educator?	58
3.4 Programme Two: Labour Relations Act for Shore-based Staff	58
3.4.1 What happened? IVET4 Programme	58
3.4.2 How did Programme Two influence my Education Theory and Praxis as an IVET Educator?	59
3.5 Programme Three: Commissioning of the Boronia Freezer Vessel in 1999	60
3.5.1 What Happened? IVET4 Programme	60
3.5.2 How did Programme Three Influence my Education Theory and Praxis as an IVET Educator?	61
3.6 Programme Four: 360-degree Performance Appraisals for Senior Managers	62
3.6.1 What Happened? Performance-related Programme	62
3.6.2 How did Programme Four Influence my Education Theory and Praxis as an IVET Educator?	63
3.7 Programme Five: Full fleet mentorship programme for sea and shore staff	63
3.7.1 What Happened? IVET4 Programme – IVET4 Programme	63
3.7.2 How did Programme Five Influence my Education Theory and Praxis as an IVET Educator?	65
3.8 Programme Six: Job Profiles for All Positions at Cape Town Fishing in 2004	66
3.8.1 What Happened? Performance-related Programme	66
3.8.2 How did Programme Six Influence my Education Theory and Praxis as an IVET Educator?	67
3.9 Programme Seven: Project Butterfly	67
3.9.1 What Happened? IVET4 Programme	67
3.9.2 How did Programme Seven influence my Education Theory and Praxis as an IVET Educator?	68
3.10 Programme Eight: Project Safari IVET4 Programme	69
3.10.1 What Happened? IVET4 Programme	69
3.10.2 How did Programme Eight Influence my Education Theory and Praxis as an IVET Educator?	70
3.11 Programme Nine: Development of Key Position Profiles for Other Divisions	70
3.11.1 What Happened? Performance-related project	70
3.11.2 How did Programme Nine Influence my Education Theory and Praxis as an IVET Educator?	71
3.12 Programme Ten: Change Management Programme at Cape Town Processing	72

3.12.1 What Happened? IVET4 Programme	72
3.12.2 How did Programme Ten Influence my Education Theory and Praxis as an IVET Educator?	73
3.13 Programme Eleven: Production Programme	73
3.13.1 What Happened? IVET4 Programme	73
3.14 Programme Twelve: Skipper Development Programme	77
3.14.1 What Happened? IVET4 Programme	77
3.14.2 How did Programme Twelve Influence my Education Theory and Praxis as an IVET Educator?	83
3.15 Programme Thirteen: Individual Competency Files and Engineering Modifier	83
3.15.1 What Happened? IVET4 Programme	83
3.15.2 How did Programme Thirteen Influence my Education Theory and Praxis as an IVET Educator?	84
3.16 Programme Fourteen: Chief Engineers Programme	85
3.16.1 What Happened? IVET 4 Programme	85
3.16.2 How did Programme Fourteen Influence my Education Theory and Praxis as an IVET Educator?	88
3.17 The Appearance of Formal VET in the midst of IVET4 Programmes	88
3.18 Conclusion to Chapter 3	88
CHAPTER 4: CONCEPTUAL FRAMEWORK	90
4.1 Introduction to Chapter 4	90
4.2 Being ‘Stirred Into’ TPA and ‘Coming to Know How to Go On’	91
4.2.1 Searching for a Theory	91
4.2.2 Finding a Theory	92
4.2.3 Meeting the PEPpers	93
4.2.4 Meeting Other Academics	93
4.2.5 Related Fields of Practice Theory	94
4.2.6 Application not Theorisation of TPA	94
4.2.7 Justification in Summary	95
4.3 The Building Blocks of TPA	95
4.3.1 Practices	97
4.3.2 Intersubjective Spaces and Practice Arrangements	98
4.3.3 Practice Architectures	99
4.3.4 The Practitioner	99
4.3.5 The Site or Niche of Practice	100
4.3.6 Projects and the Habitus of Practitioners	101
4.3.7 Practice Landscapes and Practice Traditions	101

4.3.8 Flows and Entanglement.....	102
4.3.9 Ecologies of Practices	103
4.4 TPA Conceptual Developments.....	106
4.4.1 A Trellis of Practices which Support (Formal) Learning and IVET4.....	106
4.4.2 What is Learning?	107
4.4.3 Teaching and Learning.....	109
4.4.4 Leadership through the Looking Glass of TPA	110
4.4.5 Practices which Travel	113
4.4.6 Time and Practice Theory	115
4.4.6.1 The Importance of Social Theories of Time in IVET4	115
4.4.6.2 Practice Theory and Rhythmanalysis.....	115
4.4.6.3 Squeezing Time in IVET4	117
4.4.6.4 Frenetic Standstill in IVET4	118
4.4.7 TPA and the Theory of Education	119
4.4.8 Transgression – Making TPA dangerous.....	123
4.4.8.1 TPA and Critical Theory.....	123
4.4.8.2 What could Transgressive Learning mean?	124
4.4.8.3 Praxis and Critical (Pedagogical) Praxis in TPA	125
4.4.8.4 Making TPA Dangerous: A current debate within TPA	126
4.5 Assumptions and Limitations of the Theory and Application of TPA.....	129
4.5.1 Assumptions.....	129
4.5.2 Limitations	129
4.6 Conclusion to Chapter 4.....	130
CHAPTER 5: RESEARCH DESIGN AND METHODS	132
5.1 Introduction to Chapter 5	132
5.2 Research Design	134
5.2.1 A Qualitative Philosophical-Empirical Approach to Research Design	134
5.2.1.1 A Qualitative Approach to Research Design	134
5.2.1.2 A Philosophical-Empirical Approach to Research Design	135
5.2.2 The Production Programme: A justification	136
5.2.3 Case Study: A Justification.....	138
5.2.4 How Much is Enough?.....	140
5.3 Research Methods for Data Generation	143
5.3.1 Data Generation Summary.....	143
5.3.2 Special Considerations concerning Data Collection	146
5.3.2.1 Ethical Considerations around the Inclusion of Photographs and Videos of Sea-going Staff.....	146

5.3.2.2 Ethical Considerations around the Questionnaires	146
5.3.2.3 Ethical Considerations of Anonymity, Confidentiality, and Identity.....	147
5.3.2.4 Ethical Considerations Concerning the Missing Voices of the In-coming Executive Team	148
5.3.2.5 An Observation about Focussed Group Interview 1	148
5.3.4 The Literature Review as a Method	149
5.4 Research Methods for Data Analysis and Synthesis.....	152
5.4.1 Process of Analysis and Synthesis	152
5.4.1.1 Phases towards Analysis and Synthesis of Data	152
5.4.1.2 Practical Steps in the Analysis and Synthesis of Data	153
5.4.2 Issues of Logic	157
5.4.2.1 The Application of Deductive, Inductive and Abductive Forms of Inference in this Study	157
5.4.2.2 Generalisation of Case Study Findings in this Study.....	159
5.5 Conclusion to Chapter 5.....	161
CHAPTER 6: DESCRIPTION OF FIVE IVET4 PRACTICES	163
6.1 Introduction to Chapter 6	163
6.2 The First Generation of the Production Project.....	165
6.2.1 Description of the Practices of the Creation of Courseware for Generation One	165
6.2.2 Table of Invention 1: Summary of the Practices and Practice Architectures of the Creation of Courseware for Generation One of the Production Programme	171
6.3 Second Generation of the Production Project.....	172
6.3.1 Description of the Practices of the Creation of Courseware for Generation Two	172
6.3.2 Table of Invention 2: Summary of the Practices and Practice Architectures of the Creation of Courseware for Generation Two of the Production Programme.....	178
6.4 Third Generation of the Production Project.....	180
6.4.1 Description of the Practices of the Creation of Blended Learning Courseware	180
6.4.2 Table of Invention 3: Summary of the Practices and Practice Architectures of the Creation of Courseware for Generation Three of the Production Programme.....	188
6.5. Practices of Teaching and Learning of the Production Project.....	190
6.5.1 Generation One: Practices of Teaching and Learning of the Production Programme	191
6.5.1.1 Mutual Professional Learning Practices in Generation One of Production Project	191
6.5.1.2 Sites of Practice in Generation One of Production Project	192
6.5.1.3 Doings and Objects in Generation One of the Production Programme	193
6.5.2 Generation Two: Practices of Teaching and Learning.....	195
6.5.2.1 Mutual Professional Learning Practices in Generation Two of the Production Programme	195

6.5.2.2 Sites of Practice in Generation Two of the Production Programme	196
6.5.2.3 Doings and Objects in Generation Two of the Production Programme.....	197
6.5.3 Generation Three: Practices of Teaching and Learning.....	199
6.5.3.1 Mutual Professional Learning Practices in Generation Three of Production Project .	199
6.5.3.2 Sites of Practice in Generation Three of Production Project	200
6.5.3.3 Doings and Objects in Generation Three of Production Project.....	200
6.5.4 Table of Invention 4: Summary of the Practices and Practice Architectures of Teaching and Learning	206
6.6 Practices of IVET4 Assessment of the Production Project	208
6.6.1 Generation One: Assessment	209
6.6.2 Generation Two: Assessment.....	212
6.6.3 Generation Three: Assessment.....	214
6.6.4 Table of Invention 5: Summary of the Practices and Practice Architectures of IVET4 Assessment Strategies and Outcomes of the PP over Three Generations.....	220
6.7 Practices of Love of the Production Project.....	222
6.7.1 Single Impression: Love the Great Mediator	222
6.7.2 Table of Invention 6: Summary of the Practice of Love in IVET4.....	226
6.8 Practices of Management of the Production Project.....	228
6.8.1 Impression One: The Impact of Executive Senior Management Team Practices on IVET4 over 25 Years	228
6.8.2 Impression Two: Management which Constrained IVET4.....	229
6.8.2.1 Executive Senior Management Team Approach to People and Staff Development...	230
6.8.2.2 Executive Senior Management Team Approach to Organisational Culture	230
6.8.2.3 Executive Senior Management Team Approach to Recognition of Achievements	231
6.8.2.4 Executive Senior Management Team Approach to Reporting.....	231
6.8.2.5 Executive Senior Management Team Approach to IVET4 and Innovative Internet Computer Technology-mediated Learning	232
6.8.2.6 Executive Senior Management Team Approach to the Stability of the Organisation	233
6.8.2.7 Could it have been Different?	234
6.8.3 Impression Three: Management Practices which Promoted IVET4.....	235
6.8.3.1 Executive Senior Management Team - Paying the Piper.....	235
6.8.3.2 Executive Senior Management Team - Initiating the PP, Skipper Development Programme, and Chief Engineers Programme.....	235
6.8.3.3 Executive Senior Management Team – Cancelling the I&J TV Platform	235
6.8.3.4 General Manager of Trawlers - Active Promotion of IVET4	236
6.8.3.5 Operational Team: Full Support of the IVET4	237
6.8.4 Impression Four: IVET4 begets Organisational Change	237

6.8.4.1 Example One: Historical Reflective Narrative	237
6.8.4.2 Example Two: Production Programme	238
6.8.4.3 Example Three: Skipper Development Programme.....	238
6.8.4.4 Example 4: Chief Engineers Programme	238
6.8.5 Table of Invention 7: Practices of Management	239
6.9 Table of Invention 8: Synthesis of Data: Coming to Practice IVET4 of the Production Project	241
6.10 Conclusion to Chapter 6.....	243
CHAPTER 7: ILLUMINATION OF THE PRACTICE ARCHITECTURE OF METHODOLOGY AND METHODS IN IVET4	246
7.1 Introduction to Chapter 7	246
7.2 Practice Architectures of Methodology and Methods of IVET4.....	247
7.2.1 Practice Architectures of Informality in IVET4.....	248
7.2.1.1 Context of the IVET4 Programme	249
7.2.1.2 Objectives of the IVET4 Programme.....	249
7.2.1.3 Profiles of Participants	250
7.2.1.4 A Licence to Operate	251
7.2.1.5 Does the PA of Informality Enable or Constrain the IVET4 Programme?	252
7.2.2 Practice Architectures of Range in IVET4.....	254
7.2.2.1 Practices and Practice Arrangements of the Range of Courseware Creation in IVET4	257
7.2.2.2 Practices and Practice Arrangements of Teaching and Learning in IVET4.....	260
7.2.2.3 Practices and Practice Arrangements of Assessment in IVET4.....	264
7.2.2.4 Does the PA of Range Enable or Constrain the IVET4 Programme?	266
7.2.3 Practice Architectures of Relationality in IVET4	267
7.2.3.1 Practices and Practice Arrangements of the Pedagogy of Love.....	267
7.2.3.2 Practices and Practice Arrangements of Management Practices	276
7.2.3.3 Does the PA of Relationality Enable or Constrain the IVET4 Programme?	277
7.3 Theory and Data in Conversation to Answer Research Questions A-C.....	278
7.3.1 Answer to Research Question A	278
7.3.2 Answer to Research Question B	279
7.3.3 Answer to Research Question C	280
7.4 Contribution to New Knowledge: The Provision of a Practical Methodology and Methods for the Generation of Transformative IVET4.....	281
7.5 Conclusion to Chapter 7.....	283
CHAPTER 8: ILLUMINATION OF THE PRACTICE ARCHITECTURE OF THE MATURING ECOLOGIES OF PRACTICES	284
8.1 Introduction to Chapter 8	284
8.2 Opening up the Conceptual Construct of Maturing Ecologies of Practices in IVET4.....	285

8.2.1 Emerging Ecologies of Practices of IVET4	286
8.2.1.1 Six Properties of an IVET4 Ecologies of Practices	289
8.2.2 Transitioning Ecologies of Practices of IVET4	291
8.2.3 Maturing Ecologies of Practices of IVET4.....	294
8.2.4 The State of the Ecologies of Practices of the PP, Skipper Development Programme and the Chief Engineers Programme IVET4 Programmes	298
8.2.4.1 Chief Engineers Programme as an Emerging IVET4 Ecologies of Practices	300
8.2.4.2 PP (Generation Two) and the Skipper Development Programme as Transitioning IVET4 Ecologies of Practices	301
8.2.4.3 A Maturing and Matured IVET4 Ecologies of Practices	301
8.2.5 Does the PA of Maturing Ecologies of Practices Enable or Constrain IVET4?	303
8.3 Theory and Data in Conversation to Answer the Research Question D.....	305
8.4 Contribution to New Knowledge: The Provision of the Theoretical Concept of Maturing Ecologies of Practices for IVET4 which enables the Transfer and Scaling of IVET4 Programmes	308
8.5 Conclusion to Chapter 8.....	310
CHAPTER 9: RECOMMENDATIONS, SUMMARY AND CONCLUSION OF STUDY	313
9.1 Introduction to Chapter 9	313
9.2 Recommendations: Theme 1 – Thinkings and Sayings	313
9.2.1 Giving Voice to the Silent Practice of IVET4	313
9.2.1.1 PA of the Trellis of Practices which Support Learning	314
9.2.1.2 Leadership.....	315
9.2.1.3 Time as Practice	317
9.2.2 Methodological Opportunities of TPA.....	319
9.2.3 Joining the Conversation on Informal and Formal VET 4.0 Africa.....	320
9.3 Recommendations: Theme 2 – Doings	322
9.3.1 IVET4 Educators’ Course	323
9.3.2 A Book: The Toolbox of 41 Tools.....	325
9.3.3 A Pilot: An IVET4 Testing Site	326
9.4 Recommendations: Theme 3 – Relatings	327
9.5 Dissemination of Research	328
9.6 Summary of Study	329
9.6.1 Summary of the Study.....	329
9.6.2 Personal Reflections and Ontological and Epistemic Growth	329
9.7 Conclusion to Chapter 9: Claim to New Knowledge	334
Afterword	335
References.....	336
Appendices.....	352

Appendix 1: A Germ of an Idea: First Contact with D. Prof Lotz-Sisitka.....	352
Appendix 2: Education statistics based on General Household Survey (GHS) 2018	355
Appendix 3: Rudimentary Graph of Practices for Programmes 1-4	356
Appendix 4: Table of the Fourteen IVET4 and Performance-related Programmes facilitated between 1995-2021	357
Appendix 5: Examples of Assessment Matrix and Assessment Guide	360
Appendix 6: E-Learning Chief Engineers Programme – Module One.....	369
(Based upon the book - Office 365 2019).....	384
Appendix 7: Data Code Table	392
Appendix 8: Questionnaire Sample	397
Appendix 9: Analytic Memos 1-8.....	399
Analytic Memo 1: Practices in the Creation of Courseware – First Generation.....	399
Analytic Memo 2: Practices in the Creation of Courseware – Second Generation	402
Analytic Memo 3: Practices in the Creation of Courseware – Third Generation	403
Analytic Memo 4: Practices of Teaching and Learning in the PP – Classroom Teaching and Learning	404
Analytic Memo 5: Practices of Informal VET 4.0 Assessment Strategies and Outcomes of The PP over the Three Generations	409
Analytic Memo 6: Practice of Love	411
Analytic Memo 7: Practices of Management.....	414
Analytic Memo 8: Data Referenced in Other Parts of the Thesis	417
Appendix 10: Negotiated Code of Ethics and Research Ethics Approval Letter.....	420
Appendix 11: Chief Engineers’ Programme (Chief Engineers Programme): Module 1 – Exercise 1	428

LIST OF TABLES

Table 3.1	Original Skipper Development Programme – Objectives and Modules	79
Table 3.2	Additional Skipper Development Programme – Achievements and Actions	79
Table 4.1	Principles of Ecology	104
Table 5.1	Data Generation Summary Table	144
	Table of Invention 1	171
	Table of Invention 2	178
Table 6.1	Comparison of Technical Affordances & Costs	185
Table 6.2	Comparison of Learning Affordances	185
	Table of Invention 3	188
Table 6.3	Chief Engineers Programme Actor Roles	201
	and Sites of Practice Mediated by Future People	
	Online-In-Person Learning Platform	
	Table of Invention 4	206
	Table of Invention 5	220
	Table of Invention 6	226
	Table of Invention 7	239
	Table of Invention 8	241
Table 7.1	Toolbox of Coursework Creation Tools	257
Table 7.2	Toolbox of Teaching and Learning Tools	260
Table 7.3	Different Kinds of Trouble in Classroom	262
Table 7.4	Toolbox of Assessment Tools	264
Table 7.5	Practices of the Pedagogy of Love over 25-Years	268
Table 8.1	Formal and Informal Complexes of Education	307
Table 9.1	Adaptive Leadership and Characteristics	316
Table 9.2	Comparison of VET 4.0 Characteristics	331

LIST OF FIGURES

Figure 3.1	Production Training Ecosystem	76
Figure 3.2	Emergent IVET4 Model	87
Figure 4.0	Early Mapping of Practice Theory	92
Figure 4.1	The Theory of Practice Architectures	96
Figure 4.2	Practices	97
Figure 4.3	Practice Arrangements and Architectures	99
Figure 4.4	Education Complex	105
Figure 4.5	Teaching and Learning Ecology	109
Figure 4.6	Theory of Education including TPA	121
Figure 4.7	Practices of Variation and Transgression	129
Figure 5.1	Timeline of Events and Data Collection	137
Figure 5.2	Rubik's 3D Cube of Time	140
Figure 5.3	Information Power - Dimensions	141
Figure 6.1	Example of Contents Page of Standard Operating Procedure	175
Figure 6.2	Screenshot of Mobisode: Excessive Trimming - presenter	186
Figure 6.3	Screenshot of Mobisode: Excessive trimming – video	186
Figure 6.4	Screenshot of Mobisode: Excessive Trimming – questions	187
Figure 6.5	Distribution of IVET4 physical-space vs. online-space	205
Figure 6.6	Assessment Dumbbell	209
Figure 6.7	Screenshot of Blokkies Spreadsheet	216
Figure 6.8	Screenshot of Mobisode from Procurement Form Series	217
Figure 6.9	Executive Senior Management Team impact on informal VET 4.0 over 25 years	229
Figure 7.1	Teaching and Learning Ecology	263
Figure 7.2	Education Complex of IVET4	272
Figure 8.1	Emerging IVET4 Ecologies of Practices of the PP	288
Figure 8.2	Transitioning IVET4 Ecologies of Practices of the PP	292
Figure 8.3	Maturing IVET4 Ecologies of Practices of the PP	295
Figure 8.4	Composite Illustration of Ecologies of Practices for PP, Skipper Development Programme, and the Chief Engineers Programme	299
Figure 8.5	Illustration of Laminated Contribution of Practical and Theoretical Claims	311
Figure 9.1	Trellis of Practices which Support Learning of or IVET4 Educator and Learner	315
Figure 9.2	Representation of Time as Practice and Rhythmanalysis	318

LIST OF PHOTOGRAPHS

Photograph 1	Living, learning, and working a long way from home (Cape Town City disappearing over the horizon)	25
Photograph 2	The girl in the photograph	51
Photograph 3	Painting of Hogsback	60
Photograph 4	I&J Limited Head Office, Woodstock	70
Photograph 5	Abalone Farm, Danger Point	71
Photograph 6	Freezer Production Manuals 1 and 2	165
Photograph 7	Calm harbour	167
Photograph 8	Fabric fish	194
Photograph 9	Red I&J branded ball	194
Photograph 10	Training in the mess room in bad weather	197
Photograph 11	Transfer at sea	198
Photograph 12	Example of scale used in the Apple Experiment	210
Photograph 13	Rhinosaurus pieces	255
Photograph 14	Whole rhinosaurus	256
Photograph 15	Sunset over troubled seas	334
Photograph 16	Ship to shore - Can you read me anymore?	325

LIST OF ACRONYMS

IVET4	Informal Vocational Education and Training (Generation 4.0)
PA/s	Practice Architecture/s
PP	Production Programme
TPA	Theory of Practice Architectures
VET	Formal Vocational Education and Training

GLOSSARY

ICT mediated informal VET	This term refers to teaching informal VET using the internet, computers, electronic devices or apps.
I&J TV	This term refers to a community TV concept or app as it was applied to informal VET at I&J.
Leverage professional	This is a term which Jenkin (2020) introduced and refers to the role of an individual who supports others' learning in an organisation in a particular manner.
Mobisode	This term refers to very short videos of 2-5 minutes which were transmitted to learners over WhatsApp.
Pioneer work	This is the term used for the kind of work done when an informal VET programme is in its infancy.
Settler work	This is the term used for the kind of work done when an informal VET programme has matured.
Silent practices	This is the term for informal VET practices which are not observable in a particular context.
Vocal practices	This is the term for informal VET practices which are clearly observable in a particular context.
Whispered practices	This is the term for informal VET practices which are only just observable in a particular context.

CHAPTER 1: INTRODUCTION

Pedagogy of Love: Reflections on 25 years of informal vocational education and training practices in the South African Commercial Fishing Industry

1.1 Introduction to Chapter 1

Every education has its reckoning.

The words of the opening sentence have been with me throughout the latter stages of my PhD. As I review this document on the eve of submission to my examiners, I am deeply aware of the how much I have gained from this doctoral education and how many people have contributed towards the culmination of this work. I am equally aware of my responsibility to use this education wisely in service to the broader community of all forms of life.

Chapter 1 introduces this thesis by providing an orientation to this research project followed by a description of the approach to quality, ethics, positionality and reflection. This is followed by the main research question and three sub-questions. Next comes the delineation of the scope of this PhD and the identification of the gap this work aims to address and the intended contribution. The chapter concludes with an overview of Chapters 2 to 9.

1.2 Orientation to this PhD Project

1.2.1 To begin ...

The word ‘love’ governs the title of my thesis because the pedagogical power of love in Informal Vocational Education and Training Generation 4.0 (IVET4) was the most startling and captivating dimension which emerged from my reflections of 25 years of developing and facilitating IVET4 in the commercial deep-sea trawl industry. My motivation then and now in my study and practice-praxis remains to make a difference to the ‘invisible’ workers who are often the backbone of industry. I chose the sea-going Production Programme (PP) conducted between 2016 and 2021 as the centrepiece of this PhD and the five reasons for this choice are elaborated in Chapter Five: Research Design and Methods (cf. Section 5.2.2). One can hear the echo of my own inspiration in the provocation of Johann Botha, the General Manager of Cape Town Fishing at the time:

Those guys come from pretty humble beginnings, are very practical ... and I don’t want to say victims, but they are from the legacy of our past and they came through that, and nothing really

has changed for them in their work life. They are still just a fisherman and that is why we started during my tenure at I&J Limited to look at these different development programmes. [II-1]²

If this work can honour the men whom I taught, and those who laboured beside me to bring a sudden spark of understanding to eyes dimmed through previous adverse circumstances, and *if* this study can enrich many more men and women who find themselves in similar circumstances or worse – I will have achieved what I set out to do. This resonates with my enduring life aspiration and is summed up in the quote chosen by my friends for me, and which appears under my photograph in the school’s yearbook of our final year ... “I lust for life, some good I mean to do!” – King Lear, Shakespeare.

1.2.2 Personal and Professional Interest

Both my personal and work life have brought me to the threshold of this PhD. I have a deep-seated motivation to improve workplace learning. I am a social entrepreneur and a pioneer at heart. My professional life in human resources management is grounded in the South African mining, clothing, and food industries. I managed many instances of dismissals, strikes and retrenchments during the turbulent years of the late 1980s and early 1990s. I started Future People (Pty) Ltd in 1995 out of an intuitive sense that corporate conflict could be handled better if companies developed a collective capacity for industrial conflict. This would allow organisations to ‘breathe rather than rupture’.

I have been extended many opportunities in various organisations to introduce and operationalise my new ideas. Most of this work has been conducted at I&J Limited. Over two decades the enduring management ethos remains – to challenge the status quo and try new initiatives – which has enabled the company to remain leaders in the sector. The Cape Town Fishing (also referenced as Trawlers) business unit is the cornerstone of the company’s value chain and has a long-standing reputation as a centre of innovation. Any gains made at Trawlers are amplified through the I&J Limited value chain. It is these initiatives at Trawlers that I consider in this PhD. I conducted ten IVET4 programmes and four performance improvement programmes over 25 years at I&J Limited, commencing in 1995 and continuing to May 2021. I focus on one of these programmes called the Production Programme (PP) and draw upon insights from the other 13 programmes which informed my own ontology, epistemology and practice-praxis of IVET4.

For me, the process of writing this thesis was as important as the end product. It is a rounding off of, and extension of two and half decades of work. I found this opportunity to reflect on this body of work an enormous privilege and unexpected joy. As I worked with I&J Limited over the years, it didn’t occur to me that I was building a corpus of evidence that would one day materialise into a PhD.

² Data is detailed in Analytic Memo 8 (Appendix 9) and the Data Code Index (Appendix 7).

1.2.3 The Research Journey in Brief

This research endeavour circumnavigated five scholarly pillars. The first was the theoretical framework which is the Theory of Practice Architectures (TPA) chosen as the only data I could definitively grasp were *practices* because I knew what I had said, thought, done and I understood the relationships and power sways amongst us. The second pillar was the adoption of an empirical qualitative research design and the employment of an ethnographic case study which is commonly used in both Vocational Education and Training (VET) and TPA research. The third pillar, which represented my first intellectual insight, was to identify five key IVET4 practices evident in this case study on the Production Programme (PP). The fourth pillar, which represented my second insight, was to discern two cross-cutting dimensions or overarching IVET4 Practice Architectures (PA/s). The fifth pillar was my final level of abstraction in which I laminated my discoveries about IVET4 in the PP into a ‘two-sided coin’ claim which may benefit the IVET4 community of practice. This all led me to the answer for which I had been searching for years – *What made these IVET4 programmes succeed or fail?*

To note: For the purpose of this introductory chapter *informal vocational education and training – generation four (IVET4)* is considered as vocational education which falls outside of the accredited national system; whereas *formal vocational education and training (VET)* falls within this system. For further clarification, informal VET is often thought of as education for people in the informal economy; however, my work refers to informal VET in the formal economy. Informal VET and the informal economy are at times conflated terms. *Unformal VET* is regarded as opportunistic learning between peers. On the trawlers unformal VET is known as ‘Johnny, come sit next to me and I will show you what to do’ which was the only form of learning available to the factory hands before the IVET4 Production Programme. A deeper discussion of these terms may be found in Chapter 2.

1.2.4 Finding Self-critique and Failures and Defining Successes in the IVET4 Programmes

The intention of this thesis is not to promote the success of the IVET4 programmes which I facilitated at I&J Limited, it is rather to bring light the practices and practice architectures of the PP which confound or enable IVET4 at an intra-programmatic level. And from this vantage point to gain insight into how to improve, transfer and scale such programmes. Nonetheless the anecdotal evidence which points to the widespread view, within the Cape Town Trawling, that these programmes were deemed successful, cannot be discounted either. In this section I discuss the perceptions of both the failures and the successes of the IVET4 programmes with particular reference to the PP. Firstly I present the deliberate and methodical process of data analysis used to uncover weaknesses; and secondly, I present the anecdotal evidence which suggests that these programmes were regarded as successful.

1.2.4.1 Self-critique and Failures in the IVET4 Programmes

Self-criticism and criticism of the 25-years' worth of VET is elusive, and especially for myself as one who is deeply embedded in the data and invested in the outcome of the IVET4 programmes. To mitigate this blind spot, deliberate mechanisms of reflection have been built into the data chapters in an attempt to surface personal and programmatic weaknesses. The failures detected in the data can be found in the text, albeit not under a single heading, as criticism is traced through-out the thesis. This was done so that the critique of the operational managers and myself could be understood in its particular context. The biggest criticism and failure in my view was our (my own and the operational managers) handling of the incoming Executive. Three mechanisms or platforms for criticism were provided in this thesis; and the example drawn for each platform traces the progression and nuances of our failures with the incoming Executive:-

Firstly, this critique is found in Ch 3 which provides criticism through the historical reflective narrative lens. For every programme described, the question was asked: How did Programme XXX Influence my Education Theory and Praxis as an IVET Educator? This question enabled me to reflect on the positives and negatives of each programme individually. To follow the example of our (myself and the managers) poor handling of the in-coming Executive, please see Section 3.14.2 where I describe the lessons which I learnt with regard to the Executive.

Secondly, criticism is seen in Chapter 6 through the lens of data, for example in Section 6.8.2.4 where I suggest a blind spot of myself and the managers concerning reporting to the Executive; and Section 6.8.2.7 where the question was asked: Could it have been different? By asking this question to the General Manager of Cape Town Trawling (at the time of the PP) I was inviting candid criticism of myself or the programmes. I asked this question because I wanted to know the answer to improve my own practice. I find as a consultant that performance critique is not part of the normal consulting cycle, one must actively seek it out. This tendency is more marked when the consulting work is of a pioneering nature as there are no well-defined benchmark performance standards to reference. The individual focused interview gave me this opportunity to ask for critique from the Employer.

Thirdly, criticism of myself, the managers and the programmes is found in Ch 7 where for each of the over-arching Practice Architectures the question was asked: Does the Practice Architecture of XXX Enable or Constrain the IVET4 Programme? An example may be found in Section 7.2.3.2 which addresses the tricky role of reporting to the Executive.

The critique was kept within the scope of this intra-programmatic study which focused on practices and what enabled them and what confounded them. The programmes were for the most part successful, however, not without failures and lessons to be learnt which have been interrogated in the three-pronged approach described above.

I acknowledge that a clear-eyed self-critique and self-critique and view of programme failures in the PP is hard to attain, hence the reason for building in deliberate methodological mechanisms, as described above, for surfacing failure, the negative and the confounding.

1.2.4.2 Success in the IVET4 Programmes

There are many confounding variables when it comes to measuring the success of IVET4 programmes at I&J Limited, especially when working with the sea and her bounty. I never became comfortable referring to fish as the ‘input resource’. Nonetheless, the IVET4 programmes at I&J Limited must have been considered to be worthwhile by the decision makers and as they continued for 25 years. Although these indicators of success could be elicited for all ten of the IVET4 programmes conducted over the years, I confine my observations in this study to the three generations of the PP, the Skills Development Programme and the Chief Engineers Programme. In retrospect, there seem to be three measures of success:

Qualitative: There was an increase in teamwork, communication, trust and respect which enabled better work performance and safer working conditions; and more importantly improved the dignity and recognition of the sea-going staff. The substantiating evidence for this statement is covered extensively in Chapter 6 under the Practice of the Pedagogy of Love.

Quantitative: As facilitators, the Trawlers managers could not share the ‘pence and cents’ improvements gained from the production training as it is sensitive information. However, I provided the evidence below as indicative of the success of this programme in the voices of those who were measuring it and had access to this data:³

General Manager:

Per ship basis and measure tonnes per hour through the factory, you measure your end products, quality of end products ... delta of landed vs sellable. Added tremendous value for sure just on the P&L [profit and loss]. (II-2)

Facilitator and Production Technical Expert (Mr X):

Just looking at some of some of Mr X’s dashboards when we have sat together ... I don’t have the numbers off the top of my head, but we worked out some of the value add and the numbers ... it is massive, it is millions. And it can be shown but whether it is visible to the Exec level I don’t know if they have actually done that, but I think that is something we could look at. (FGI-1)

Sea-going Production Management:

We can see that 90% [of the staff], 95% is actually on top of it ... And as I say what the guys was learning and when we go out there we can actually see the results. (FGI-2)

³ Data is detailed in Analytic Memo 8 (Appendix 9) and the Data Code Index (Appendix 7)

Marine Manager:

Acknowledged bottom-line results of the Skipper Development Programme's effectiveness – “shows up in the numbers. Could track progress monthly. (II-1)

Social justice in vocational education and training: The evidence for this indicator of success is documented in Chapter 6, with particular reference to the second and third generations of the PP and Chief Engineers Programme, and encompasses:

Inclusion: In the instance of the PP, IVET4 was provided to a group of employees who had not previously been offered vocational training in the 110-year's history of the Company's existence. In addition to this, the PP, Skippers Development Programme and Chief Engineers Programme were all firsts in the deep-sea trawl industry.

Access: In the case of both Chief Engineers Programme and the PP, mediation of learning through the use of Internet Computer Technology meant that learners had access to IVET4 in their own workplace and at a time which suited them.

Resource Manager: “And I think my overwhelming feeling is one of pride actually. That we started with nothing, and we have taken it so far”.

1.2.5 Does this Research Matter? And to Whom?

If we consider –

that we live in an [A] Age of Uncertainty at a global level; [B] the inequities of South African society; [C] our country's progress on the Sustainable Development Goals 2030; [D] the ‘post school education and training’ and the growing number of persons who are ‘not in employment, education or training’

– then it is in this nexus that this work finds its voice.

[A] Age of Uncertainty: In the words of the late sociologist Ullrich Beck, we live in a ‘Risk Society’ (Beck, 1992). This thesis has been written during a global pandemic, and the threat of a European war escalating from the conflict between Russia and Ukraine, and large-scale human migration of conflict and climate refugees. Recently, and closer to home, we have experienced an unprecedented and devastating flood in KwaZulu-Natal which is a province of South Africa on the East Coast; rolling black-outs due to an ongoing energy crisis; multiple mass shootings at a large informal settlement in Cape Town; the HIV epidemic, drug-resistant tuberculosis, and the scourge of relentless gender-based violence. And all this against the backdrop of a worsening climate change crises (Intergovernmental

Panel on Climate Change [IPCC], 2021). Lovelock, one of the originators of the Gaia Hypothesis⁴, stated in his book *The Revenge of Gaia*: “Now humanity and the earth face a deadly peril, with little time left to escape” (2007, p. 33).

[B] Inequity: Again closer to home, on 9 March 2022, the World Bank announced that,

The Southern African Customs Union comprising Botswana, Eswatini, Lesotho, Namibia and South Africa, is the most unequal region ... Based on the Gini coefficients of consumption (or income) per capita, South Africa the largest country in Southern African Customs Union, is the most unequal in the world, ranking first among 164 countries in the World Bank’s global poverty base. (Stoddard, 2022)

[C] Sustainable Development Goals 2030: It is in this context that this thesis contributes to the fourth Sustainable Development Goal which reads:

Sustainable Development Goal Four seeks to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Achieving inclusive and equitable quality education for all will require increasing efforts, especially in sub-Saharan Africa and Southern Asia and for vulnerable populations, including persons with disabilities, indigenous people, refugee children and poor children in rural areas. (United Nations [UN], 2019)

And the work is particularly geared to Sub-goal 4.4 which states: “By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship” (Statistics South Africa, 2019, p. 77).

Sustainable development is stagnating in the Southern African region, and is decreasing in South Africa (Sachs et al., 2021, pp. 31 & 37). “The Covid-19 pandemic is a setback for sustainable development everywhere” (Sachs et al., 2021, p. vii).

[D] Post School Education and Training and People Not in Employment, Education or Training:

A recent Department of Higher Education and Training Fact Sheet suggests that the number of South Africans who are ‘people not in employment, education or training’ has increased from 38% in 2013 to 44% in 2020. This represents 17 million South Africans and the increase is partially attributed to the Covid-19 pandemic (Khuluvhe & Negogogo, 2021, p. 5). The genesis of the Post-School Education and Training Institutions is found in the White Paper for Post-School Education and Training (DHET, 2014). The institutions which fall within Post-School Education and Training are Department of Higher Education and Training, Community Education and Training colleges and other stakeholders, Technical Vocational Education and Training; and the tertiary qualifications are an undergraduate degree, a post-graduate degree, a diploma, a Higher Certificate (upon completion of matric) and an advanced Diploma

⁴ Formulated by James Lovelock and Lyn Marquis in the 1960/70s. Earth is seen as a self-organising (regulating) system which is dynamic and seeks balance. Earth can be seen as an organism and as being alive. Highly controversial and influential theory; eventually accepted into mainstream thinking around 2000.

or advanced Certificate. Although there has been an increase in enrolments in these institutions, the demand outstrips supply and,

The upsurge in the number of ‘people not in employment, education or training’ suggests the need to expand access to post-school education and training opportunities in the system beyond current provisioning levels in order to accommodate such growing number of people who are ‘people not in employment, education or training’. This requires Post School Education and Training institutions to offer a diversity of programmes not only to take account of the needs of the youth who completed schooling, but also for those who did not complete their schooling. (Khuluvhe and Negogogo, 2021, p. 3)

This is borne out in the Post School Education and Training Report (Appendix 2) where between the ages of 18 and 24-years old, only 10-20 % of South Africans are receiving education in the Post School Education and Training sector (Southafricami, 2020). During the 2020/21 financial year a total of 118 541 workers and unemployed persons registered for Sector Education Training Authority supported learning programmes in South Africa. In the same period the majority of the learnership registrations were by unemployed persons while the majority of skills development programmes were undertaken by those who were already employed (DHET, 2022, p. 6).

Nevertheless, all this speaks to the formal VET system which is accredited by the National Qualifications Framework in South Africa. IVET4 is not measured or reported in this way; however, by implication of these reports and statistics, the majority of learning may be happening through informal and unformal means.

The learners at I&J Limited are not ‘people not in employment, education or training’ as they are employed. However, the status of employment must be held lightly as the number of sea-going staff at Trawlers has decreased by approximately two-thirds over the last two decades due to a decreasing fleet size and mechanisation. I bring the idea of ‘people not in employment, education or training’ into the conversation because it is likely that the I&J Limited learners were at one time or may become ‘people not in employment, education or training’. In support of this point, between 2013 and 2020, the number of youth (15-34 years) who became ‘people not in employment, education or training’ increased by 20%; while the number of adults (35-60 years) considered to be ‘people not in employment, education or training’ increased by 41% i.e. older workers were more likely to become unemployed during this period (Khuluvhe & Negogogo, 2021, p. 6). In addition to this, the learning profile of the ‘people not in employment, education or training’ and that of the sea-going learners share similarities as can be seen by the learning challenges and the characteristics of the factory staff which are set out below.

The learning challenges: The deep-sea fishing IVET4 projects in this study presented unique learning challenges which were:

- In the category of sea-going staff, training involves only men (no women) who live and work together 24/7 for up to 35 days at a time while at sea; the industry is generally male-dominated.

- The work is dangerous, and the men are tired most of the time.
- The languages spoken in the classroom and on the vessels include multiple African languages, French, Portuguese, Afrikaans and English.
- The average level of schooling completed by the trainees is Grade 3 – Grade 7.
- The learners are at sea for most of their working time, so shore-based teaching opportunities are very limited and logistically difficult.
- The sea-going production processes/equipment and scenarios cannot be replicated ashore, and therefore, practical skills training is limited.
- There are different expectations and learning paradigms (metaphors) held by different strata in the organisation, namely the executive, senior management, sea-going staff and shore-based staff.
- Until 2020 there was only satellite communication with the vessels which is intermittent and too expensive to use for training purposes. Increased Internet Computer Technology coverage, including Wi-Fi on the vessels was a recent addition; the availability of the network at sea was intermittent.
- There is enormous racial and cultural diversity on every ship and in every classroom.
- There is an urgent requirement to learn new skills and hone others, including skills related to the sustainability of the sea.

At times the factory staff were referred to as the ‘cellophane’ people because senior management ashore would look ‘right through them’; however, some of the operational managers did see them. According to Charlene Coetzee, the Resource Manager responsible for sea-going production at the time:

I think we have a serious appreciation for our sea-going guys. I think they are a unique ... to be able to go to sea for let’s call it 35-days on a freezer vessel you need to be a special sort of person ... and working the hours they do, standing up ... your environment is constantly moving. Every time your trawl comes up it looks different ... and their ability to adjust and just roll with the punches I think is just amazing. And I don’t think they get appreciated enough for their flexibility. And I don’t think they get appreciated enough for ... for their endurance, they just keep going, and going and going ... And they ... I think we need to go back ... not well educated, a lot of them have primary school education and possibly the beginning of a high school education ... yet they are very intelligent individuals it is just that they have not had the opportunities and they came to go to sea either because family had already been here or there was nothing else for them ... and then they have found the sea as their life. I think they are unique; they are fantastic. (FGI-1)

The hope of IVET4: Approximately 90% of participants in the South African agricultural sector, and 80% in the deep sea trawl industry, do not learn what they know through formal training at universities or VET or Community Education Training Colleges, but rather through more informal means (Metelkamp & Ferguson, 2021). This article reflects the national findings aired above (DHET, 2022; Southafricami, 2020). I tentatively suggest that IVET4 may be able to absorb some of the demand-side push facing the Post School Education and Training institutions. To put this in concrete terms, for many of the learners on the PP this was a singular and unexpected learning opportunity, which upskilled them,

put confidence in their hearts and a certificate in their hands, and gave them (skills) currency down the quayside in case they wished to join another deep-sea trawl company (which is common). In this particular setting, a formal accreditation held no prevalence or advantage to the worker. The PP training was recognised by other companies, despite its proprietorial nature, because I&J Limited factory workers' production processing skills were evidently better than other companies.

1.2.6 What's Love Got to Do With It?

I have singled out this particular dimension, which is opened up in Chapter 6 and 7 because the existence and role of love and relationality in IVET4 completely took me by surprise both at a practical and at a theoretical level. It was the single biggest influencer of the IVET4 in this study – love was the flywheel that drove the whole engine. The first hint of this was evident when I facilitated the initial few Freezer Production 1 Courses in the traditional manner by jumping straight into the course objectives and course content, and I hit a brick wall. Learning was not taking place and the Turners were disengaged. I thought back to Programmes 1, 5 and 7, as described in Chapter 3, and decided to try an alchemy of practices which had been successful in three very different programmes. Practically this manifested in using the first half-day of the two-day course to build relationships between myself and the Turners; and amongst themselves. In the remaining one-and-a-half-days we achieved two-days' worth of theoretical training, practicals and simulations. Love, and the resulting dignity, confidence and trust, built the conduit for knowledge and skills to flow between the IVET4 educators and the learners, and peer-learning amongst the Turners themselves, both in the training room and on the vessel. As my study has progressed, I have found that I was not alone in my thinking about a 'pedagogy of love'; the same term and similar findings are appearing independently in other parts of the world amongst TPA academics (Kaukko et al., 2021; Wilkinson & Kaukko, 2020) and in the academy beyond the practice theory (Kulundu et al., 2020; Lotz-Sisitka, 2018; McGarry, 2022).

Ruminating on all these experiences, thoughts and statistics discussed in this section, left me wondering how to deepen my understanding of the IVET4 practices, in order to fathom out how these practices could be improved in the future, and how they could be transferred to other settings, and taken to scale.

1.3 Quality, Ethics, Positionality and Reflection

Quality, Ethics, Positionality, and Reflection are constitutive to creating a PhD that meets the criteria set out for the degree. These features materialise in different forms in each chapter depending upon the subject matter of that particular chapter. Two of the nine criteria of the Quality Framework provided by the Council for Higher Education relate to the *knowledge* of 'ethical awareness in research and professional conduct' and the *skill* of 'reflection and autonomy' (Council on Higher Education [CHE], 2018). I suggest that Quality, Ethics, Positionality and Reflection are tightly bound together; these

characteristics are shot through the dissertation from beginning to end and are treated holistically. It is to this end, and not to lose the nuances of Quality, Ethics, Positionality and Reflection which surface in each chapter, I elected to deal with this quartet at the end of each chapter and not to dedicate a separate chapter to the topic. In the concluding chapter of this dissertation, I looked back upon my own ethic-onto-epistemological journey. What follows below is a description of the ‘hot spots’ of Quality, Ethics, Positionality and Reflection-diffraction that are encountered in this research project.

1.3.1 A Quality Framework

There are a number of ways of determining *quality* in social science research; the conception of quality in this field is an evolving and contested space especially in the intersection of (post) qualitative and (post) humanist research (Gherardi & Benozzo, 2021; Hayashi et al., 2019; Le Grange, 2018; Maxwell, 2013). There is a quest to move away from the traditional positivist quality indicators that are more relevant to physical sciences and quantitative research, towards using quality indicators which better reflect the nuances and dialectical matter of the social sciences. Three perspectives on quality are described below: firstly, the traditional account; and secondly the new directions evolving for the assessment of quality in research such as my own. This work unapologetically reaches for the latter but does not let go entirely of the concepts advanced in the positivist model of validity, reliability, and applicability as the importance of these concepts remain albeit in an adapted form to suit a social study. The third perspective of quality is the national quality characteristics required to attain a PhD in South Africa.

A traditional conception of validity, reliability and applicability provided by Booth et al. (2012). *Validity* is the consideration of whether or not the researcher and the research process has distorted the results; *reliability* relates to the trustworthiness and reproducibility of the results; and *applicability* looks at the relevance of the work i.e. is it useful in practice. The concept of validity can be further teased out by reflecting on questions which one may ask to test the validity of one’s work:

How might your results and conclusions be wrong? What are the plausible alternative interpretations and validity threats to these, and how will you deal with these? How can the data that you have, or that you could potentially collect, support or challenge your ideas about what’s going on? Why should we believe your results? (Maxwell, 2013, p. 4)

Maxwell’s integrated approach presented in an Interactive Model of Research Design (2013, p. 5) provides a segue to the second approach to considering quality.

New directions in the assessment of quality in qualitative research takes a *processual* view on determining the quality of our work. This approach calls for validity and reliability to be considered throughout the whole thesis from design to conclusions; and claims that validity cannot be confined to a single test or event in the research (Hayashi et al., 2019). I have adopted this processual approach in the conceptual and chapter construction of my thesis i.e. the Quality Framework, which is indicative of validity, reliability and applicability, is considered at the end of every chapter. This has been done

precisely because these concepts cannot be blanketly applied and must be considered in the light of the theme of the particular chapter.

Being mindful of the nuances of quality “supports good research and helps in its reflection and guidance” (Hayashi et al., 2019, p. 98). Nonetheless, even with the mindfulness of the two approaches elucidated above, my experience is that validity, reliability and applicability cannot be easily tamed and must be constantly and carefully observed throughout the thesis research process.

Entanglement makes all the categories of humanist qualitative research problematic. For example, how do we determine the ‘object of knowledge’ – the problem we want to study in assemblage? Can we disconnect ourselves from the mangle somehow (Self) and then carefully disconnect some other small piece of the mangle (Other) long enough to study it? ... How do we think ‘a research problem’ in the imbrication of an agentic assemblage of diverse elements that are constantly intra-acting, never stable, never the same? (Lather and St. Pierre (2013) in Le Grange, 2018, p. 7)

Moving on to more solid ground, the third approach to quality contemplated in this thesis is the assessment criteria for quality laid out in South African legislation regarding higher education. According to the South African National Qualifications Framework Act, 67 of 2008, the Council for Higher Education is responsible for the quality assurance of higher education degrees in South Africa (CHE, 2018, p. 3). The purpose of a doctorate “... is to develop the highest level of holistic and systematic understanding of scholarship in, *and stewardship of*, a field of study through an original contribution which advances the frontiers of knowledge” (CHE, 2018, p. 11, emphasis added). There are nine characteristics which are indicative of quality for the attainment of a general or professional doctorate which are divided into two groups, Knowledge and Skills (CHE, 2018, pp. 13–14):

Knowledge:

- i. Broad, well informed, and current knowledge of field or discipline and may include inter-, multi-, or trans-disciplinary topics. Literature may also be regarded as artefacts, visual and aural records, and others.
- ii. Expert, specialised, and in-depth current knowledge of specific area of research.
- iii. Insight into the interconnectedness of one’s topic of research with other cognate fields.
- iv. Ethical awareness in research and professional conduct.**
- v. An original contribution to the field of study.

Skills:

- vi. Evaluation, selection and application of appropriate research approaches, methodologies, and processes in the pursuit of a research objective.
- vii. Reflection and autonomy.**
- viii. Communication skills, including relevant information and digital literacy skills.
- ix. Critical and analytical thinking for problem-solving.

To ensure that this doctorate meets the quality standards required, I chose four documents which I used as fixed co-ordinates to guide me through the quality assurance of my own work. The first two documents are required references, namely the CHE Higher Degrees Sub-Framework (CHE, 2018) and the Ethics Proposal for this work approved by Education Faculty Ethics Committee in September 2020 and extended for the duration of this study. Two additional sources from the American Educational Research Association Publications are included as both documents helped me with the practical working out of and reflection on the quality assurance of this dissertation (American Educational Research Association [AERA], 2006, 2009). Both documents reference standards required for reporting on empirical social science research which include a) the significance of the study; b) methods; c) conceptualisation; d) substantiation; e) coherence; f) quality of communication; and g) ethics (AERA, 2009, pp. 484–486)

1.3.2 Ethics

Ethics are implicit or explicit and surface in every chapter. Although ethics is a formal set of rules, it is also an *ethos* which reflects “beliefs, values and standards” which guide behaviour (Benton & Benton, 2004, p. 229). These authors argue further that ethics and ethos ought to be made explicit, rather than implied, so that they can be actively evaluated in a reflective manner (pp. 229, 239–240). The Rhodes University Ethics Application submitted for this work has proved to be a guiding light through the complexities of this research, especially in Covid-19 times, to ensure that the required ethical standards were attained. This project was considered to carry a low to medium ethical risk to the individuals and entities involved. Key ethical considerations explicated in the Ethics Application, and its subsequent renewals, are updated and re-produced below.

Particular risks which existed throughout the research project, and remain risks until this work is published as stated in the Approved Ethics Application⁵ are, inter alia:

- I&J Limited could withdraw permission to publish the research.
- I&J Limited could interpret the findings as damaging to their reputation.
- Participants could feel that their privacy, confidentiality and anonymity are compromised.
- Participants were drawn from vastly different educational and life-experience backgrounds, and, unless the research activities are pitched sensitively for the particular audience, research participation may be compromised, and loss of past positive training and development gains may result. This risk was ameliorated by the pursuit of nine different methods of data collection to ensure that participants could provide evidence in a manner of their choosing.
- As I am a long-term consultant to I&J Limited, and the Project Lead on the programmes under scrutiny, this research project may put strain on this relationship and represent a conflict of interests as I wear two hats – that of an academic, and that of a consultant. My contract with I&J Limited ended during the PhD process in May 2021.

⁵ Approved Ethics Application can be accessed here:
https://drive.google.com/drive/folders/1NBQfNUmyZ1CZL5sqqZq0KQb33S_zPB8e?usp=sharing

- The PP, Skipper Development Programme and the Chief Engineers Programme all commenced the logical next step or roll down of these programmes in March 2020 which represented the next generations of IVET4 programmes i.e. one IVET4 programme building and extending upon another IVET4 programme. This generated fascinating dynamics which are explicated under the three generations of the PP. As before, I was the Project Lead on all the new programmes. These next generation IVET4 programmes held great promise and I found myself modifying my own practice as a result of what I was learning in the PhD process.

In addition to the above quoted text, I had to pay attention not to conflate the PhD ‘project’ and the IVET4 at I&J Limited ‘project’ as these were seamless in concept and with my daily teaching and learning practices.

These risks were further mitigated by a number of common factors stated in the Approved Ethics Application (cf. Appendix 7, p 21) which were inter alia:-

- The participants are all adults who are not drawn from any vulnerable groups.
- Participation is voluntary and can be withdrawn at any point in the research process.
- The majority of the data – opinions, video, photos, artifacts, documents – have been circulating in the public domain for a number of years.
- The mutually agreed Code of Ethics signed off between the myself and I&J Limited at the beginning of the project, and the subsequent and ongoing discussions, written communications, and participant permissions granted, provided a safety net to decrease any risk to participants or the Company.

In addition to the above quoted text, I had regular meetings with my supervisor, attended weekly scholar meetings, and many other online opportunities for professional development offered by the Environmental Learning Research Centre and the Centre for Postgraduate Studies at Rhodes University, especially during the Covid-19 pandemic. The input received from these occasions helped me to reflect more deeply on the ethics of my work as I progressed through my study.

Further ethical considerations, and the mitigation thereof, are discussed in Chapter 5 in the section Special Considerations Concerning Data Collection (section 5.3.2) where I elaborate on how the ethics of the research design and data gathering played out on the ground during the research process under Covid-19.

1.3.3 Positionality and Reflection-Diffraction

I have written this work in the first person because I was there from the beginning 25 years ago, always right in the middle. As I report this research, it would be absurd and dishonest to extricate myself, at this point, to the position of an ‘objective third-party observer’. However, with this first-person stance comes the responsibility for deep *Reflection* where I am a Critical Friend to myself, and for *diffraction*, as I perceive myself and my work through the eyes of others (McGarry, 2022). McGarry asked a question which I used as a mainstay throughout this work: “How am I being changed by that which I observe and engage with, and how might I observe and engage with greater care and kindness, in an ongoing and reflexive/diffractive way?” (McGarry, 2022).

The place and positioning of myself as researcher are extracted from the Ethics Application⁶ which I submitted:

There are three important aspects to where I find myself in this work – I am a citizen of the Global South, I am a Rhodes scholar, I am the Managing Director of Future People (Pty) Ltd and, as such, lead consultant on the IVET4 Programmes. Firstly, I acknowledge Borda's challenge:

Do not monopolise your knowledge nor impose arrogantly your techniques, but respect and combine your skills with the knowledge of the researched and grassroots communities, taking them as full partners and co-researchers. Do not trust elitist versions of history and science which respond to dominant interests but be receptive to counter-narratives and try to recapture them. Do not depend solely on your culture to interpret facts, but recover local values, traits and beliefs and arts for action by and with the research organisations. Do not impose your own ponderous scientific style for communicating results but diffuse and share what you have learned together with the people, in a manner that is wholly understandable and even literary and pleasant, for science should not be necessarily a mystery nor a monopoly of experts and intellectuals.

(Borda in Le Grange et al., 2014)

Secondly, this is a work of the co-production of knowledge and as such requires that, as the researcher, I master three different roles i.e. the academic researcher, the facilitator and the activist (Pohl et al., 2010). As a researcher, I will pursue academic rigour, and communicate my research using the forums, journals and language of academia. As a facilitator, I will continue my work as Managing Director of Future People which is to deliver IVET4 programmes. As an activist, I will play the role of a reflexively engaged researcher 'transgressor' or 'transformer' to support insights into new ways of learning i.e. moving away from the VET 3.0 model towards a possible IVET4 model. The progression of VET is explicated in the next chapter, but essentially IVET4 is likely to be a more flexible, reflexive and situated model of VET. I need to make explicit which role I am playing, when and with whom and here the use of language will be key. Developing the skills to play the different roles well, will allow us (participants and researcher) to create a 'trading zone' which is an intellectual and practical space which promotes the contestation, debate and melding of ideas to create something new (Peters & Wals, 2013)

Thirdly, I endorse a reflexive approach to this work and will be paying attention to both the generation of knowledge (what) as well as the process (how) (Kelly 2009; Lowe, 2001). This is particularly relevant to my research as I have been deeply immersed with the subject of this

⁶ Full Ethics Application can be accessed here:

https://drive.google.com/drive/folders/1NBQfNUmyZ1CZL5sqqZq0KQb33S_zPB8e?usp=sharing

dissertation for 25 years. I confess that “knowledge cannot be separated from the knower” (Lowe, 2001).

A reflection looking back over the PhD Process

The research and writing of this dissertation took me by surprise. I started out, as can be seen in my first email to my potential supervisor (see Appendix 1), wanting to understand *why* the IVET4 projects which I had led had been successful. It was an arms-length object of study. What actually happened was a deep ontological and epistemological change in myself over about four years. The doctorate gave me the unexpected joy of making sense of, and rounding off, 25 years of IVET4 work at I&J Limited. Because of the seismic changes in my heart, mind and praxis, the doctorate has positioned me for the next phase of my contribution to education and sustainability which I trust will benefit those who are, were, or who could become ‘people not in employment, education or training’ in this precarious Age of Uncertainty; and those excluded from the Post School Education and Training opportunities.

1.3.4 Explanation of Terms used for Participants in this Research

As a point of quality, I wish to clarify a few key terms as I bring this section to a close. In South Africa, the ubiquitous label given to a participant is ‘learner’. In my mind this implies an acquisitive metaphor of learning and describes only some of the activities and achievements of the men who did the PP, Skipper Development Programme and Chief Engineers Programme. They also taught and built relationships on and off the ships. The term we used which developed over the years recognised this expanded role of the participants – we coined the word ‘Turner’ = learner + teacher. I will use the term ‘learner’ and ‘Turner’ interchangeably to remind us of the rich role participants played in their own learning and mine. I was also known as a Turner as I learnt as much as I taught. However in this dissertation, to prevent confusion, I will refer to myself and other facilitators as IVET4 educators or facilitators. I wish to highlight the term IVET4 educators as it is a growing concept. Career pathways for educators in primary, secondary, formal VET and university educators are well established. This is not the case for people who wish to be IVET4 educators. For clarity’s sake, in TPA, both Turners (learners) and formal or informal VET educators are both referred to as practitioners, participants, teacher, student, and learner/s depending upon the constituent of the theory which is referenced. Most commonly the word ‘participant’ is used to describe people involved in the Education Project in the TPA context. ‘Participant’ appears in recent work where TPA is embedded in a Theory of Education and presented to us in a model (Kemmis & Edwards-Groves, 2018, p. 134).

1.4 Research Questions

The main research question and three sub-questions reflect the approach of this PhD which is both explorative and expansive. The main question is descriptive of the mediation process whilst the sub-

questions focus on broader systemic and contextual themes. Both the conceptual framework chosen, TPA (Kemmis et al., 2014; Mahon et al., 2016; Mahon et al., 2020), and the research design and methods employed, underwrite the competency of this dissertation to adequately answer these four questions.

1.4.1 Main Question

A. What IVET4 practices and practice architectures are evident in the Production Programme conducted over five years for I&J Limited sea-going staff in the South African commercial deep-sea trawl industry?

1.4.2 Sub-Questions

B. What IVET4 practices and practice architectures constrained or enabled learning in the Production Programme?

C. How can this deeper understanding of learning be used to improve similar informal IVET4 programmes?

D. How can this work be transferred and scaled to contribute to the emerging IVET4 theory and praxis?

1.5 Research Scope

The scope of this thesis is determined by four co-ordinates, namely: [A] the research questions; [B] the contribution of formal VET; [C] the TPA and the leading edge of this theory; and [D] a theory of education. These co-ordinates are explicated below:

A) The crux of this thesis (research questions):

Expressed in its simplest terms, this research explores the inner workings or pedagogical mechanisms which enabled or constrained the PP; it considers how these learnings may be used to improve, transfer, or scale similar IVET4 programmes. It is an **intra-programme project** and lies in **informal VET**. One could say this work fits in **underneath** the formal VET institutional system.

B) The wealth provided by formal VET research to this project:

There is considerable research output (and praxis) in the formal VET arena which is illustrated by a sample of contributions listed here, for example:

- The beneficence of leading South African scholars in the areas of the green economy, green skills and learning pathways (Ramsarup et al., 2018); and the local and international scholars exploring and imaging the contours of formal VET as we work our way into the next greener, more just generation of VET 4.0 (Bell, 2018; Francisco, 2020; Jenkin, 2020; McGrath et al., 2020a; Ramsarup, 2017; Ramsarup et al., 2017; Sjølie et al., 2020). Special reference is made

here of the recent contribution of the VET 4.0 Africa Collective (VET4.0Collective, in press) to this VET body of work on the African continent.

Research by TPA scholars reaches into many areas of education which have relevance to workplace learning. Please find eleven examples below:

- i. **medicine** (Hopwood, 2014a; Hopwood et al., 2021),
- ii. **leading in education** (Edwards-Groves et al., 2020; Wilkinson, 2021),
- iii. **practices of brilliance** in professional development (Hopwood et al., 2021a),
- iv. **travelling practices** (Wilkinson et al., 2013),
- v. **teaching refugees** (Kaukko et al., 2021; Wilkinson & Kaukko, 2020),
- vi. **trellises** which support VET professional learning (Francisco, 2020),
- vii. VET under the **Covid-19 pandemic** (Sjølief et al., 2020),
- viii. **strategy and strategic marketing** (Spee, 2022),
- ix. **consumer behavior** in sustainability initiatives (Gonzalez-Arcos et al., 2021),
- x. research papers over the last 20-years on the impact of **time** on VET, work and **organisational change** (Blue, 2019; Karger, 2021; Southerton, 2003),
- xi. recent formal VET research in the TPA stable which reaches towards **transgressive learning** (Hopwood, 2021; Hopwood et al., 2021b).

I have drawn substantial insights from the research in formal VET; however, this work happens at a **formal, systemic level**, whereas my work occurs at an **informal, programmatic level**. This meant that some of the formal VET conceptions were transferable while others were not. There is some inference to *unformal* VET in my discussion and analysis as peer-to-peer learning did occur, however, it is limited to the incidental and my focus remains on IVET4. The potential relationship amongst *unformal*, *informal*, and *formal VET* is explored in Chapter 9 under Recommendations.

C1) The sufficiency of TPA for this study:

The scope of the conceptual framework of this research is confined to TPA. The rationale for this choice is explicated in Chapter 4. TPA is a well-developed theory in its own right, however, it falls into the much larger group of theories which constitute Practice Theory (Mahon et al., 2016). This research project is founded in the Kemmis-Schatzki tradition (Kemmis et al., 2014; Schatzki, 2001).

I have drawn heavily on the works emanating in the last fifteen years from the Pedagogy, Education and Praxis International Research Network (Gothenburg, 2020). I elected to limit the description of TPA to the theory itself rather than including its historical antecedents. I have done this for three reasons: Firstly, because my intention is to *apply* rather than to further *theorise* TPA; and this description will provide sufficient theory to analyse and synthesise the data to answer the research

questions. Secondly, TPA has many parts to it, all worthy of detailed description to make sense of this research project. Thirdly, there have been significant additions to the theory in the last few years as well as the deepening of previously existing concepts. In short, I wish to do contemporary TPA justice as an applied theory rather than focusing upon the history of the theory as the latter is unlikely to contribute significantly to the specific intra-programmatic nature of the research questions.

Management and Organisational Studies and Workplace Learning has been the focus of considerable academic attention. To stay true to the scope of this research project, I have confined myself to the workplace learning as seen through the lens of Practice Theory. There appears to be a renewed interest over the last 20 years by contemporary practice theorists in Management and Organisational Studies as this approach answers the question of what managers do, it makes the opaqueness of ‘everydayness of practices’ clearer which empowers practitioners (Gherardi, 2021, p. 2). I have provided eleven examples of research which has relevance to workplace learning conducted by TPA scholars above. In short, practice theorists provide ample examples of workplace learning in many varied settings and I argue that it was not necessary to include other theoretical approaches to workplace learning to definitively answer the intra-programmatic research questions.

The scope for research designs and methods are broad for a project of this nature. Nevertheless, I have deliberately stuck to a research design and methods used by recent VET and TPA academics; and have taken advantage of the recent heuristic offerings which are especially suitable for TPA (Kemmis, 2021).

C2) Finding the leading edge of TPA:

Metelkamp suggested that when searching for transgressive (disruptive) pedagogies which lead to the development of green skills (IVET4 skills), that we look to the fringes as this is where the knowledge lies as it is not yet (Metelkamp presentation in January 2020 for the VET4.0 Collective, 2023). The PP, Skipper Development Programme and Chief Engineers Programme are testimony to this: this training was created on the edge as nothing like it existed in formal VET institutions at the time nor in the industry. In order to contribute to new knowledge in the theory and praxis of IVET4, I must determine where the current boundary lies, and then demonstrate how I will extend or transgress this boundary to create new knowledge. I was catapulted to the leading edge of TPA by the generous invitation to join two Practice Theory reading groups, one under the auspices of Kemmis and the other led by Schatzki. The groups had completely different characters as the former was run by an educator, and the latter by a philosopher. The readings were written and debated by key authors in the field, in person. To meet and hear discussion first hand from the authors whom I had been reading was a deep privilege and took me to the heartland of new developments in TPA.

D) Defining the boundary of educational theory:

There is a rich and diverse body of educational theories and research in allied fields to IVET4, for example, workplace education and online education. I elected to stay within the bounds of TPA, firstly

because there is a large body of work on education and areas of overlapping interest as illustrated above; and secondly because TPA has recently been embedded in a Theory of Education (Kemmis & Edwards-Groves, 2018). It is my view that to have entertained any more theory would have disadvantaged the quest to distinguish the practices and practice architectures of IVET4 of the PP.

As a researcher who is irresponsibly curious, the tightly articulated scope described above defined itself over time, and with effort as I come back time and time again from the ‘rabbit holes’ and centred myself on the research questions, formal and informal VET, and TPA embedded in the Theory of Education.

1.6 Identifying the Gap and Contribution of this Research Project to New Knowledge

1.6.1 Identifying the Gap

Working in the industrial fishing industry with learners who share particular learning challenges and delivering IVET4 programmes over 25 years within a context of environmental, historical, circumstantial and Internet Computer Technology constraints, led me to a realisation of a widening gap. This gap lies in the dearth of knowledge and praxis-practice on how to provide an “Education for living well” and an “Education for a world worth living in” (Kemmis & Edwards-Groves, 2018, p. 134) to the sea-going factory staff, ‘people not in employment, education or training’ and those similar to them. The intention of this PhD is to make a theoretical and practical contribution to filling this lacuna. The identification of the gap, and the substantiation of the reason that this research matters (Section 1.1.5) are closely linked. Besides limited schooling, as argued above, the majority of South Africans do not attend tertiary institutions which means that their post-school education takes the form of unformal or informal VET. It is thus important to bolster the theory and methodology applicable to such educations. This PhD is focussed on informal VET as unformal VET is a topic in itself. I would argue that although this PhD makes a significant contribution to IVET4, it is only a ‘drop in the ocean’ when it comes to research on informal and unformal VET.

To bring this gap to a pinpoint, my project deals with the education of the majority of South African adults (16-65 years) who suffer from low levels of literacies (i.e. reading, writing, numeracy and digital); who find themselves ‘unseen’ as blue collar workers or ‘people not in employment, education or training’ (NEETs); whose first language is not English; and who have low/no Internet Computer Technology connectivity. The question is how to bring meaningful and sustainable IVET4 to the ‘cellophane people’ where they are, with what they have, right now to afford them the prospects of decent work, living and learning.

An ancillary note:

The gap described is considerably widened when one considers that there appears to be an imbalance in research and praxis-practice linked to the use of Internet Computer Technology as a mediator in the prevailing formal VET model (VET 3.0). Schooling, tertiary education and white-collar employees seem to dominate the theory, practice and access to blended learning, online learning, and learner-driven forms of VET; and less focus seems to be given to blue collar workers on the shop floor or ‘people not in employment, education or training’ (De Beurs et al. , 2015; Brosseau & Vrabie, 2015; Garcia-Cabot et al. , 2015; Herselman & Hay, 2005; Labus et al. , 2015; Mohammadyari & Singh, 2015; Ozdamli & Uzunboyulu, 2015; Singh, 2015; Taleb et al., 2015; Tchernegovski et al., 2015).

1.6.2 Contribution to New Knowledge

This thesis makes two kinds of contribution, one is formal claims to new knowledge, and the other is incidental contributions to the Academy and to VET practitioners in the field.

1.6.2.1 Main Claims

I make two claims to new knowledge aimed at filling the gap articulated above. Both claims arise from the research process of the identification of the practices, practice arrangements and practice architectures concealed in the IVET4 PP; what confounded or promoted these and how to improve, transfer or scale similar programmes. The first claim is a praxis-practical one and offers a methodology and methods for the creation of IVET4 programmes for learners described above. The second claim is a theoretical one which enables the transfer and scaling of IVET4 programmes through the conception of Maturing Ecologies of Practices. Chapters 7 and 8 are dedicated to the explanation and substantiation of these claims.

I suggest that this theoretical contribution benefits both the theoretical foundations of IVET4 and it enhances TPA. This theoretical addition to IVET4 puts a conceptual tool in the hand of an IVET4 researcher or practitioner wishing to scale or transfer IVET4 programmes. This contribution also enhances the conception of Ecologies of Practices by expanding the conception for use in IVET4 in a Global South context.

1.6.2.2 Incidental Contributions

The contributions discussed below are a ‘by-product’ of the research process; they can be considered unintended positive contributions. I explicate these incidental contributions below and I do not repeat them again in Chapters 7 or 8 which are the chapters dedicated to my formal claims or contributions to new knowledge.

To the Academy:

- Application of TPA heuristics: There has been a recent call to explore empirical evidence through the lens of TPA using the Table of Invention concept to do so (Kemmis, 2021; Kemmis & Edwards-Groves, 2018, p. 136). I have used eight Tables of Invention to analyse the data

emanating from the PP data; and made comment on the usefulness of this approach in coming chapters.

- Application of TPA in IVET4: The majority of TPA research output is focussed on schooling and formal VET. However, a socio-material or TPA-specific approach has been used to unpack IVET4 and organisational learning case studies (Hopwood, 2014a; Hopwood et al., 2021a; Hopwood et al., 2021b; Rooney et al., 2018); however, this is in the minority. It is to this minority that my research contributes.
- Application of TPA in the Global South: This PhD adds to the (slowly) growing number of academics using TPA to solve Southern African puzzles.

To I&J Limited:

I&J Limited as a commercial enterprise stands to benefit from this research in a few ways including inter alia: research that can inform improvements to current IVET4 practices; and the advancement of the Company's transformational and social responsibility agendas by substantially increasing access and inclusivity of the education for sea-going staff.⁷ This thesis is also a testimony to the long-term commitment to IVET4 and the Company's leadership in the industry in IVET4 as the baton passed from one cohort of Executives and Senior Managers to another over more than two decades.

To Practitioners and Professional VET Educators in the South African Maritime Sector:

There is an indubitable benefit to other South African deep sea trawl commercial fishing operations; and potentially an industry-wide contribution if the work is taken up by South African Deep Sea Trawling Industry and/or South African Maritime Safety Association. In 2021, the South African Maritime Safety Association indicated an interest for further discussions with me on putting the contribution of the methodology and methods of IVET4 to work in the broader trawling industry as, by their own admission, the standard maritime training model does not work well for the trawl industry for logistical reasons, amongst others.

To Education for Sustainability:

The product of this research project offers new possibilities for Education for Sustainability in Southern Africa by opening up the likelihood of reaching some of the majority of South Africans who are currently excluded from formal education on the crucial matters of sustainability.

⁷ These potential benefits are detailed in the both the co-negotiated Code of Research Ethics document (uploaded as part of Ethics Application) and the Ethics Application itself, under Risks and Benefits.

1.7 Conclusion to Chapter 1

In conclusion to Chapter 1, a broad outline of this thesis is laid out below.

Chapter 2 explores the context of IVET4 in the South African deep-sea trawl industry as an introduction for the exploration of the key themes of this PhD. This chapter places this work in relation to the Sustainable Development Goals 2030 before providing an outline of the contours of four generations of VET. This includes commentary on the Covid-19 impact on VET and provides a brief synopsis of the Critical Capabilities Approach which is an emerging theorisation of VET 4.0. Next is an overview of the deep sea trawl industry in South Africa and of the company itself, I&J Limited. The chapter ends with a brief discussion on the allied concepts to IVET4 of Internet Computer Technology mediated education and organisational change.

Chapter 3 is an Historical Reflective Narrative which traces my involvement with I&J Limited over 25 years. I describe the four performance related interventions and the ten IVET4 programmes which I led over this period of time. This includes the PP which is at the centre of this study, and the Skipper Development Programme and the Chief Engineers Programme which were happening concurrently, and which I draw on to explain the PP. This chapter is important because it explicitly reveals my positionality and growth as an IVET4 educator. I also explicate the mutual interactions amongst the programmes across time which represents a practical rendition of the TPA Ecologies of Practices.

Chapter 4 covers the conceptual framework of this study, the Theory of Practice Architectures, which is one theory amongst the set of practice theories drawn from the socio-material tradition. The chapter is divided into four sections: firstly, an explanation of how I got ‘stirred into’ TPA and the justification of this theory for this particular research project; secondly, the basic building blocks of TPA are described; thirdly, the recent developments in TPA are explicated as they bear significance for the research questions asked in this thesis; and fourthly, the chapter ends with an exposition of the assumptions and limitations of TPA for this empirical project.

Chapter 5 describes the research design and methods which were chosen with the end in mind – to answer the four research questions which are both explorative and expansive in nature. The research design is qualitative and consistent with the conceptual framework of TPA, and the heuristics developed to support empirical research using this theory. The research design and methods enable a dialogic call and response between the theory, the data, and the questions. This chapter is divided into two main sections, one looks at the *design* and the other at the *methods*.

An ethnographic case study was selected as the **methodology** for this work which follows the trend in both VET and TPA empirical studies both locally and abroad. This section illuminates a constellation of topics which are related to the design. The motivation for the *philosophical-empirical* approach I took to the research is explicated. The issue of *historicity* is raised here because empirical research is

often conducted in ‘real time’ with a research project in mind, whereas all my data was generated from 1995 onwards without the idea that a PhD would emerge. I justify the use of a *case study* and describe how I decided how much is enough data using the concept of Information Power (Malterud et al., 2016).

The nine **methods** used to generate data are described in the second section. These include a historical reflective narrative; two semi-structured focus group interviews; three semi-structured individual interviews; four WhatsApp videos; one WhatsApp mini-podcast; two mobisodes; ten questionnaires; 29 documents, and 16 photographs. This corpus of data represents the sayings/thinkings, doings and relatings which went on and solidified into practice architectures over space and time.

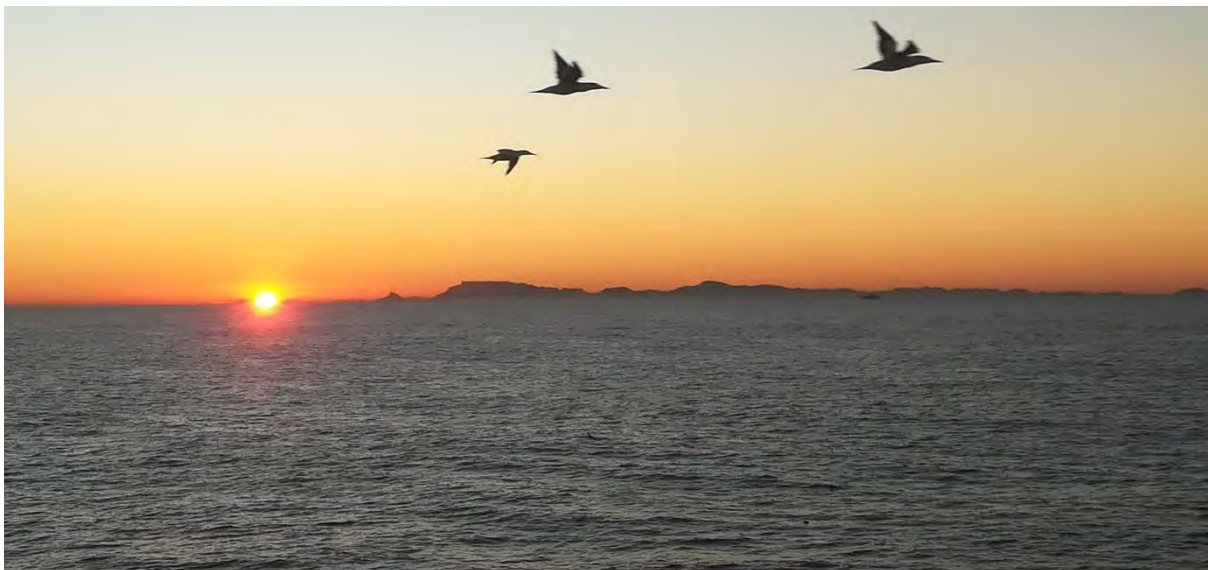
This section also describes the **analysis** and **synthesis** processes and the use of the Tables of Invention is explained. Although these tables are specific to TPA, they could also be described as translation devices. The inductive, deductive and abductive **logics** used to draw the inferences are made explicit. The chapter ends with a reflection on the particular elements of the quality framework that were pertinent to this PhD’s research design and the methods.

Chapter 6 is a comprehensive chapter which serves to describe and analyse the corpus of data of this research project. Seven sections are dedicated to the five IVET4 practices which were identified, namely the Practices of Courseware Creation; the Practices of Teaching and Learning; the Practices of Assessment; the Practices of Love; and the Practices of Management. Each practice is described in reference to the three generations of the PP and provides both a ‘balcony’ and a ‘street’ view of the practice (Heifetz, 1994). To strengthen research reflexivity, thereby increasing the validity of this work, I have provided thick descriptions as much as possible in this chapter. The device of the TPA Tables of Invention is used to analyse the data. This analysis illustrates how the practices move through the intersubjective spaces and merge-emerge into practice arrangements and practice architectures. The last table, entitled ‘Coming to Practice IVET4’, synthesises the five practices of the PP over the time and space of the three identified generations of the intervention.

Each practice described in this chapter is supported by an ‘analytic memo’ which provides the original substantiating data for the relevant section. These memos are predicated upon a comprehensive Data Code Table where each fragment of data (87 pieces in all) from the nine sources mentioned above is coded and annotated. These documents are found in the appendices. The data code, the analytic memos, and the use of the TPA heuristics had an unexpected effect on me – I was *untethered* from my data. This was both a relief and it was magical. It was a relief because I had been so deeply embedded in my praxis and the data for so long, I wondered how I would manage to clear my head and see with new eyes. It was magical because through this process I was confronted by the data in uncomfortable ways and thereby I was able to make connections I had not seen before. Shifting ontological sands and distantiation are necessary for reflexivity.

Chapters 7 and 8 are two sides of the same coin. Each chapter describes one claim to new knowledge and substantiates this claim. Chapter 7 deals with the practical contribution to new knowledge which is the proffering of a methodology and methods to create, teach, assess and manage an IVET4 programme. Chapter 8 covers the theoretical contribution which is the conception of Maturing Ecologies of IVET4 Practices which provides a theoretical tool to scale and transfer IVET4 interventions. The conclusion of Chapter 8 provides a laminated view of the practical and theoretical claims which, taken together, enables an IVET4 educator to facilitate, transfer and scale this kind of education. The aim is to benefit sea-going staff, ‘people not in employment, education or training’ and those who find themselves in similar educational conundrums.

Chapter 9 is the final chapter and gathers together the essential constituents of this PhD in a brief summary which also includes a description of my own onto-epistemological growth both as an IVET4 educator and as a researcher in the field. This chapter explicates the practical and theoretical recommendations arising from this study. Although the recommendations are serious and substantial, they are described under the playful headings of sayings, doings and relatings in deference to the extensive value that TPA has added to this study. The last page of this thesis restates the claim to new knowledge.



**Photograph 1: Living, learning, and working a long way from home
(Cape Town City disappearing over the horizon)**

CHAPTER 2: CONTEXTUAL BACKGROUND

2.1 Introduction to Chapter 2

The purpose of this chapter is to provide insight into the broader context of this study. In keeping with the scope of this study as described in Chapter 1, the contextual description centres upon four themes which touch the work most closely: sustainability and education; the contours of VET and recent contributions to the field; and I&J Limited and the deep-sea trawl industry. The chapter concludes with the fourth theme which is a brief description of two allied concepts namely, management and organisational studies and Internet Computer Technology-mediated learning.

2.2. Theme One: Sustainability and Education

2.2.1 Sustainability

Mega-trends: Further to the comments made in Chapter 1 concerning conducting IVET4 in an ‘age of uncertainty’, and that we are living in a ‘risk society’, one cannot confine the world-wide crises to global warming. There is a dynamic, unpredictable intersection of other megatrends too. These are ecosystem degradation, peak oil, inequality, urban poverty – ‘planet of slums’ and food insecurity (Annecke & Swilling, 2012), excessive material flows (Swilling et al., 2018), and the possibility of a nuclear winter (Le Grange et al., 2014). These ‘wicked problems’ encompass all forms of life (Lovelock, 2007), and survival means the equitable distribution of resources to create a ‘good life for all’ (Shiva, 2005, 2012), within the planetary limits of Earth (Glasser, 2018). Moving towards a sustainable future involves moving away from the current ‘Dominant Metanarrative’, which is an ailing neo-liberalism embodied by the Washington Consensus and Security Agenda (Gowan, 2009; Held, 2004) towards a future ‘Life-Affirming Metanarrative’ which would equip us to “skillfully muddle with wicked, real-world problems of unprecedented global significance” (Glasser, 2018, p. 51). Education is understood to be one way out of this ‘big, hot mess’.

Global and International Initiatives: As stated in Chapter 1, this research project is firmly located in Goal Four of the Sustainable Development Goals 2030 and aims to contribute to the provision of ‘Quality Education’. Nevertheless, this research project has the potential to join the conversation on two other goals of the Sustainable Development Goals 2030 i.e., responsible consumption and production (Goal Twelve) and life below water (Goal Fourteen). At a national level IVET4 research and praxis is likely to contribute to the National Development Plan 2030 of South Africa which “aims to eliminate poverty and reduce inequality” and is premised upon “improving the quality of education, skills development and innovation” (National Planning Commission [NPC], 2012, pp. 17 & 20). At a

global level, this work, and other projects like it, have resonance with UNESCO: Futures of Education, an initiative to “reimagine how knowledge and learning can shape the future of humanity and the planet” (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2021). There are many other initiatives and fora which are pertinent for IVET4 research; I have named only a few important ones above. I acknowledge the resonant call and response between the topic of this PhD and these national and global initiatives. Nevertheless, I describe these examples only for context, and I have not engaged in these broader links because this PhD has *intra-programmatic* research questions to answer. In sum, I have adopted a neo-sustainability ethos in my research and praxis which is defined as “the ability to sustain a system by improving its quality and operating within its limits” (Farley & Smith, 2014, p. 151).

2.2.2 Education for Sustainability and VET

This section provides a backdrop for the study by describing how VET fits into the broader arena of Education for Sustainability. This background is supplied, firstly by a description of the terms used in the field, and particularly how Education for Sustainability is interpreted by TPA in the Theory of Education. Secondly, the historicity of sustainable development and Education for Sustainability⁸ is sketched out with clear reference to the role of South Africa and the inclusion of Education for Sustainability into formalised education. Thirdly, I consider how Education for Sustainability fits into VET in South Africa. This section is important because it sets the stage for a discussion on where the IVET4 PP fits into Education for Sustainability which follows in the next section under ‘The Trojan Horse’.

2.2.2.1 Terms

What then is the relationship between sustainable development, environmental education, eco-literacy, Education for Sustainability and related terms, on one hand, and the IVET4 of the PP on the other? I note that the former mentioned terms and their interpretations are contested (McBride et al. , 2013), and particularly as these ideas gained traction during the postmodernity project, provoked in part, by the publication of *Silent Spring* by Rachel Carson in the early ‘60s (Carson, 1963). For brevity’s sake I do not enter this debate except to state that I choose Education for Sustainability for this PhD because it is consistent with the TPA Theory of Education; and it is in line with my own maturing understanding of Education for Sustainability as it moves beyond the environment to include social and economic realities. The TPA interpretation of Education for Sustainability is expanded here by Kemmis and Edwards-Groves (2018, pp. 151–152):

In the light of our theory of education, the metaphor of sustainability has uses beyond the idea of environmental sustainability. Through the lens of our theory, we might also consider what is needed for cultural and linguistic (cultural-discursive) sustainability, material and economic sustainability (where sustainable agriculture already stands as an example), and sustainable

⁸ Also referenced as Environmental Education in some studies.

social and political relationships between people and groups (social-political sustainability). And we must seek these kinds of sustainability at every level from the individual and the local community through to the conduct of nations and international relations and the sustainability of the planet. Seen against such a frame, the work of education (as something that profoundly informs the practices of teaching and learning) is a commitment to human, cultural, economic, environmental and political sustainability, in the interests of survival.

IVET4 of the PP cannot be overtly described as Education for Sustainability as the stated intention of the programme was to improve the production skills of the sea-going factory staff to increase production efficiencies and profitability. Nonetheless, there is a covert side to the PP which is described below as ‘the Trojan Horse’.

2.2.2.2 Timeline

A timeline which lays two histories side by side i.e., emergence of *sustainable development* and *environmental education* (which was the term of choice at the time) was drafted (Murray, 2015). This comparison attempted a global view from ancient times to 2014 of *sustainable development* and *environmental education* in an endeavour to identify patterns, trends and contributions with particular reference to South Africa. South Africa was engaged with Environmental Education at an international level as early as the 1960s. Despite the Apartheid regime, Environmental Education was firmly established by 1982 and the first international Environmental Education conference was hosted in the KwaZulu-Natal Midlands at a private school called Treverton. The Environmental Education Association of Southern Africa (EEASA) was established at this event and founded the first Environmental Education publication in South Africa called the *Southern African Journal of Environmental Education*. During the course of the ‘80s and ‘90s the growth in Environmental Education was almost synonymous with the Environmental Education Association of Southern Africa and its collaboration with non-governmental organisations. Amongst other places, the emerging scholarship and praxis were reflected in the *Southern African Journal of Environmental Education* publications. The University of Stellenbosch, the University of Rhodes and the University of South Africa were the front runners of Environmental Education and made both national and international policy contributions. The 2002 Johannesburg World Summit on Sustainable Development focussed on education and proclaimed the need for a United Nations Decade Education for Sustainable Development which commenced in 2015. By 2014 Environmental Education had been grafted into the National Qualifications Framework and established in the schooling curriculum. As an addition to this timeline, I include a snapshot of the inclusion of the Education for Sustainability in VET in South Africa.

2.2.2.3 VET and Education for Sustainability in South Africa

Bringing Education for Sustainability to VET is happening through scholarship and practice in South Africa. Here I name a few leading individuals, institutions and associations:

- Department of Environmental Affairs (DEA) ESSP (DEA, 2010)

- Green Skills and Job Pathways (Bell, 2018; Jenkin, 2020; Ramsarup, 2017; Ramsarup et al., 2018)
- Skills Planning for Green Economies – found in the book, *Enabling Green Skills: A source Book to Support Skills Planning for Green Economies* by Ramsarup et al. (2017)
- Green Skills Research in South Africa (Rosenberg et al., 2020)
- Education for Sustainable Development and COVID-19 in Southern Africa (Lotz-Sisitka et al., 2021)
- Policy on Environmental Education (Lotz-Sisitka et al., 2020)
- Critique on Sustainability and Education (Le Grange et al., 2014; Swilling et al., 2018)
- Clarity on the role of VET in Climate Change (Walters, 2019)
- Centre for Researching Education and Labour (University of Witwatersrand)
- Environmental Learning and Research Centre (Rhodes University)
- Institute for Post-School Studies where Professor Joy Papier is the Chair: Technical Vocational Training and Education studies under the South African Research Chairs Initiative of the National Research Foundation in South Africa (University of the Western Cape)
- International collaborations (VET4.0 Collective, in press)
- Ongoing and growing work of Environmental Education Association of South Africa and the *South African Journal of Environmental Education* as well as the Journal of Vocational and Continuing Education and Training
- Boundary-crossing learning agriculture learning systems (Pesanayi, 2019)
- Exploring and expanding learning processes in sustainable agriculture workplace contexts (Mukute, 2010)
- Environmental Education in Curriculum (Mosidi, 1999)

2.2.3 The Trojan Horse of IVET4

Despite the exciting and emerging work described above, *informal* VET is marginalised as it falls outside of the National Qualifications Framework and the national formal monitoring and evaluation mechanisms by virtue of its informality. Informal learning in the workplace, like the PP, Chief Engineers Programme or Skippers Development Programme is unlike the research and learning that is happening in schools, VET and Community Education Training colleges. The motivation, measurement and modus operandi are completely different, especially in companies driven by a neo-liberal agenda and where lip-service is paid to people without real care or development.⁹

I&J Limited has an orientation towards corporate sustainability. It is evident from articulations at government and sectoral levels through the Department of Forestry, Fisheries, and the Environment;

⁹ For substantiating data see Chapter 6 and Analytic Memo 7

and through the regulations of the South African Maritime Safety Authority and the South African Deep-Sea Trawling Industry Association, that owners and operators in the deep-sea trawl sector are required to act sustainably in a social and ecological manner. The Company's stated policy on sustainability (I&J, 2022) is:

Keeping the Future in Mind: We are committed to protecting precious marine resources by fishing responsibly. By following the science and working with government as well as respected local and international organisations, we are doing everything we can to ensure there will be fish for future generations to enjoy.

I&J Limited actively pursues long-term local and international memberships, partnerships, and compliance to food audit bodies to fulfil their stated sustainability policy.

This implies then, that all employees, at all levels, ought to be equipped to act in a sustainable manner to fulfil the ecological, social, and financial sustainability requirements of I&J Limited's 'license to operate'. Formal VET is used to address these legal, audit and regulatory sustainability requirements at I&J Limited. Nevertheless, there is a schism between the sustainability policy and IVET4 programmes as Education for Sustainability has not yet found its way officially onto the IVET4 agenda for programmes like the Skipper Development Programme, PP and Chief Engineers Programme. This is ironic because these courses were delivered exclusively for the benefit of the sea-going staff who catch and process the 'precious marine resources' and, therefore, who have the potential to contribute to the protection of sea-life and healthy oceans. It appears that while statutory and regulatory requirements are met primarily by working with outside bodies, the internal capacity of staff to contribute to ground-up sustainability has been left largely untapped.

It is, therefore, left to the IVET4 educator to do something, or to do nothing, to include Education for Sustainability in the IVET4 programmes. My mandate at I&J Limited was purely commercial and to have overtly included Education for Sustainability is likely to have met with an antagonistic response and put the programmes in jeopardy. This is where the concept of the 'Trojan Horse' arose as it was clear to me that it was possible to contribute towards ocean health through the IVET4 programmes. The seafarers are acutely aware of the threat of climate change as the majority have watched the ocean 24/7 for several decades and have observed changes in fish stocks and weather patterns. Many of the skippers kept 'black books' for years and have recorded their own observations; however this deep indigenous knowledge (often passed on from father to son) is seldom shared. So, I did not have to initiate sustainability efforts, all I needed to do through the IVET4 Skipper Development Programme, Chief Engineers Programme and PP was to support these efforts. Most of the seamen-led efforts focused on waste, for example, storing plastic waste onboard and disposing it ashore instead of throwing it into the sea (which is legal). This skipper-led effort saved many tons of plastic going into the ocean.

Through the PP great gains were made to conserve hake and by-catch. This happened by inculcating factory workers with fish processing skills and knowledge, which also made the production process more efficient i.e., more of a fish was turned into product and there was less waste. Each fishing company has a state granted fishing quota which is measured in *landed* product per ton, per species, and not the tonnage brought up in the nets and dropped into the ‘stocker ponds’. This is significant for the PP, and it is where the sustainability gains were made – the more efficient the production process, the less fish needed to be taken out of the sea to fulfil the landed quota! The sustainability gains and projects were acknowledged by the management at Trawlers but never reported for fear that the Skipper Development Programme, PP and Chief Engineers Programme would be jettisoned. This added to the reporting dilemma described in Chapter 6 under Management Practices.

The concept of Education for Sustainable Development “links being to becoming” (Lotz-Sisitka et al., 2017a). In an article provocatively entitled “Today becomes tomorrow...” the authors suggest that there is an increasing impetus for businesses to rethink education practices and promote pedagogical change at all levels in an organisation which would include both formal and informal learning (Tilbury & Ryan, 2011). This did happen in the PP via the Trojan Horse method but there is still plenty of untapped potential to contribute to sustainable fishing through IVET4 programmes. It ought to be noted that *because* of the informality of IVET4 programmes there was the latitude to build in Education for Sustainability.

If I&J Limited officially recognised that IVET4 programmes could enhance aspects of the sustainability policy by turning their gaze to include internal initiatives and tap into the ideas and energy of sea-going staff; an enhanced version of the IVET4 Skipper Development Programme, Chief Engineers Programme and PP would however be required, based explicitly on principles of a holistic Education for Sustainability approach which incorporates social, environment and financial factors. This way of tackling work and learning could lead towards transformation.

The PP, Skipper Development Programme and Chief Engineers Programme are all IVET4 programmes which consciously built in broader Education for Sustainability principles and processes into the design and delivery of the programmes whenever the opportunities arose. For example, to foster systemic thinking or “balancing the (production) line”; to increase inclusivity by providing in situ and online learning in the workplace; to understand one’s own values (and one’s value to the team); to make collaborative decisions; and to develop the confidence to let go of the old and try micro-innovations in the factory and on the bridge. Questions raised by a number of Education for Sustainability philosophers and educators (Capra, 1996; Ecoliteracy, 2020; Jordan, 2013) include: What constitutes sustainability skills or eco-literacy? How are these developed, and what measurement tools exist to determine if an

employee has developed such skills? These could be explored through IVET4 in the near future as the informality provides room for this kind of experimentation and development of workplace learning.

2.3 Theme Two: The Contours of Vocational Education and Training

The purpose of this section is to provide a backdrop of VET in Africa to this PhD study, which focusses on IVET4, a component of the broader and complex system of VET in South Africa. The section begins with a comprehensive definition of formal, informal and unformal VET which expands on the use of these terms in Chapter 1. Next follows an overview of the four generations of VET in Africa (McGrath & Powell, 2016; Ramsarup et al., 2020, VET 4.0 Collective, in press) and the use of the term IVET4 is justified. This is followed by an explanation of a theoretical contribution to VET called the Critical Capabilities Approach offered by McGrath et al. (2020a) and a description of how VET adapted and responded to the COVID-19 Pandemic (Sjølief et al., 2020). Section 2.3 ends with an overview of a substantial and forthcoming contribution to VET by the VET 4.0 Africa Collective (VET4.0 Collective, in press).

2.3.1 Defining Formal, Informal, and Unformal VET for the Purpose of this Study

The use of the terms ‘formal’, ‘informal’ and ‘unformal’ is liquid and it is thus important to understand what meaning a particular writer puts to these terms. An example of the kaleidoscope of definitions assigned to these terms is explicated by Ramsarup (2017, pp. 118–120) in reference to learning and transitions. Factors considered to determine what kind of learning is at play appear to be the un/structured nature of learning; un/recognised qualifications; whether the intention of the learning was deliberate or incidental; the use of artefacts e.g. curriculums and assessments; and the agency of the learner and the teacher. It is against this background that I wish to be explicit about how I have used these terms in this dissertation with specific reference to VET.

2.3.1.1 Formal VET

This is education which occurs under the auspices of the South African National Qualifications Framework where the courses are accredited, and summative and formative assessment is prescribed against an approved body of knowledge at an assigned level of education from one to ten. This education occurs at schools, technical colleges, and universities. Accredited courses are also run in organisations by accredited providers. An example of formal VET at I&J Limited would be the certification of skippers and deck officers, chief engineers, and skilled engineering artisans. Organisations contribute a Skills Development Levy and are compensated by the State for running National Qualifications Framework accredited courses.

I would like to note that where I reference the National Qualifications Framework, Sector Education and Training Authority or formal VET I do so very lightly and only where there are touchpoints which

relate directly to this research project which focusses on the particular pedagogical practices of the PP. I respectfully submit that formal VET is an entire body of work which has been growing over a number of decades, and a field of scholarly work which is advancing rapidly in South Africa. This is prominently in evidence in the work of Environmental Learning Research Centre and residence of the South African Research Chairs Initiative of the National Research Foundation Chair: Global Change and Social Learning Systems; the Centre for Researching Employment and Labour at the University of the Witwatersrand, also the home of the South African Research Chairs Initiative of the National Research Foundation Chair of Skills Development; VET 4.0 international research project (VET4.0 Collective, in press); and the South African Research Chairs Initiative of the National Research Foundation Chair of Technical Vocational Education and Training; and VET scholars.

2.3.1.2 Informal VET

This kind of education consists of courses which draw upon a particular body of knowledge and are delivered with clear objectives. The aim is most commonly to share knowledge and build skills and competence required by an organisation. The form of assessment may vary, or there may be no assessment at all, and learners are issued with a certificate of attendance. Informal VET is often delivered by private providers at the behest of the company. At I&J Limited the ten IVET4 Programmes described in Chapter 3 are all examples of informal VET. The informal courses do not qualify for the same refunds as the National Qualifications Framework accredited courses but under certain circumstances the company can make a submission for a limited refund. The reason that I&J Limited departed from the formal VET mode and forfeited the refunds over many years lies in the fact that a) the course needed to be developed and delivered as quickly as possible and the accreditation process required by the National Qualifications Framework to formalise training course is lengthy; b) it was important that the course was agile and could accommodate changes to content and methodology quickly and easily; and perhaps the most important reason, c) was that the content of the course i.e., I&J Limited's production process, which is proprietorial information.

McGrath et al. (2020b) in reference to *formal* VET, referred to young people which is not wrong or untrue; however, due to the apartheid legacy many of the Turners are aged 30-60 years old. Older VET learners are also referenced in the 'Persons who are not in Employment, Education or Training' Report (Khuluvhe & Negogogo, 2021) discussed in Chapter 1. This is a particularly important group as the majority of Turners are also fathers of children. And they, like most parents aspire to giving the next generation a better education than the one they received. As the Turners received the PP training, the 'trickledown effect' to their families was often reported. Informal VET for 'non-youth' seemed to act as a catalyst and inspiration for 'youth' formal VET. This phenomenon was also noted in the skippers in the Skipper Development Programme; and with the chiefs, second and third engineers in the Chief Engineers Training Programme. I suggest that *informal* VET may have a broader age profile than has been conventionally appreciated. This has numerous implications for how informal VET is developed,

taught, learnt, assessed, and applied. One is working with more experienced staff who bring knowledge and skills to the IVET4 courses, so mutual, participative processes are possible.

2.3.1.3 Unformal VET

This kind of learning is entirely unstructured, often incidental and is not based on a recognised body of knowledge but is rather about learning ‘to get on’. As learning beings this kind of learning takes place continuously e.g., asking a teenager how a new cell phone works; or an informal trader asking the trader next door about the licensing process; or a subsistence farmer asking his neighbour about a pest problem on her spinach. Reference to the effectiveness of unformal learning mediated by technology may be found in Metelerkamp’s work amongst subsistence and small-scale farmers (Metelerkamp & Ferguson, 2021). Unformal learning occurs within organisations too e.g. one employee shows another how a new procedure works. For production staff at I&J Limited until 2016 unformal learning was the only form of learning which took place in the sea-going factories. A few of the factory managers had some form of accredited production training while others had only a Grade 8 school leaving certificate. The ‘Johnny come sit next to me, and I will show you what to do’ was the unformal production training and it was astoundingly successful; however, both good and bad practices were taught equally effectively! The PP was the first time that a training course was conceived and delivered for all production staff.

2.3.2 An Overview of the Contours of Four Generations of VET in Africa

Section 2.3.2 provides an overview of VET in Africa over time (cf. 2.3.2.1-2.3.2.5). An outline of the work of Southern African scholars on VET and informal VET follows the overview of VET (cf. 2.3.2.6). Although these scholars have not used Practice Theory which is one of the boundary markers of this study (cf. 1.5), they make a substantial contribution to informal VET in the region, which is the object of my research. This discussion ends with an explanation of the education of formal VET educators in Australia (cf. 2.3.2.7). Although this is a different part of the world, and the education of formal VET educators is not within the ambit of this study, it is sufficiently important to the context of this study to be included here. A fuller account of VET 4.0. Africa is provided (cf. 2.3.5) which highlights recent substantial contributions by the VET 4.0. Africa Collective.

McGrath and others (McGrath & Powell, 2016; McGrath et al., 2020b; VET 4.0 Collective, in press) have described the evolution of VET in Africa as follows:

2.3.2.1 VET 1.0

VET 1.0 refers to colonial forms of VET that focussed on skills training to fill the middle-high skills gap left by expatriates as countries gained independence in the 1950s onwards.

2.3.2.2 VET 2.0

VET 2.0 arose to address ‘educated unemployment’ and focussed on the basic needs and rural skills agendas, for example, Kenyan Village Polytechnics and Botswana Brigades. The World Bank research

trajectory in the 1980s focussed on primary education, a direction which was reinforced by Millennium Development Goals. I suggest that this focus has left its imprint on the VET research landscape perpetuating research which privileges Internet Computer Technology-mediated primary and tertiary education with less focus on Internet Computer Technology-mediated informal VET. The World Bank continued to support a broader neo-liberal approach and more recently began to invest in the next generation of VET.

2.3.2.3 VET 3.0

VET 3.0 gave learning institutions more autonomy and included the voice of business which resulted in national qualifications frameworks and an outcomes-based education and funding model. I did not label the Skipper Development Programme, PP or Chief Engineers Programme as VET 3.0 in the learning and development landscape. Neither did I utilise the National Qualifications Framework, nor the relevant unit standards pertaining to the relevant Sector Education and Training Authority, in any significant way. Over the years I have delivered and written accredited training material for VET 3.0 programmes in the fishing and retail sectors. I did not use this approach because I did not believe it would deliver the results required in the PP, Skipper Development Programme and Chief Engineers Programme.

VET 3.0 supports some aspects of the learning challenge articulated for the learners on the ten IVET4 programmes described in Chapter 3; it does not support others. This means that many workers have missed out on sufficient formal schooling, and are again overlooked, this time by VET 3.0, firstly due to their working circumstances, and secondly, due to the inability of the VET 3.0 model to accommodate their complex and agile learning environment.

2.3.2.4 A Segue from VET 3.0 to VET 4.0 and Justification for the Use of the Term IVET4

In drafting the original research proposal for this thesis, my supervisor suggested that the PP, Skipper Development Programme or Chief Engineers Programme may well be more aligned with emerging thinking around a VET 4.0 model than VET 3.0. This was the first time I had heard of VET 4.0. As the PhD progressed I began to wonder whether or not the training courses I had provided to I&J Limited could be considered as falling into VET 4.0 or not; and went on to ask myself whether all the courses since 1995 fell into VET 4.0 or only the more recent ones.

To answer my own questions I curated Table 9.2 (cf. 9.5.2) which maps the characteristics of the ten IVET4 programmes (1995-2021) against the characteristics of VET 4.0 as expressed by the VET 4.0 Research Team in January 2020 (VET4.0 Collective, in press). The results showed that 61% of the VET 4.0 characteristics could be found in the ten informal VET; and some were more strongly represented than others. Please refer to Table 9.2 for more detail. Based upon this result I decided, with hindsight, that it was reasonable to use the term IVET4 as an indication that the informal praxis-practised VET at I&J Limited fell into the fourth generation of VET even though these interventions begun in 1995 which

was 15 years ahead of the conception of VET 4.0. This mapping also exposes the absences which may lead to further improvements.

I tentatively suggest that this mapping, substantiated by the evidence presented in Chapter 6, shows that the reason these projects were successful was because they exhibited VET 4.0 characteristics. I argue that VET 4.0 (VET4.0 Collective, in press) is very much on the right track if one considers the success of the ten I&J Limited programmes was due to the inclusion of more than 60% VET 4.0 characteristics. One could say that, in the instance of the I&J Limited training courses, IVET 4.0 is validated from the ground up, and that this validation has stood the test of time.

2.3.2.5 *VET 4.0* is emerging to address economic development, equity and environmental sustainability needs in more complex VET environments that are not only contained within formal learning institutions. VET 4.0 is regarded as potentially transformative. A deeper understanding of the definition of VET 4.0, and the characteristics thereof, arose from a meeting of the VET Africa 4.0 team in January 2020 (VET4.0 Collective, in press). VET 4.0, by definition, encompasses ‘green VET or green skills’. Henrik Peitsch who founded GreenSkills4VET in 2016 to embed knowledge, skills (and eco-literacies) for sustainable living and working in VET, stated “Sustainability skills are key skills for preserving the livelihoods of our planet – and not just for us, but globally” (Peitsch in Nachhaltige-berufsbildung, 2020). We need to work out how to educate, learn and teach in a way which supports this future. Glasser posited that education and learning is the cornerstone of this endeavour of “learning to change by changing how we learn” (2018, p. 51).

The PP, Skipper Development Programme and Chief Engineers Programme were informal VET 4.0 (IVET4) programmes, which were novel in the commercial fishing industry, and made them rich grounds for research to contribute to IVET4 theory and praxis. The PP is particularly interesting as it moved through three generations enabling a study of layered IVET4 programmes over time. As defined by the Institute for Sustainable Technical VET and Management Services (Nachhaltige-berufsbildung, 2019), work in VET can occur at three levels – *macro* (global inclusion of sustainability knowledge and green skills in VET e.g. Sustainable Development Goals 2030); *meso* (VET institution level) and *micro* (focus on teaching and learning arrangements, methods and mediators can be used in VET programmes). My research takes place at the *micro* level, however, through the link with VET Africa 4.0 (VET4.0 Collective, in press), this research may contribute at other levels.

2.3.2.6 Southern African Scholarship concerning Informal VET in the Contexts of Sustainability

Scholarship in Environmental Education and Education for Sustainability (cf. 2.2.2.3) includes a focus on transformative social learning particularly in subsistence or small-scale farming and fishing informal VET contexts (Kachilonda, 2014; Lotz-Sisitka, 2017b; Mphepo, 2020; Mukute, 2010; Mukwambo, 2021; Pesanayi, 2018). These studies offer important insights into the development of informal VET in Southern Africa, also pointing to the complex social arrangements of such learning, and the challenges that ‘work and learning’ in informal community oriented / livelihood oriented VET settings pose. This body of work thus extends the contextual background of the work of my thesis (cf. 9.2.3). These scholarly works aspired to expand the learning, and thereby generate transformations in the social networks and local communities. These works are lightly touched upon in this thesis even though this body of work offers a substantial contribution to informal VET. The authors in these studies draw mainly on learning theories like Cultural Historical Activity Theory (CHAT) and offer insights into the processes of expanding learning across boundaries and amongst interacting activity systems. I have not delved deeply into these studies, as I have sought to study informal VET mainly through the lens of Practice Theory at an intra-programmatic level. This body of work gave rise to a more complex articulation of VET (especially the work of Pesanayi, 2019) which formed the foundation of the Africa VET 4.0 thesis on local skills ecosystems as an approach to VET which can include both a focus on formality and informality – mentioned in more detail below.

2.3.2.7 The Education of VET Educators in Australia

To conclude this section on formal VET, I provide an international perspective on the professional development of formal VET educators in Australia. Francisco (2020) provided context for her research by discussing learning in the workplace. There are noteworthy parallels to ‘this’ VET and informal learning in South Africa and a few of these similarities are drawn out in this paragraph. “VET teaching can involve a broad range of activities, practices, environments, and approaches as well as supporting a broad range of student needs” (Wheelahan, 2010 and Guthrie, 2010 in Francisco, 2020, p. 103). Moving away from only VET educators, researchers understand that “over a wide range of professions and workplaces, informal workplace activities provide 70-90% of the learning.” (Eraut, 2011 in Francisco, 2020, p. 103). Some workplaces are expansive while others are restrictive. “Opportunities for engagement with communities of practice, explicit valuing of employee learning, team work, a broad view of ‘expertise’, opportunities for communication across groups, and access to a broad range of experiences and ideas” are found in expansive workplaces (Fuller and Unwin, 2003 in Francisco, 2020, p. 104). The analysis and synthesis of the data using TPA in Chapter 6 identifies what practices and practice arrangements provided expansive or restrictive workplace learning environments.

2.3.3 VET Adaption Response to the Covid-19 Pandemic

Two examples of the impact of the Covid-19 pandemic upon VET are highlighted here. The relevance to IVET4 of this work is that there is an enduring theme of *adaption*, and at its core IVET4 is agile and adaptive; therefore, these articles provide valuable insight into IVET4. The first article (Ojo et al., 2021) explicated research which was done in Botswana, Eswatini, Mozambique, South Africa, Zambia and Zimbabwe. Thirty interviews were conducted, a literature review was undertaken, and a conceptual lens of adaptive capacity and expertise was employed. The data was themed, and ‘stories of adaption’ emerged. The emerging findings (2021, p. 58) indicate:

- Capacity to adapt is a multi-level [individual, local community and the VET system], multi-pronged construct [This has resonance with Generation Two of the PP (cf. Ch 6 in 6.3, 6.5.2; 6.6.2) and the Skipper Development Programme. (cf. Ch 3 in 3.14)].
- Use of local networks and digital platforms as enabling mechanisms for adaption [This has resonance with Generation Three of the PP and Chief Engineers Programme. (cf. Ch 6 in 6.4; 6.5.3; 6.6)]
- Learning to adapt and dimensions of expertise are complimentary [This has resonance with Generation One of the PP (cf. Ch 6 in 6.2; 6.5.1; 6.6.1) and Chief Engineers Programme (cf. Ch 3 in 3.16 and Ch 6 in 6.4; 6.5.3 6.6.3)]

The second article was developed in Norway, Finland, Sweden and Australia and explores “how academics have come to practice differently under the abrupt changes caused by responses to the Coronavirus pandemic” (Sjølief et al., 2020, p. 85). The research was done using TPA. The data were presented in stories from each country and collectively indicated that the academics came to ‘practice differently’ utilising specific site onto-epistemological approaches. A key finding was that the ‘Coronavirus has helped renew the communitarian character of academic life ... a timely reminder that academic work is founded in communities of practice’. The work of IVET4 is profoundly relational and built upon community, for example, ‘we are like a family on the ship’.

Despite the fact that these articles were written in different places, similar conclusions are drawn about the practice of adaption and community. These articles were written from a predominantly formal VET perspective; nevertheless, there are reflections of these findings in my work on IVET4. Although, this is not the place to expand this line of thinking, I suggest that it is worthwhile to enhance IVET4 practice from VET research and praxis, and perhaps vice versa.

2.3.4 Critical Capabilities Approach to VET

“In the light of persistent poverty and inequality; widespread precarious and indecent work; continued concerns about educational access, retention and achievement; and a rising environmental crisis, VET must be transformed to address a new and challenging set of objectives” (McGrath et al., 2020a, p. 1). This article is a clarion call for formal and informal VET educators to rethink both the theory and

practice of our craft to suit African challenges. What is presented by the authors has emerged over the last decade of thinking around a transformed-transforming theory of VET and is named the Critical Capabilities account of VET. This approach “places the challenge of understanding how and why learners make decisions about participation in labour markets at the centre of the new theorisation” (McGrath et al., 2020a, p. 18). Through a Critical Capabilities account of VET, McGrath et al. (2020a) offer an onto-epistemological and methodological answer to the challenge that “VET is required to achieve a double revolution – transforming itself in order to be an agent for a wider transformation towards sustainable development” (2020, p. 18).

There are eight elements which constitute Critical Capabilities account of VET (McGrath et al., 2020a, pp. 474–476):

1. VET learners’ multidimensional poverty,
2. a gendered perspective,
3. interaction with the political economy of skills account,
4. a broad conceptualisation of work,
5. a focus on flourishing,
6. the centrality of aspirations,
7. a multiplicity of decision points in vocational learning pathways
8. an evaluative dimension.

Although we cannot fully explore this approach in this contextual chapter, with reference to my work I note firstly, that some of the same achievements referenced by McGrath et al. (2020a, pp. 8–9) regarding how women have used their agency in VET, are observed in the male production staff i.e., growing self-confidence and decision-making ability which has been empowering; and secondly, that the authors offer a table of a sample of capabilities found in various formal, informal and non [un]-formal VET scenarios (McGrath et al., 2020a, p. 14). A Critical Capabilities account of VET offers a starting point for research into informal VET which reaches beyond this *intra-programmatic-centred* thesis to informal VET at the *meso* or *macro* levels referenced above.

2.3.5 VET 4.0 Africa Collective

A forthcoming book, and the research which supports it, produced by the VET Africa 4.0 Collective (2023, in press) drew upon VET research in environment and sustainability research in southern Africa (cf. Pesanayi, 2019; Lotz-Sisitka, 2020), the Critical Capabilities Approach explicated above, and research on green skills (Rosenberg et al., 2020), as well as skills ecosystem research (cf. 2.3.4), to expand the theory and practice of VET in Africa. Section 2.3.5 traces these most recent developments which make a substantial contribution to VET both in Africa and abroad by the VET Africa 4.0 Collective (2023, in press). Section 2.3.5 briefly describes the work of this Collective and notes a few touchpoints with my own research project.

The VET Africa 4.0 Collective publication (2023, in press) provides an immanent critique (Bhaskar, 1975, 1993; 2013) of current VET policies and practices in Africa. This analysis provided insights into what (practices and practice architectures) enabled or confounded orthodox VET; and goes further to provide a vision of a future VET which could be more adequately constituted to meet the skills and livelihood demands for a just transition. As indicated, this work draws on the Southern African scholarship described above (cf. 2.2.2.3 and 2.3.2.6).

The empirical basis of the VET Africa 4.0 Research Project was four case studies in two Anglophone countries, Uganda (Gulu and Hoima), and South Africa (Alice and eThekweni). The empirical data included the use and impact of social media in living, learning, and working especially in the Alice case which describes, amongst others, two actors using social media, the Amanzi for Food Project and the Imvothu Bubomi (Water is Life) Learning Network (building on Pesanayi, 2019). These case studies covered both small-scale (smallholder agriculture and informal work) and large-scale (the oil and maritime industries) sites of investigation (VET4.0 Collective, in press, Ch 1).

In terms of my research project, in Chapter 5, the VET Africa 4.0 Collective addresses matters concerning informal VET in the informal economy. In my research project, I focus upon informal VET in the formal economy, nevertheless the characteristics of poor people, quoted below, also reflects the characteristics of the ignored seafarers of the PP. In addition, the call of the VET Africa 4.0 Collective for informal VET in the informal economy (or so-called second economy) to be included in the conception of VET, bears relevance to my research. This inclusion is relevant because informal VET also occurs in the formal (or so-called first economy) in multi-national companies like I&J Limited. The VET Africa 4.0 Collective (2023, in press, Ch 1) quoted Gupta and state,

This resonates with Gupta's (2010, p. 138) view that strategies for inclusive development 'will have to build upon the resources in which poor people [e.g. ignored sea-going workers] are especially rich: their knowledge, values, social networks and institutions'. We argue that a concept of VET in Africa should include informality in its conceptualisation of what VET is, or ought to be, in practice.

The VET Africa 4.0 Collective's research is intended to provoke not only an African, but a global conversation around VET as the policy and practice develops to meet the Education for Sustainability challenges. Where VET in the south and the north has been premised upon individualised human capital development, the VET Africa 4.0 Collective (in press, Ch 1) states:

In Anglophone Africa, many locally meaningful forms of VET have been excluded and relegated to 'informality' due to the logics of capital and particular notions of VET's purpose ... (whilst) many of the world's best VET systems, by contrast, are less individualistic than in the Anglophone model. Rather, they are based on strong relationalities between VET institutions and the associated institutions and work-based communities (both employer and union) that they contribute to, and depend on ...

The VET 4.0 Africa Collective (in press, Ch 1) provides a reconstituted notion of ‘work’, which is the cornerstone of VET, because the orthodox view of work is being shaped by current (and future) technology and economic realities. The VET 4.0 Africa Collective (, in press, Ch 1) also address the exclusion of environmental issues in VET, stating

VET approaches have also been inadequate in responding to the multidimensional nature of complex environmental challenges, partly because these issues have been treated as ‘externalities’ to mainstream economic activity and work practices, a problem that results from separating economy from ecology and society.

As has been described above in the section on ‘The Trojan Horse of VET’ (cf. 2.2.3), my study empirically reflects the exclusion of ecological matters in IVET4 at I&J Limited, for the same reasons cited in the quote above.

VET Africa 4.0 Collective (in press, Ch 4) proposes the theoretical conception of a “social ecosystem for skills model”, which is an expanded and contextualised notion based upon the work of Spours and others (Hodgson & Spours, 2016; Hodgson & Spours, 2018; Lotz-Sisitka, 2020; McGrath & Russon, 2022) which in turn built upon the original conception of “self-sustaining, high-skill ecosystems” by Finegold and others¹⁰ (Finegold, 1999; Finegold & Soskice, 1988). The “social ecosystem for skills model” was developed as a potential skills development theoretical model which could hold a sustainability orientated, placed based and relational VET capable of developing human capabilities for resolving complex problems (VET4.0 Collective, in press, Ch 1). As described by the VET 4.0 Africa Collective (in press, Ch 1),

The fundamental premise of this model is that a more complex ‘ecosystem’ of knowledge, learning and work-based engagement is needed. This can strengthen place-based skills development based in collaborative spaces that are enabling work and learning innovation.

The VET 4.0 Africa Collective (in press, Ch 4) draws on Spours’s social ecosystem for skills which comprises a model involving four related dimensions which Spours (2021) described as,

- collaborative horizontalities,
- facilitating verticalities,
- 45° politics and mediation through common mission and skills ecosystem leadership, and
- the concept of ecological time that allows for processes of holistic and deliberative system evolution.

The VET 4.0 Africa Collective (in press, Ch 4) explore these four dimensions through the prism of the empirical data of the four case studies which gave rise to a number of questions of enduring relevance to VET systems. The VET 4.0 Africa Collective (in press, Ch 4) states these questions as follows:

1. What are the relevant international, national and local policies that have a bearing on the case?

¹⁰ The work done by Finegold and others in the late 1980s was the most influential upon the notion of skills ecosystems.

2. What hierarchical governance structures: for instance, government, institutional boards, district level boards and policies (nationally and locally, and internationally) exist, and how might they constitute facilitating verticalities in diverse VET contexts?
3. What are the issues / differences vis-à-vis policy intent and local implementation? What space is there for local VET actors to have agency and to be involved in vertical structures? What capacity is there to contribute and have influence (for instance, on policy design)?
4. What is missing on the vertical dimension? For instance, if the local government is missing or appears ineffective, why? How is this compensated for? What/who is included and excluded on the vertical axis? How do issues of segmentation manifest? For instance, are labour markets and learning systems segmented, do certain groups get stuck in lower status elements of the VET system?

Lotz-Sisitka (2020) first applied the skills ecosystem conception to the particular challenges facing VET in the global south. Further, Lotz-Sisitka and Pesanayi (2020) considered the mediation processes which occur horizontally amongst actors in the VET landscape. Seminal work by Pesanayi (2019) is cited as contributing to informal VET in southern Africa (cf. 2.3.2.6) and his contribution to formal VET (cf. 9.2.3). Of interest to my study, the VET 4.0 Africa Collective (in press, Ch 1) notes that:

Our research also shows that there is need to give attention to how learning institutions reconstitute themselves in order to provide the types of mediation that can bring horizontal connectivities and facilitating verticalities together in a local, place-based social ecosystem for skills.

In discussion on VET learning systems and practices (VET4.0 Collective, in press, Ch 4), Pesanayi (2019), Lotz-Sisitka and Pesanayi (2020) have provided five points on “what mediation processes can be collectively developed”:

1. contextual analysis and reflection on the need state [cf. 6.2, 6.3, 6.4 and 7.2.1],
2. training of trainers programmes to introduce new knowledge and options [cf. 6.5],
3. co-development of productive demonstrations as sites of co-learning and mutual beneficiation [cf. 6.2, 6.3, 6.4 and 7.2.2],
4. curriculum innovation [cf. 6.4 and 7.2.2], and
5. use of social media communication tools including community radio [cf. 6.4.1].

I mention these points on the mediation process because of the resonance to the empirical findings (cf. Chapter 6) and overarching Practice Architecture of Methodology and Methods (cf. Chapter 7) of this PhD as discussed below.

Empirically the notion of the skills ecosystem has been prominently researched in Australia and involved industry associations, enterprise and workplace managers, VET providers, industry skills councils and education authorities (VET4.0 Collective, in press, Ch 4). The skills ecosystem research has resonance with other Australian authors in the schooling and VET education space (explicated below in 4.4.1, 4.4.4 and 4.3.9 respectively), i.e. Francisco (2020) on the Trellis of Practices which

Support Learning, Leadership in Education (Edwards-Groves & Grootenboer, 2021; Edwards-Groves et al., 2020; Gibbs, 2020; Kemmis et al., 2014), Ecologies of Practices (Kemmis, 2022; Kemmis & Mutton, 2012) and Brennan-Kemmis and Green (2013) on the management of transition arrangements between school, the VET sector and work by examining VET pedagogies in Australia.

Using a lens of Critical Realism, the VET 4.0 Africa Collective expanded the notion of a social skills ecosystem into a multi-scalar and spatio-temporal construct which addresses living, learning and working (VET4.0 Collective, in press, Ch 4). Further, by considering “four themes that are central to VET”, the VET 4.0 Africa Collective (in press, Ch 4) offers an expanded notion of skills ecosystems that gives attention to, amongst others – with the first three particularly resonant with this study:

- i. inclusivity, relationality and informality,
- ii. vocational teachers as mediators in complex ecosystems,
- iii. transitioning processes from learning to work, and
- iv. the role of the co-engaged university as mediation partner in skills ecosystems.

The VET 4.0 Africa Collective discusses the implications of this research project on the policy and practice of VET, particularly with regard to systems thinking, addressing public provision, skills for the informal sector, knowledge, learning and justice, rethinking private provision and finally universities as social ecosystem actors and provides a “new language for thinking about VET policy and practice” (in press, Ch 9). The conversation opened up by the VET 4.0. Africa Collective is the conversation I wish to join with an intention of making a contribution, from the perspective of my research, which is intra-programmatic, informal VET in a formal and commercial learning, living, and working environment. I make a recommendation to this end in Chapter 9 (cf. 9.2.3).

2.4 Theme Three: South African Commercial Fishing Industry

2.4.1 South African Deep-Sea Trawl Industry

This research project finds its space at an intra-programmatic level within one company within a large commercial fishing industry in South Africa, nonetheless, I provide a brief description of this sector and indicate a few of the prevalent debates for contextual purposes only. The commercial fishing industry and its relationship to sustainability, economic, social, and ecological, is a significant field unto itself, but beyond the scope of this thesis. The Production Programme of I&J Limited is placed in the deep-sea trawl sector of the commercial fishing industry of South Africa. This sector is separate from small-scale and in-shore fishers although all sectors share the same fish stock. The deep-sea trawl sector is tightly controlled by world-class governance legislation and monitoring. One reason for this is that the South African government has managed fish stocks to ensure sustainability of the resource and is mandated to continue to do this through the Department of Forestry, Fisheries and the Environment.

Another reason is to ensure that the ‘total allowable catch’ is equally distributed to redress past inequities of access to resources. Companies are required to compete for long-term fishing rights, and, as part of this process, the social and ecological sustainability practices of the organizations are closely scrutinised. Other than Department of Forestry, Fisheries and the Environment, there are two key bodies which provide governance and collaboration. The South African Maritime Safety Authority (SAMSA, n.d.) deals with marine matters and is mandated to ensure safety at sea, prevent and combat pollution and promote maritime interests. The other is the South African Deep-Sea Trawling Industry Association (SADSTIA, 2022) which represents the interests of trawler owners and operators that catch, process and market Cape Hake and their statistics give a snapshot of the sector:

- 33 long-term fishing rights are granted,
- R 4.3 billion in annual sales,
- More than 12 400 people (6 600 directly; and 5 800 indirectly) are employed in Cape Town, Saldanha, Port Elizabeth, Gansbaai and Mossel Bay,
- 67% Black owned,
- Food security – hake is also known as ‘white gold’ and the by-catch of horse mackerel, snoek and angelfish are a staple food of many South Africans,
- 53 trawlers (27 freezer vessels and 26 wet fish vessels) with a replacement cost value of R 3.7 billion,
- R 7.6 billion in investments and R 2.5 billion since 2005,
- 60% of product is exported in exchange for R 3 billion in foreign exchange,
- Strong sustainability directive – members of the Responsible Fisheries Alliance and the Marine Stewardship Council.

Despite the legislative governance structures in place through Department of Forestry, Fisheries and the Environment, South African Maritime Safety Authority and South African Deep-Sea Trawling Industry Association, there are a number of areas of contestation around the deep-sea trawl industry with particular reference to sustainability. A few of the key areas which receive attention from academics (Stefano, 2008; Robinson et al., 2021), commercial enterprises (Sea Harvest Group, 2023; I&J Limited, 2019) and the popular press (Greentimes, 2022) are highlighted below:

- The condition of the South African Fishery with special reference to the hake species, in the case of the deep-sea trawl industry. The size, number and behavior of the fish stocks are closely monitored by, for example, the Department of Forestry, Fisheries and the Environment and I&J Limited oceanographers for seasonal, and any other, variations. This area also covers the biodiversity of the fishing grounds, biota of the seabed, recovery of rare species post trawling, and the moves towards increasing the marine protected areas.
- The industry attracts attention for the social and economic impact it has on the local communities and nationally for its export revenue. In the instance of the former there is a long-standing contention over the rights and obligations of the commercial enterprises, small-scale operations, subsistence fishers, and artisanal fishers. The balance between large

and small players is only to some extent balanced by the issuing of long-term fishing rights and annual catch quotas.

- There are accreditation bodies within the commercial fishing industry which aim to monitor health standards, to promote sustainable fishing and to track responsibility from source to sale, amongst other objectives. I&J Limited has accreditation with five such bodies, for example MSC (Certified Sustainable Seafood) and Bird Life South Africa. To attain and maintain this certification the company must fulfil particular requirements and face regular audits. The contestation lies in how effective this accreditation is in moving towards a sustainable and equitable fishery.

2.4.2 I&J Limited

I&J Limited is 110 years old. I&J Limited Head Office is located in Woodstock, the Cape Town Processing business unit also known as ‘Woodstock Factory’ or just ‘Woodstock’ (from the days when Woodstock Beach was the seafront); the Cape Town Trawling business unit, also known as Trawlers, operates out of the Port of Cape Town; and the abalone farm in Gansbaai with a processing unit at Walker Bay, Hermanus. There is also a Value Added Plant where, for example, fish fingers are manufactured, as well as a large cold storage facility. I&J Limited employs more than 1 600 direct employees. Trawlers currently operates three freezer vessels and seven wet fish vessels. Freezer vessels are larger with a crew of sixty men and undertake 30-day (or more) trips and produce export ready first grade hake fillets and related products, for example, fishmeal. Wet fish vessels take a crew of 25 men, undertake five to seven-day trips and bring back filleted whole fish which are taken to Woodstock Factory for processing or are sold directly into the local market. The professional skills required on a freezer are greater than on a wet fish and the PP was initially focused on the three freezer vessels. The PP was expanded to include the wet fish fleet in 2017. Enjoining the sustainability conversation above, I&J Limited holds a voluntary membership of the Responsible Fisheries Alliance and the Marine Stewardship Council, and adheres to the quality standards set by National Registrar of Compulsory Specifications and the International Featured Standards (I&J, 2019). The Company also works in partnership with World Wildlife Fund’s Southern African Sustainable Seafood Initiative for the preservation of ocean birds and sustainable seafood, and I&J Limited is a major donor to both the Cape Town Aquarium and Red Cross Children’s Hospital. I&J Limited is an anchor tenant of the Cape Town Waterfront Precinct and is known as a multi-generational institution with a rich legacy reaching into both Eastern and Western Cape rural communities as well as other Southern African countries.

2.5 Theme Four: Allied Concepts

2.5.1 Internet Computer Technology Mediated Learning

This is a significant field of study unto itself, and thus, I make only a few general remarks about the Internet Computer Technology-mediated learning which are pertinent to my study. I examined how distributed learners can potentially benefit more from mobile learning approaches used in a socially just manner. Internet Computer Technology-mediated learning is an approach which seeks to broaden access to learning, ensure that it is socially embedded, and delight-driven (Ito et al., 2013). It promotes a practical approach which cuts across home, work and peer-group spheres. As a model for the design of an IVET4 intervention it can amalgamate these fragmented spheres into a meaningful whole for the learner (Guardian, 2013). In 2021 a colleague and I undertook a research project, in the company of others, through the Transforming Education for Sustainable Futures Initiative. Our paper examined Internet Computer Technology-mediated learning in both the fishing and small-scale and subsistence farming sectors (Metelerkamp & Ferguson, 2021). This research showed that there are significant factors which must be borne in mind when Internet Computer Technology mediated teaching and learning is used in unformal or informal VET in comparison with its use in formal VET, colleges, universities and online spaces like Massive Open Online Course or COURSERA Courses Online. Some of these factors include low digital literacy, high data costs and low or no Internet Computer Technology connectivity. I reference this work in the body of this thesis to give voice to some of the findings in more detail.

2.5.2 Management and Organisational Studies

As described above (2.3.5), the VET 4.0 Africa Collective (in press) which builds upon the work of Spours and others (Finegold & Soskice, 1988; Hodgson & Spours, 2018; Hodgson & Spours, 2016), identifies the complex intersecting worlds of living, learning and working in their expanded model of the “social ecosystem for skills model”. An enduring theme of this research project is also the intersecting worlds of living, learning and work which characterises the IVET4 practices at sea. Empirically, over 25 years I have observed that IVET4 is closely associated with organisational change which is inevitable (or not?) when individual and corporate learning occurs. I have also observed that IVET4 is deeply influenced by the culture of the organisation.

The conventional notion of organisational change is one which begins with a recognition that a change in people, process or product is required and management goes on to make explicit plans to go about achieving this change. Programme 10: Change Management at Trawlers is reflective of classic change management (cf. 3.12). The type of organisational change resultant from IVET4 programmes departs from this traditional organisational change model. The change in Trawlers was unplanned and often, although anticipated, an unintended consequence of the informal IVET4 programmes. This arose

because the content and delivery of IVET4 programmes, like the PP, Skipper Development Programme, and Chief Engineers Programme all challenged the status quo and change became inevitable. The training grew the staff's competence, communication around and focus upon areas of the business, and it became clear that improvements could be made. These were often small incremental changes amounting to continuous innovation; sometimes a leap from one state to another was evident.

There are examples of this kind of 'organic' organisational change in all ten IVET4 programmes. An example drawn from the Programme 1: Labour Relations Training for the Sea-going Staff (cf. 3.3) had an impact, not only on the ships, but also on the manner in which shore-based staff conducted labour relations. Such were the changes that the sea-going staff demanded that the shore-based staff receive IVET4 training to improve their competence which resulted in the next IVET4 Programme 2: Labor Relations Training for Shore-based Staff (cf. 3.3). An example from Programme 14: Chief Engineers Programme (cf. 3.16) is that the blended online learning model changed not only the equipment and connectivity, but the agency of learners by migrating from facilitator-led to learner-driven programmes.

There appears to be a productive link in the literature between Practice Theory, and organisational change because the learning of new practices can also bring about change. An example is provided by Rooney et al. (2018) who reflected on a State workplace that was raised to the ground by a devastating fire, and rose like a 'phoenix from the ashes' because the staff chose to learn new skills and change their way of working to deliver uninterrupted service to the public in record time (Rooney et al., 2018). A second example of the use of Practice Theory in organisational change work is the use of these conceptions in the development and delivery of business strategy, where strategy can be considered to be the long-wave organisational change driver (Spee, 2022). Highlighted is the role of material artefacts to improve strategy development, and by implication improve organisational change (Jarzabkowski et al., 2013). A third example is the interesting challenge to practice theorists to integrate history and organisational scholarship to effect more reflexive research and organisational and management practices (Jarzabkowski et al., 2021).

In practice there seems to be a close relationship between organisational change and organisational culture which is elaborated in Chapter 6 (cf. 6.8). The culture of I&J Limited has either impeded or promoted learning on the vessels via the kind of IVET4 practices and practice arrangements which were/not supported through people and processes (cf. 6.8.2 and 6.8.3). This influence of culture on learning and practice is supported by Olsen et al. (2018) in their article "Learning to Learn Differently". Over the years each change in executive and senior managers has heralded a change in culture and also in the organisational practices of I&J Limited (cf. 6.8.1 and Figure 6.4) The greatest culture shock occurred when the JSE-listed Anglovaal Industries Ltd announced the buy-out of minority shareholders of the family-run business in August 1999 (IOL, 1999). Monthly budgeting, actuals and auditing practices were superimposed upon a natural resource and upon fishers and shore-based managers who

are more attuned to wind, waves and keeping their crew safe, or managing the quayside, bunkering and drydock, than Excel spreadsheets. This created a complexity in the practice architectures of running a trawling operation as well as the IVET4 practices.

The influence of organisational change and organisational culture is fleshed out in Practices of Management in Chapter 6.

2.6 Conclusion to Chapter 2

The intention of this chapter was to set the scene for the rest of the research project by providing contextual commentary on Sustainability, Education for Sustainability, and where the IVET4 PP fits into this broader landscape. Further, a brief background to the four generations of VET was provided which included studies on VET responses under Covid, and concluded by pointing to the Critical Capabilities Approach-VET as a potential for a new and more relevant theorisation of VET in African circumstances. The reader was also introduced to the South African Deep Sea Trawl Industry and I&J Limited, the company. The contextual explanation ended with an account of concepts which are closely allied to the core of this PhD namely, Internet Computer Technology-mediated learning and organisational change.

I elected to expand on the Quality Framework of this PhD at the end of each chapter as the nine characteristics of Quality, Ethics, Positionality and Reflection are handled differently in each chapter as the content of that chapter demands. I advance that the relevant knowledge characteristic for Chapter 2 is Point (iii) “Insight into the interconnectedness of one’s topic of research with other cognate fields”, and for skills it is Point (vii) “reflection” (CHE, 2018). I have sought to delineate which fields related to my own. Chapter 2 brings into focus the topics which lie at the boundary of the scope of this study (cf. 1.5), although I found it difficult to decide which fields of knowledge to include in the contextual chapter and which to leave out. The reason for this is that informal VET encompasses work, living and learning which draw in many fields of knowledge in Humanities.

Chapter 3 is an Historical Narrative Review which describes the ten IVET4 projects and four performance improvement projects which I facilitated at I&J Limited from 1995-2021. It was from this core of activity over the years that the PP was born, which in turn birthed other interventions. Chapter 3 is a reflexive review of 25 years of my own work in IVET4 practice-praxis and provides a way of grounding this PhD and the further analysis of the IVET4 practices under study.

CHAPTER 3: HISTORICAL REFLECTIVE NARRATIVE

If you have come to help me, you are wasting your time. If you have come because your liberation is bound up with mine, then let us work together. Lilla Watson

3.1 Introduction to Chapter 3

3.1.1 Starting at the Beginning

The purpose of this chapter is to provide an historical reflective narrative of fourteen programmes which I conducted at I&J Limited between 1995–2021. This chapter provides “remembering thick place in deep time” (Gill, 2002). Time and space in this thesis have been dedicated to providing a thorough understand of this ‘living’ history because it is pivotal to the PhD for two reasons: firstly, the past Informal Vocational Education and Training 4.0 (IVET4) programmes deeply influenced my thinking¹¹ and practice of the Three Generations of the Production Programme;¹² and secondly, the PP was shaped, and shaped other IVET4 programmes at I&J Limited. This chapter seeks to provide a candid explanation of why I hold a rich corporate memory¹³ of I&J Limited and enjoy lasting professional relationships¹⁴ especially with the sea-going staff. Most importantly, I wish to use this chapter to be *explicit about my positionality* in this research, therefore, it is vital to understand how my standing in I&J Limited evolved over time, and ultimately my intimate relationship with the corpus of data presented in this project. There are ten IVET4 programmes and four job performance related projects included in this review. These will be discussed in chronological order. I will draw upon my own memories of the times.¹⁵ I employed eight other methods to collect data for my PhD which I used to triangulate the data arising from this historical reflective narrative.

The same two questions are asked in discussion of each programme. The reason for the first question – “*What happened?*” – is that my colleagues and I asked this question often because, despite the starting point, each programme took on life of its own which we could never have foretold. Sjølie et al. (2020, p. 87) described this outworking of practices as follows:

If our practices were like a flowing river, then these practice architectures would be the bed and banks that direct the river’s flow. But, just as the river in flood can reshape its bed and banks, so, too, practices can reshape the practice architectures that enable and constrain them.

¹¹ Forms of thinking: influenced my thinking

¹² Modes of action: practice of the VET programmes

¹³ Forms of thinking: deep corporate memory

¹⁴ Ways of relating: lasting professional relationships

¹⁵ Forms of thinking: my own memories of the times

The second question is “*How did Programme X influence me as an IVET4 educator?*” I remained on a steep ontological, epistemological, methodological and practice-praxis critical professional journey for 25 years with I&J Limited. As I changed, so did my practice, and as I practised the I&J Limited world around me was changed, which in turn changed me – a mutual and virtuous and vicious cycle of growth or decline respectively as the programmes ebbed and flowed. My experience was: “learning as coming to *practice differently* and as *situated* in a particular site” (Sjøløe et al., 2020, p. 85).

3.1.2 The Relationship between History, Practice Theory and TPA

There is a strong relationship between historicity and practice theory and TPA in particular. “Human activity is laden with the past... activity is circumscribed, induced/orientated, and given public presence by the past. It follows that practices, arrangements, interwoven timespaces, and the social phenomena they compose, are also beholden to the past.” (Jarzabkowski et al., 2021). This research project has a deep past with practices and practice architectures laying one upon one another, folding and forming into the substrate of practices and practice architectures we stand upon today at I&J Limited. It would be amiss not to include the past 25 years of IVET4 into this study and I propose that “integrating historical analysis [reflective historical narrative] with a practice-theoretical approach may furnish stronger and potentially novel insights” (Jarzabkowski et al., 2021). Researchers over the last decade have called for social science and business research methods to include both practice theoretical and historical approaches, particularly for organisational and management phenomena (Jarzabkowski et al., 2021; Spee et al., 2012). I am not attempting an exhaustive historical analysis in this study but do wish to give the reader a ‘traveller’s guide’ which shows how we got to where we are now, and what it has taken to get here, and what may be required of us to go on in IVET4.

Considering a TPA specific link with historicity, I wish to add two points:

1) I substituted the school-based examples provided in the quote below with examples from the PP. The historical reflective narrative gives an indication of how the practice memories were ‘sedimented’ into the practice architectures of IVET4 which shaped the PP, and in turn were shaped themselves by the PP. Kemmis et al. (2014, p. 32, italics mine) described this as:

We view practice memories as *sedimented* into the architectures of practice settings in terms of the languages spoken and discourses used there [*for example, the discourse of technical sea-food processing at sea in English and interpretations in other languages*], the physical set-ups and activity systems to be found there [*for example, the set-up in the classroom to conduct group work and simulations and games*], and the organisational arrangements that pertain there [*for example, the respect, trust and love established with the Turners*].

2) Practice traditions carry the ‘imprints’ of past practices and act as a ‘collective memory’ of the practice (Kemmis et al., 2014, p. 26).

3.1.3 Leaving Imprints – Changing Practice

When I began writing this chapter in the early days of my PhD, and I had only recently become acquainted with practice theory and TPA, I began a crude form of coding each story into four categories, namely: forms of understanding, modes of action, ways of relating and time. The last mentioned was my own addition. I did not wish to prematurely categorise data, and so to mitigate this risk, I anchored each instance of coding to statements in this text. These are noted in the footnote of each page for easy reference. At the time I thought that unless I immediately coded the data as it came in, I might drown in the sea of data available in this longitudinal research project. The purpose of this coding at the time was firstly, an attempt to use TPA as an analytical tool; secondly, to provide me with insight on the data arising from the narrative; and thirdly, to observe my own practice. However, as I read more about the TPA, and in particular the many case studies which deployed TPA, I realised that my coding was on the wrong track and so I stopped doing it after Programme Four. By then I had also realised that TPA had heuristics of its own, for example, Tables of Invention, which were much better suited to the analysis of data than my homegrown method of coding (Kemmis, 2021; Kemmis & Edwards-Groves, 2018, p. 136). Nevertheless I have left the coding in the text and a rudimentary graph of this coding may be found in Appendix 3. The reason I have left this ‘imprint’ of a past practice is that it is a small example of my epistemological and methodological growth over the PhD; and of how new practices emerge over time.

3.2 Arriving: The Girl in the Photograph

When I opened the doors of Future People (Pty) Ltd in 1995, although I had not seen evidence of it, intuitively I knew¹⁶ there must be better way of managing industrial conflict so that organisations could ‘breathe’ rather than rupture¹⁷ when faced with inevitable individual or collective conflict. The first piece of work which I conducted under the Future People banner was to develop job descriptions and the appropriate performance indicators for every job in the Auditor General’s Office in South Africa and the Transkei, Bophuthatswana, Venda, and Ciskei Bantustan states. The scope and challenges of this large-scale project set me up for my first assignment at I&J Limited.



Photograph 2: The girl in the photograph

¹⁶ Forms of thinking: intuitively I knew

¹⁷ Ways of relating: managing industrial conflict so that organisations could ‘breathe’ rather than rupture

The context at the time¹⁸ was that South Africa had held its first democratic elections in 1994. I&J Limited had the ethos and culture¹⁹ of a family-owned business. The Labour Relations Act 66 of 1995 included the sea-going employees of I&J Limited for the first time as these workers had previously fallen under the jurisdiction of maritime legislation. The significance of the legislative change²⁰ was that all discipline and grievances ought to be handled onboard in line with the new legislation. This meant that the sea-going staff required the skills²¹ and the knowledge²² to enact this legislation fairly and consistently at sea. I&J Limited were looking for a trainer who could undertake the task of teaching 800 employees a ‘new way of doing things around here’. I put up my hand and my proposal was grudgingly accepted by the all-male management team,²³ who said that, although they would commit themselves to a three-month contract, they unanimously agreed that they wished I was ‘coloured’, Afrikaans and a man.²⁴ The team also insisted that if I wanted to work with them that I needed to go out to sea which explains the ‘girl in the photograph’. It has been a relationship which surprisingly has endured for 25 years. I have witnessed the changing of the guard at an executive and senior management level²⁵ a few times. I&J Limited attracts a fine cadre of long-serving employees and, during some of the turbulent management re-shuffles, we have found ourselves holding the sides of the boat together.²⁷ The staff I am referring to here are senior sea-going and operational managers, and we share not only a deep corporate memory,²⁸ but also professional warmth, respect, and trust. There exists a humility and a humanness in this relationship.²⁹ The events which give evidence to this, are described as they happened because they influenced the IVET4 programmes³⁰ at the time. By describing the significant life events which occurred as we were busy getting on with VET, a glimpse will be given into the depth of my relationship³¹ with the company and its people, the real grit. Gaining this insight may provide understanding of my positionality in this research. I am an ‘insider-outsider’, more permanent than many of the executives over the years, a barnacle on the boat, and a loyal Friend of I&J Limited with a soft spot for the fishers. I open this perspective so that the readers can make up their own minds on my subjectivity in this research project. In the course of the PP, Chief Engineers Programme and Skipper Development Programme when the ‘old-timers’ and I were solving problems, we would refer back to

¹⁸ Time: context at the time

¹⁹ Ways of relating: ethos and culture

²⁰ Ways of relating: significance of the legislative change

²¹ Modes of action: skills

²² Forms of thinking: knowledge

²³ Ways of relating: all-male management team

²⁴ Ways of relating: they wished I was ‘coloured’, Afrikaans and a man

²⁵ Ways of relating: changing of the guard at an executive and senior management level

²⁶ Modes of action: changing of the guard at an executive and senior management level

²⁷ Modes of action: we have found ourselves holding the sides of the boat together

²⁸ Forms of thinking: deep corporate memory

²⁹ Ways of relating: professional warmth, respect, and trust. There exists a humility and a humanness in this relationship.

³⁰ Forms of thinking: influenced the VET programmes

³¹ Ways of relating: significant life events which occurred as we were busy getting on with VET, a glimpse will be given into the intimacies of my relationship

past practices for inspiration. I have included a table of the 14 IVET4 and performance-related programmes facilitated between 1995-2021 (cf. Appendix 4). The next section describes the first IVET4 programme.

3.3 Programme One: Labour Relations Act for Sea-going Staff

3.3.1 What Happened? IVET4 Programme

This programme is described in detail as it set the base for much of my work in the years³² which followed. I also aim to introduce the reader to the site of my research – the delightful world of the Cape Town docks and the characters, culture, courage, and kindness³³ which are found there. Schedule 8 of the Labour Relations Act No. 66 of 1995 (LRA, 1995)³⁴ sets out the management of fair discipline and grievance handling. This legislation is embodied in the Discipline and Grievance Code and Procedure³⁵ of the company. The code deals with substantive principles of fairness while the procedure covers the processes, forms etc.³⁶ of in-house discipline and grievance. The mandate I was given by I&J Limited was to teach approximately 800 seafarers the Discipline and Grievance Code and Procedure.

The Turners worked on 18 vessels and spent most of their time at sea. All the Turners were men aged between sixteen and sixty, the majority were coloured with a handful of black South Africans and white foreigners drawn from Cape Town and surrounds. Most of the sea-farers had fathers and grandfathers who worked ‘at sea’.³⁷ The level of literacy and numeracy³⁸ was low amongst the ratings or workers; however, education levels were higher in the officer group as they had qualified with the government tickets required to hold marine or engineering positions e.g. skipper or chief engineer. There was no in/formal training required for the production managers or their staff. The common language spoken was a dialect of Afrikaans.³⁹

It was agreed that the Skipper, First Mate, Second Mate, Chief Engineer, Second Engineer, Factory or Production Manager, the shop stewards of the vessel, and lastly, the cook would all attend the training. The shop stewards became known as the ‘sea lawyers’. Although the cook is not an officer, he holds an influential position on the vessel⁴⁰ because food matters. As such, the cook was a self-styled antagonist

³² Time: my work in the years

³³ Ways of relating: characters, culture, courage, and kindness

³⁴ Forms of thinking: Schedule 8 of the Labour Relations Act No. 66 of 1995

³⁵ Forms of thinking: Discipline and Grievance Code and Procedure

³⁶ Modes of action: substantive principles of fairness while the procedure covers the processes, forms etc.

³⁷ Time: had fathers and grandfathers who worked ‘on sea’

³⁸ Forms of thinking: level of literacy and numeracy

³⁹ Forms of thinking: dialect of Afrikaans

⁴⁰ Ways of relating: holds an influential position on the vessel

or evangelist of new ideas and practices. It was important to convert the cook if one wanted new practices to take hold on a vessel.

The vessels came into Cape Town Port to discharge their cargo, receive the necessary fuel, salty ice, packaging, food etc. and for the vessel's repairs and maintenance. This period in port is called a 'turn-around' or discharge⁴¹ and sometimes the fishers get a 'nighty' which is a night with their family. In line with industry at the time, an employee could drink alcohol if he remained within the South African drivers' limit. This allowance spilled over into the training room from time to time which was disruptive. Twenty-five years ago, wet fish vessels had a three-day discharge period, and the freezer vessels took a full week. During turn-arounds there are many demands from shore-based staff⁴² on the time of the fishers, and IVET4 was one of them. In 1995 there was neither the ideation nor the capacity to conduct training at sea,⁴³ so all training was facilitated, shore-based training. Turners were men used to long periods of dangerous, hard physical labour and not accustomed to sitting for hours listening to a facilitator with a pen and paper. They often arrived in the training room exhausted from working all night⁴⁴ on the way into port. Every gentleman arrived well turned out and in possession of his red training manual. Although this state of readiness is not unusual, it is most impressive given that the men had so recently arrived from days at sea. This training became known as the Industrial Relations Training Course, and it was held either on the I&J Limited quayside premises or at the Mission to Seamen⁴⁵ which was a stone's throw away in the harbour. Food was always important,⁴⁶ and we could order anything we liked from the menu at the Mission and most popular of all was fried chicken and chips.

I&J Limited management were far-sighted leaders⁴⁷ in the industry as their approach with this industrial relations IVET4 programme was to involve the representative trade union at the time, the Trawler and Line Fishermen's Union, in the development and delivery of the training. Although I did most of the 'heavy lifting' of the course, the full-time shop steward, Ben, and I worked collaboratively in all elements⁴⁸ of the course. We arrived from different places in life and became firm allies over the two-year period which it took to deliver at least the 108 original sessions and many repeats. A deep mutual respect developed⁴⁹ between us and we would often stand together on the balcony of the Mission chatting about the pressing issues of our lives during the breaks. We had the same goal and modus

⁴¹ Modes of action: 'turn-around' or discharge

⁴² Modes of action: many demands from shore-based staff

⁴³ Forms of thinking: there was neither the ideation nor the capacity to conduct training at sea

⁴⁴ Modes of action: exhausted from working all night

⁴⁵ Modes of action: I&J Limited quayside premises or at the Mission to Seamen

⁴⁶ Modes of action: Food was always important

⁴⁷ Forms of thinking: far-sighted leaders

⁴⁸ Modes of action: worked collaboratively in all elements

⁴⁹ Ways of relating: deep mutual respect developed

operandi – we both wanted the officers and the vessel shop stewards equipped to act fairly. Everyone heard the same message.⁵⁰

Given my time at sea, the profile of the Turners, the time and space of the training and the insights I gained from Ben, I decided to design the course with six, four-hour afternoon sessions. Each time the vessel returned to port, the Turners would do another module and report back on the application of the last module. Modules had to be repeated many times to cover all the required Turners as people were on shore-leave or changed vessel or were new recruits. These modules were a mixture of straight teaching, discussion groups, writing, watching videos and role plays.⁵¹ I submitted the first draft of the training material in a pencil hand-written draft sent by fax from Junction Farm in Zimbabwe, a peaceful retreat where I developed the course material without interruption. The feedback I received from the management team was that they liked the modular, practical approach. I proposed to them that this intervention was not only about learning⁵² new knowledge but that it was also about Turners learning and demonstrating the critical thinking and people skills required to enact the knowledge of labour law fairly e.g. the interpersonal skills required to deliver a verbal warning or the clarity of thought and writing skills to put together evidence. This was regarded as a novel idea because the acquisition metaphor (Blau et al., 2018; Sfard, 1998) dominated the sea-going IVET4 at the time. Nevertheless, the management team supported this dual approach of skills and knowledge. The managers, however, *strongly* disagreed with me on the level of the training and the use of language⁵³ as they believed it was too advanced and ‘fancy’ e.g. the use of the concept and technical term, ‘substantive fairness’. I had not yet conducted a class but intuitively believed that the Turners would rise to the occasion and take on these concepts and the vocabulary to express themselves. Reluctantly, the managers backed down on this point, and we conducted the pilot course with the management group. The content, language and mode of delivery all worked fine, and Ben and I never looked back. We conducted module after module four days a week and there are some instances which stand out for me.

- I noticed that the Turners sat close together and often touched each other⁵⁴ or put an arm around a neighbour’s chair. They often rubbed each other’s heads. One Turner would bring his chair right up behind another Turner and lean on the Turner in front of him. This intimate behaviour was the norm and not the exception. Fierce, unfiltered conflict⁵⁵ often arose in the classroom due to the nature of the subject. Turners expressed themselves clearly and loudly mostly in colloquial Afrikaans with wild gesticulations and often they jumped up. Once ideas, opinions

⁵⁰ Forms of thinkings or sayings: Everyone heard the same message

⁵¹ Modes of action: straight teaching, discussion groups, writing, watching videos and role plays

⁵² Forms of thinking: not just about learning... skills required to enact the knowledge

⁵³ Forms of thinking or sayings: use of language

⁵⁴ Ways of relating: often touched each other

⁵⁵ Ways of relating: Fierce, unfiltered conflict

and disagreements had been expressed, I observed that the conflict dissipated quickly. It seemed that it was difficult for the Turners to continue in this aggressive style because they were touching each other. The Turners did not touch me or come into my 'Eurocentric' space bubble.

From my English-speaking, white South African culture and upbringing,⁵⁶ I was touched by this behaviour in two ways: firstly, that men were so comfortable showing physical affection towards each other, and secondly, that conflict did not thrive or simmer in this atmosphere of solidarity. I could not then, and cannot now, imagine this behaviour in a training room in a predominantly Eurocentric culture. I wonder if we are the poorer.

- The issue of language immediately presented itself. More than one language⁵⁷ was spoken at a time: Afrikaans, and English mostly and sometimes Portuguese. As the facilitator, I would talk in English and use some Afrikaans phrases like “versagtiging verstandighede” which means “mitigating circumstances”; however, I would listen in Afrikaans as most of the Turners were more comfortable in their ‘language of the heart’ as we called it. This seemed to work well and enabled everyone to join in discussions and many jokes. Another element of language was swearing. Sailors are known the world over for their colourful language and this is what I was expecting. However, there was no swearing. When the Turners came into the training room there seemed to be an unspoken agreement that no ‘bad languages’⁵⁸ would be tolerated. Derogatory nicknames were also not used. I enquired of the Turners about this phenomenon – why did they not swear in class when it was a way of life and work? The answers were consistent – “we like the way we feel⁵⁹ when we are in the classroom, you treat us with dignity and respect”. On one occasion the crew of a vessel decided to ban swearing and nicknames for the trip – I said they would never manage it. The following week on return from the trip they said: “Robin, you were wrong. We did not swear.” At the same time, in the spirit of improving one’s personal environment, the crew decided to set up an exercise regime for a Chief Engineer who was as round as he was tall. This proved less successful and was abandoned for fear of grave injury. I found it interesting how the atmosphere in the classroom spilled over into the Turners’ work life.
- The videos were a highlight and some of the words used in the videos found their way into the learning material to encapsulate concepts e.g. “the man with the wobbly legs” taken from a video on drunkenness. This term came to encompass the behaviour, level of intoxication, impact at work and at home of drinking too much. So, it became easier to communicate a multi-

⁵⁶ Forms of thinking: my English-speaking, white South African culture and upbringing

⁵⁷ Forms of thinking or sayings: More than one language

⁵⁸ Forms of thinkings or sayings: no ‘bad languages’

⁵⁹ Ways of relating: “we like the way we feel”

faceted concept in a simple phrase⁶⁰ which we all understood and liked, and, in fact, Turners often enacted to emphasise the point. This phrase endures today.

- Joburg, who later changed his name to Gauteng, was a vagrant who lived illegally on the I&J Limited quayside. Everyone knew he was there and made sure he was OK. Joburg was first introduced to me as “you know that man, the one who has been hit by the wet end of the Argus”. Joburg worked hard and was astute at gathering information and was often sought out to confirm a vessel docking time etc. as he seemed to come by the information before the Operations Centre. The Turners of the Industrial Relations course repeatedly asked me to include Joburg in one of our sessions. After 18 months of such requests, against my better judgement, I invited Joburg to attend one afternoon. The training was going well until we got to a role play exercise which revolved around a fictitious story of a First Mate and Chief Engineering who colluded to steal company property while inebriated. In the middle of the exercise Joburg leapt up and started pointing at the First Mate saying it was him and not the Mate in the story and started out explaining *exactly* how the theft had occurred and who *exactly* was involved. By now I realised that the Turners had paled and that Joburg was telling the truth about two of the Turners around the table. It was the perfect storm: the role play I had made up and Joburg’s situational knowledge. Chaos erupted in the training room as Joburg revealed more and more information. Training resumed only once I had persuaded Joburg to step outside the room and revive himself with a beer and hamburger. News of this session permeated the quayside and aided the Company in reducing theft. Joburg did not attend any more sessions for his own well-being.⁶¹
- The artefacts associated with this programme included a black briefcase⁶² which contained a tape recorder, cassette tapes, pens, a copy of the Disciplinary Code and Procedure and blank grievance and disciplinary forms. On sailing day, this briefcase would be collected by the Skipper or First Mate and taken on board the vessel. On landing day, the briefcase would be returned to shore managers with the tape and written evidence of any grievance and disciplinary actions taken during the trip. There were 20 briefcases, one for each vessel and two spares. These briefcases were a symbol of authority and were treated with respect.

In all this, the Turners were my teachers⁶³ and I *always* felt that I had gained more than I had given, and that it did not matter how I felt on the day, we always laughed a lot.⁶⁴ This remains as true for me today in the delivery of the contemporary courses. During this period, I fell pregnant with my daughter, Charlie. She was born earlier than expected and I recall sending a fax to the Training Manager at 04.00

⁶⁰ Forms of thinking or sayings: it became easier to communicate a multi-faceted concept in a simple phrase

⁶¹ Modes of action: Joburg did not attend any more sessions for his own well-being.

⁶² Modes of action: black briefcase

⁶³ Ways of relating: the turners were my teachers

⁶⁴ Ways of relating: we always laughed a lot

on 2 December 1997 stating that I would not be in that day to deliver ‘labour relations training’ as planned because I was engaged in labour of a different kind. The same management team who said they wished I were a man two years before, treated me to a baby shower at the Cape Grace and sent flowers and a pink plastic bike to Charlie and me.

The sea-going staff became highly competent at delivering fair discipline and grievance at sea. Their skill was not matched by the shore-based staff who were required to assist with tricky disciplinary matters and dismissals. This gave rise to the next IVET4 programme which was Industrial Relations for Shore-based staff. As this training gathered momentum fewer employees were dismissed⁶⁵ and discipline improved, especially in walk-ashore and alcohol-related cases.

3.3.2 How did Programme One influence my Education Theory and Praxis as an IVET Educator?

I had neither been trained as a teacher, nor heard of pedagogy, ontology or epistemology before my Master’s degree, nor VET 4.0 before my PhD began. It was my supervisor who told me that this is what I had been doing. Programme One significantly moulded my practice-praxis as a young IVET4 educator in the following ways:

- Dare to go against the grain. Believe in who you are teaching.
- I did a lot of listening with my heart.... empathy
- I found other ways of knowing.... practised humility
- Immerse oneself in the context
- Build ‘street cred’
- Have fun, laugh often

3.4 Programme Two: Labour Relations Act for Shore-based Staff

3.4.1 What happened? IVET4 Programme

We never intended to develop or run this programme, nor did senior management perceive⁶⁶ that there was a lack of knowledge and skills in their ranks to manage discipline and grievance matters. Nevertheless, this deficiency was illuminated by the growing competence of sea-going staff and their increasing frustration⁶⁷ of the poor handling of cases by shore-based management. The General Manager, Tim, at the time had the courage not to look away and commissioned me to develop and deliver Industrial Relations training for all middle and senior managers. Tim led by example⁶⁸ and

⁶⁵ Modes of action: fewer employees were dismissed

⁶⁶ Forms of thinking and sayings: nor did senior management perceive

⁶⁷ Ways of relating: growing competence of sea-going staff and their increasing frustration

⁶⁸ Modes of action: Tim led by example

attended the courses himself. The course for shore-based managers was structured differently to the sea-going staff as I did not need to accommodate the constraints imposed by a shipping schedule,⁶⁹ and the average literacy (English language, numeracy, and writing) was considerably higher. The shore-based Industrial Relations training consisted of three sub-courses aimed at disciplinary case Complainants or Initiators, running a hearing as the chairperson, and conducting an appeal hearing as the appeal chair. These courses were conducted sequentially and followed the conventional form of training⁷⁰ being delivered over a day or two. The courses were an amalgam of theoretical content, discussions, and role plays.⁷¹ Ultimately about 400 shore-based staff were required to attend the courses which were relevant to them dictated by their organisational positions. This training created ‘herd immunity’ against unfair labour practices⁷² as there was widespread embodied knowledge of the principles of procedural and substantive fairness and the skills⁷³ to enact this ethos in the workplace.

On average in 1995 about 20 men would be dismissed from the company for misconduct e.g. walk-ashore or failure to re-join their vessel or alcohol related cases. The impact on the business and employees’ lives of Programmes One and Two was that there was a substantial reduction in the number of men dismissed from the company.⁷⁴ I recall arriving on site one morning to be met by the breathless Industrial Relations Officer who said that I had “done him out of a job” as there were zero dismissals for the month. Barry was not alarmed by this fact, just incredulous.⁷⁵ The knock-on effect of this was that 20 breadwinners were still employed which we estimated affected about 100 dependants. The implications for the company were, firstly, that the ‘vessel families’ or core teams remained intact⁷⁶ which is beneficial for work at sea as teamwork is key to safety and success. Secondly, recruitment, induction and training costs were reduced. The Vessel Management Teams perceived themselves to be empowered to ‘own’ their vessel,⁷⁷ and ashore we all felt good about this work.⁷⁸ Peace reigned⁷⁹ and a period of settled employee relations existed. This lasted until there was a change of the executive team and ‘the baby and bathwater were thrown overboard’.⁸⁰

3.4.2 How did Programme Two influence my Education Theory and Praxis as an IVET Educator?

I learnt that:

⁶⁹ Forms of thinking: I did not need to accommodate the constraints imposed by a shipping schedule

⁷⁰ Modes of action: conducted sequentially and followed the conventional form of training

⁷¹ Modes of action: amalgam of theoretical content, discussions, and role plays

⁷² Forms of thinking: ‘herd immunity’ against unfair labour practices

⁷³ Modes of action: embodied knowledge ... and the skills

⁷⁴ Modes of action: there was a substantial reduction in the number of men dismissed from the company

⁷⁵ Forms of thinking: just incredulous

⁷⁶ Ways of relating: vessel families’ or core teams remained intact

⁷⁷ Forms of thinking: perceived themselves to be empowered to ‘own’ their vessel

⁷⁸ Ways of relating: ashore we all felt good about this work

⁷⁹ Ways of relating: peace reigned

⁸⁰ Modes of action: the baby and bathwater were thrown overboard

- One programme often leads to another – informal VET arises from unintended consequences of other actions i.e. the sea-going staff calling for training to improve the capabilities of the shore-based staff (unheard of!).
- New ideas are not necessarily good ideas as they may lack context and frequently were untested in a sea-going environment which has a metabolism and logic of its own.



Photograph 3: Painting of Hogsback

3.5 Programme Three: Commissioning of the Boronia Freezer Vessel in 1999

3.5.1 What Happened? IVET4 Programme

In September 1998 my husband, Cameron, my daughter, Charlie, and I moved to Hogsback in the Eastern Cape. We bought a small holding which overlooked the Thumi Gorge. This painting was done from the front veranda by an artist and friend who visited us. Cameron was a man who could turn his hand to any work, and he set about establishing an income stream and developing the small holding. I ‘resigned’ from I&J Limited as we were starting our ‘country adventure’ a 1000 kilometres away and the intention from both sides was to say goodbye. The Human Resources Manager and the Training Manager took me to the Cape Grace for a lavish breakfast farewell. Nevertheless the goodbyes turned into *au revairs*⁸¹ within months and I was called upon to continue with the development and delivery of the Industrial Relations IVET4 training courses. I would do the development from Hogsback and then fly to Cape Town to do the delivery of the courses.⁸² In the end the Industrial Relations training for sea-

⁸¹ Ways of relating: the goodbyes turned into *au revairs*

⁸² Modes of action: development from Hogsback and then fly to Cape Town to do the delivery of the courses

going staff and the Industrial Relations training for shore-based staff morphed into a single course⁸³ with a number of levels. In the years which followed this bank of material provided enough content and flexibility to easily deliver Industrial Relations IVET4 programmes on demand to varying audiences. Neither the Company, nor I, thought about accrediting the training as the National Qualifications Framework was not a dominant influence⁸⁴ at this time in the bespoke training we were doing.

In the winter of 1998, I&J Limited bought a freezer vessel called the Boronia and I was commissioned to ensure that the crew and officers were well trained on all Industrial Relations matters and that each one had a position profile. The position profile⁸⁵ is a document that is output driven. It combines the classic job description with quantifiable output measurements. The two-day courses were delivered to a number of groups from the Boronia at the Cape Chamber of Commerce. The position profiles, and the understanding and acceptance thereof, ensured that each one⁸⁶ knew what he had to do and how he would be measured. These documents also clearly delineated the jurisdiction of the job which averted later conflict⁸⁷ over who should be doing what. The training received from myself, and other departments guaranteed that an elite team sailed on the Boronia's maiden voyage.

I have a few dominant memories of the time. I was heavily pregnant with my second daughter, Jesse, and the I&J Limited staff would tease me⁸⁸ saying that they can see the 'bow before the ship'. Smoking was allowed outside or in the stairwell only at the Chamber of Commerce. I walked into the training room during a break to find a Turner hanging out of the ninth-storey window, smoking! I pointed out that he must smoke outside, and he replied "Missy, the part of my body that is smoking is outside".⁸⁹

Jesse was born soon afterwards in St Dominic's Hospital in East London. We received a beautiful bouquet of flowers and warm messages from the gentlemen at I&J Limited.⁹⁰ I continued with ad hoc work and training through to 2002.

3.5.2 How did Programme Three Influence my Education Theory and Praxis as an IVET Educator?

Over the years I&J Limited has acquired two more freezer vessels, the Bluebell and the Umlobi. It is with sadness and frustration that I reflect on this training and the elite team which came together. The reason for my emotions is that the Boronia has become the 'problem child' and the lowest performing freezer vessel.⁹¹ One of the reasons for this is that the initial training was not followed up with further

⁸³ Forms of thinking: Industrial Relations training for shore-based staff morphed into a single course

⁸⁴ Forms of thinking: National Qualifications Framework was not a dominant influence

⁸⁵ Forms of thinking: the position profile is a document that is output driven

⁸⁶ Forms of thinking: each one knew what he had to do and how he would be measured

⁸⁷ Modes of action: averted later conflict

⁸⁸ Ways of relating: the I&J staff would tease me

⁸⁹ Forms of thinking: "Missy, the part of my body that is smoking is outside."

⁹⁰ Ways of relating: received a beautiful bouquet of flowers and warm messages

⁹¹ Modes of action: 'problem child' and the lowest performing freezer

development. This is being rectified in current VET programmes. A lesson here is that training and development of staff, whether in management or on the shop floor, needs to be continuous and ongoing.⁹² In 2020, 22 years after writing the position profiles for all sea-going positions on the freezer vessel, I was asked by I&J Limited Human Resources and the Training Department for a copy of the book containing all the profiles! The positions have changed little, except for Production Staff, and the reason for the request was the same reason as the original request – employees need to understand what tasks they are required to perform, and how they will be measured against these tasks.

3.6 Programme Four: 360-degree Performance Appraisals for Senior Managers

3.6.1 What Happened? Performance-related Programme

The ethos and culture of I&J Limited as a company changed⁹³ significantly when the family-owned business was incorporated into Anglovaal Industries Ltd Limited which is multinational company listed on the Johannesburg Stock Exchange. This was announced in 1999 (IOL, 1999). At I&J Limited a constant over the last 20 years has been the high level of turnover⁹⁴ of senior management and executive positions. Amongst many other consequences, a deepening culture of fear⁹⁵ became embedded in the culture of the organisation. This bred a lack of transparency in everyday dealings and defensive management teams, and at times even moribund managers.⁹⁶ However, before this was the case, the management team at Trawlers was open to learning and personal growth. Making mistakes in an endeavour to do something great, novel, or different was acceptable and not a dismissible offence. One of the exercises I was commissioned to lead was a 360-degree review of the senior and middle tier management team at Trawlers.

The objective of the intervention was to determine the growth path of the individual and to recognise the contribution and strengths of the employee.⁹⁷ The thinking behind this was that *it was better to utilise the IVET4 spend on building upon a manager's strengths, rather than mitigating his/her weaknesses*. There were about 20 managers and each one was rated by three groups of people, namely their line managers, their peers, and their direct reports. I facilitated the feedback from each group based upon Appreciative Inquiry principles and used the 'chart and stickers' technique to ensure all members participated⁹⁸ in the discussion. The contributions were anonymous, and therefore, pretty straight down

⁹² Forms of thinking: whether in management or on the shop floor, is a continuous and ongoing activity

⁹³ Forms of thinking: ethos and culture of I&J as a company changed

⁹⁴ Modes of action: high level of turnover

⁹⁵ Ways of relating: culture of fear

⁹⁶ Modes of action: lack of transparency ... defensive management ... moribund managers

⁹⁷ Forms of thinking: recognise the contribution and strengths of the employee

⁹⁸ Forms of thinking: all members participated

the line. I found that if a group member had ‘an axe to grind’ that this contribution was moderated by the number of participants, and thus, the content was reasonably fair, reliable, and valid.⁹⁹ I collated the feedback into coherent reports which were presented to each manager by myself and their line managers.

The exercise had an invigorating effect on the managers¹⁰⁰ and brought an honesty¹⁰¹ into day-to-day operational activities. The object of the exercise was achieved as Personal Development Plans were established for each manager which were based upon realistic and personal estimations of the employee’s strengths. An unintended consequence of the exercise was that tasks were reassigned to maximise the whole team’s strength.¹⁰² This further motivated the team as all the *players were playing to their strengths*.

3.6.2 How did Programme Four Influence my Education Theory and Praxis as an IVET Educator?

The establishment of a realistic and personal baseline made the subsequent IVET4 interventions more effective as they were closely allied to the employee’s actual developmental needs and desires. This exercise was successful because the culture of the organisation was a positive and supportive one. Culture really is like Adam Smith’s ‘invisible hand in the market’ as culture acts as an enabling or constraining practice architecture in a company.

3.7 Programme Five: Full fleet mentorship programme for sea and shore staff

3.7.1 What Happened? IVET4 Programme – IVET4 Programme

On the 12 December 2002, my husband and the father of my children, Cameron, was killed instantly in a tree-felling accident in Hogsback. I found myself with two young children, an insolvent estate, and a thousand kilometres inland from my source of work – Trawlers. A few days after Cameron’s death, the I&J Limited Human Resources Manager, Mr Henk de Beer, and his family arrived on our smallholding to offer Trawler’s support. Henk’s message was simple – “I haven’t come here to offer sympathy, but I have come to tell you that there is work for you to do at Trawlers, so I expect you on site on 2 January 2003.” Henk called me on the morning of the 2 January 2003 to ask me where I was because he not seen me on site that morning! I was astounded at the humanity of this organisation. I managed to pack up, move to Cape Town and settle my children into school and present myself for work on 1 February

⁹⁹ Forms of thinking: the content was reasonably fair, reliable, and valid

¹⁰⁰ Forms of thinking: invigorating effect on the managers

¹⁰¹ Modes of action: honesty

¹⁰² Ways of relating: maximise the whole team’s strength

2003. Cameron's death changed me irrevocably and seared into my being a desire to live deeply and fully the life I have been granted. These were the events which preceded the fifth programme, and which informed the way I went about conceptualising and running the programme.

Henk's project brief was: "win the hearts and minds of the sea-going staff". The only aim of this IVET4 intervention was to build relationships. This project was initiated in response to a number of discussions between me and the Trawlers Management concerning an ever-widening disconnect which was developing between the sea-going staff and the shore-based staff. The reasons for this breakdown in trust, communication and co-operation were complex and multifarious; however, the consequences to the business were obvious. The situation enabled collective conflict and third-party involvement, fraught employee relations and decreased financial performance. My job was to mend the divide through learning, communication, and organisational change.

I decided to launch a large-scale mentorship programme which covered 17 vessels and 12 senior managers. Managers choose vessel/s to 'mentor' which involved meeting the vessel on docking, holding open mic sessions with the full crew and officers, resolving issues which arose by following the matter through the correct channels, and reporting back to the vessel on the next docking day. My task was to initiate the IVET4 programme and hold it together over the 24-month project duration. Inter alia, this involved mentoring the mentors, attending all the docking-day meetings, analysing trends, and measuring the relationship 'gap'. I had to get across to the shore-based managers, the vessel management teams and the ratings (fishermen) my vision for this giant mentorship programme, to explicate the different roles we played, and the potential difference this programme could make. In short, this involved the transfer of sayings/thinking, doings and relatings of this mentorship practice, with its attendant practice architectures, from me to about 1200 men. In reflection, I think this was achieved by 'just starting' rather than waiting for everything to be 'just right'. In the *doing* the mentorship programme was established and through the measurable successes on the vessels, the programme gained momentum.

The meetings were held in the vessel messroom which meant that it was a tight fit in an airless environment. Sometimes I would become aware of the vessel moving from one place in the harbour to another in the course of the resupply of the vessel. This meant that we all had to stay on the vessel until it returned to the Trawlers quayside! Walking out of a meeting when it was finished was not always an option so some meetings were particularly long! I insisted that all staff were addressed by their names and not by their six-digit company numbers which had hitherto been the practice. This brought about a humanness and the beginnings of mutual respect. Initially the meetings felt like standing under a sewage pipe as the muck of years of pent-up frustrations spilled out. However, as problems got resolved and trust between sea and shore began to grow, the meetings became positive and constructive. One of the crucial factors for building this trust was: a) the managers delivered on their promises; and b) the

manager and I were waiting on the quayside when the vessel arrived. At times it took a ‘stand-in’ by myself next to the manager’s desk to get him to come with me to meet the vessel. This was all taken in good humour. One Engineering Manager said to me: “Robin! I would much rather be dealing with an engine than people! It is so much easier!”. The kind of problems that were solved ranged from personnel issues, real conflict on the vessels between different race groups, repairs and maintenance matters, quality of food (particularly bacon) and so on. The sea-going staff often felt impotent to solve these problems because they had so little time ashore to follow through on an issue, and so this is where the vessel’s mentor would step in.

Over 200 meetings were held which meant 12 visits at least per vessel. The impact of the Mentorship Programme was profound. The aim of the project to “win the hearts and minds of the sea-going staff” was achieved as relationships between ship and shore improved as did the relationships amongst vessel staff onboard. There were decreased racial tensions and permanent solutions were found to diminish this conflict further e.g., each vessel was fitted with two televisions so the different groups could watch the sport of their choice whether rugby or soccer. The impact of improved relationships and the solving of real-life problems also resulted in measurable improvement in the performance of the vessels e.g. catch rates improved and skippers managed to retain a core crew which increased teamwork and productivity, particularly in the factory. We also noticed a direct correlation between decreased fuel usage and the improvement of the relationship between the Skipper and the Chief Engineer due to the improved co-operation between them. To this day vestiges of the effect of the Mentorship IVET4 Programme can be observed on some of the vessels.

It must be noted that it was not all successful. One of the freezer vessels and mentor in particular did not ‘come to the party’ and this showed up starkly in the vessel’s performance and poor relationships.

3.7.2 How did Programme Five Influence my Education Theory and Praxis as an IVET Educator?

The custodianship of this programme and the freedom to execute it exactly as I had dreamed was one of the greatest gifts to me in building my IVET4 arsenal. I had full management trust and support and total autonomy which is so unusual as a consultant, and it was a social-political arrangement which enabled my success. We set out with the explicit aim of improving relationships and not productivity, however, the latter was an unintended consequence. The lesson I learnt was – focus on building relationships and the rest will follow. Allied to this was the *doing* – every vessel, every turnaround or end of voyage the manager and I were there and ready to meet with the vessel personnel. I learnt about playing the long game, keep doing what you said you would and don’t be put off by an initial sewage spill. I also learnt that even in success there may be failures and not to be nervous of failure in a corporate environment that demands 100% success, always. One of the biggest lessons learnt was that ‘*in the doing*’ of a pioneering programme ‘*the figuring out how to go on*’ was achieved. I learnt ‘*to just start*’

rather than waiting for the full programme to be written up and laid out in theory. This was my first experience of '*building in flight*'.

In recent years, from 2017 onwards there has been a concerted effort to create core teams by the current Executive and Management Team who were not part of the company at the time of the Mentorship Programme. They proceeded, as most management teams would do, to achieve core teams by managing the factors around crewing, for example, shore leave cycles. However, they have been met with a great deal of frustration and only partial success. The managers referenced the concept of maintaining a core team of officers and crew on each vessel as the 'Norwegian Model' and found it hard to believe that core teams used to exist. I have often wondered if they would have succeeded if there had been more focus on relationships and less focus on instrumental management levers. The relational gains and the corporate memory of the Mentorship Programme was lost by the incoming executive-management team to the point the relationship ruptured completely some years later when I&J Limited experienced a vicious strike of sea-going staff.

3.8 Programme Six: Job Profiles for All Positions at Cape Town Fishing in 2004

3.8.1 What Happened? Performance-related Programme

Based on the work of developing the Position Profiles for the Boronia in 1998/9 (cf. 3.5), and the 360-degree performance evaluation conducted (cf. 3.6), I was asked to develop Position Profiles for all positions ashore for every department. I had done a similar project for the Auditor General's Office nationwide which helped me with the scale and the roadblocks in a bigger undertaking such as this. The profiles were based on the model used previously i.e. both the input (tasks) and the output (measurements) of the job were recorded. A challenge in the project was that employees found it difficult to convert their job inputs to value-added outputs and struggled to answer the questions of 'How does your job show up in the organisation?' or 'How do you know if you are doing a good job?'. Nevertheless every job in every department was completed as requested. Another challenge was identifying the gaps and overlaps between jobs. In this instance I facilitated discussions between the parties to agree upon the jurisdiction of the jobs.

The sad end to this project was that the application of these profiles as a tool to develop employees and manage performance was barely implemented. In subsequent years, to comply with changing corporate requirements when I&J Limited moved from a family-owned business to the listed corporate of Anglovaal Industries Ltd, all job profiles were re-written more than once by either the internal Human Resources staff or consultants employed to do so. This was necessary to meet corporate specifications, especially for consistency across the group and job grading purposes. However, in the later versions the

focus was on tasks-inputs of the job; and the job profiles were bereft of any form of measurable outputs. This created uncertainty around job expectations for the employees.

3.8.2 How did Programme Six Influence my Education Theory and Praxis as an IVET Educator?

I could not have answered this question well at the time as writing job profiles was more of the same for me, and not all that interesting. Nonetheless, this experience did play into the role of job profiles and individual performance appraisals in the Skipper Development Programme, PP and Chief Engineers Programme where the job tasks (input) and performance metrics (output) were a constitutive part of the IVET4 model in those three programmes and embedded in the design of the programmes. How this was achieved may be found in the empirical evidence on assessment in Chapter 6. There is a further illumination of the topic in Chapter 7 which considers the practical application of Practice Architecture (PA) of Range in IVET4 which is one of three PAs which constitute the overarching PA of Methodology and Methods.

3.9 Programme Seven: Project Butterfly

3.9.1 What Happened? IVET4 Programme

This programme started out as a purely performance related project then morphed into an IVET4 programme and ended with one participant in jail! A new position had been created for a National Procurement Manager located at Trawlers. When Louise was appointed she took over the management of all buying and store personnel and was responsible for all store holdings for all divisions in I&J Limited. At the same time the procurement software was upgraded by the company. This upgrade significantly changed the day-to-day work of the eight buyers who felt threatened by the changes. This is where the project started – Louise contacted me to revise the position profiles of the buyers to reflect the new ways of doing things in Procurement. I commenced this project in the same way I did for all position profile projects with one-on-one interviews with each buyer. On the first day of interviewing most of the buyers were anxious and hesitant around how the procurement software upgrade would affect their jobs – except Buyer A, who was supremely confident and advised me “that he did not need a job profile or any training as he was the best buyer at I&J Limited”. He substantiated this by claiming certain engineers would only buy through him. I felt the hair on the back of my neck rise and I discussed both the buyers’ nervousness and Buyer A’s attitude with Louise.

The upgraded procurement software implementation meant that instead of ordering many of the same items every day, the buyers were required to negotiate deals with vendors for bulk orders and then ‘call off’ stock as required. For buyers this meant instead of facing a full screen of orders, they had only a few items for ‘call off’; their perception was that their jobs had been halved, and their concern: would

some of them be retrenched? In reality the procurement software upgrade required the buyers to master a more complex system, develop strong relationships with vendors and hone their negotiating skills.

Based on my first encounters with the buyers and in recognition of the upgrade of the skills required, Louise and I decided to move the profile project into a training project. This involved integrating the new procurement software requirements into the position profiles, and embarking on a step-by-step IVET4 programme to teach both *knowledge* of the new procedures and the negotiating and relationship building *skills* needed. The rationale for the procurement software upgrade was that based on economies of scale the company would make savings. In line with this, we agreed that the assessment method and the ‘deliverables’ of the programme would be measured by the percentage of savings achieved. Louise negotiated a ‘never-before-heard-of’ once-off bonus with the managing director for buyers who made the target. It was a high target which included a stretch target and a very generous bonus. The managing director agreed to this bonus because he did not think he would ever have to pay up. The buyers exceeded the stretch target; and he paid out the bonus. Buyer A got nothing. This was another example of using the performance indicators of a job as the assessment criteria for IVET4 training rather than a written or oral test. Project Butterfly got its name from the complete metamorphosis of the buyers.

3.9.2 How did Programme Seven influence my Education Theory and Praxis as an IVET Educator?

I learnt that IVET4 is an accommodating form of education because it is not bound by the content, teaching and assessment protocols of formal VET. This means that a programme can come into being quickly and be entirely ‘fit for purpose’. It makes room for unanticipated learning requirements. These observations should in **no way** be read as suggesting that IVET4 is superior to formal VET, it is not – both are vital, and each has its place. At the time of installing the upgraded procurement software, the company anticipated that the buyers would need to learn new procedures which would be taught by the procurement software installation crew. However, neither the softer skills nor the buyers’ reaction to the procurement software installation were anticipated and an IVET4 Programme was able to fill this ‘once off’ gap.

Because IVET4 is a more open process than formal VET, anything can happen in the learning and teaching journey. As a result of the Butterfly Programme, various organisational changes were required, for example, the thinning out and validation of the vendor data base. This work on the vendor data base yielded the evidence of 14-years of fraudulent activity by Buyer A. He was charged, tried, and convicted – a most surprising outcome of an IVET4 programme which started out as a performance related project! I learnt to expect the unexpected.

3.10 Programme Eight: Project Safari IVET4Programme

3.10.1 What Happened? IVET4 Programme

Project Safari was run concurrently with Project Butterfly; it got its name because we were taking the 20 storemen on a journey. The profile of the storemen was similar to the profiles of the sea-going staff described in Chapter 1. Like in the PP, we found literacy levels were low and that the storemen, like the Production Staff, had difficulty in positional concepts (such as above, behind, below) which is a disadvantage when one is trying to accurately find the correct stock bins. There had been many complaints from the other departments that the service and accuracy of the storemen was lacking, for example, errors on computer-based or hardcopy records; or serving ‘favourites’ while leaving others waiting. The content of the IVET4 programme included store-keeping processes, identification of stock and accurate record keeping. The practices of teaching, assessment, and love (confidence and trust) reflected IVET4 methodologies. Assessment was based upon performance indicators of the storeman’s job. These indicators were based on cyclical stock count accuracy (quantitative) and on face-to-face feedback from engineering staff of whether the store processes were improving or not (qualitative). This was often heated and gave rise to organisational changes on both sides to improve the stock-keeping processes.

Relationality was built in a number of ways: firstly, by treating the storemen with dignity and respect which was by itself unusual; secondly, by giving them autonomy which they had not enjoyed before e.g. re-organising the main store in a way they thought would work best which built trust and confidence; and thirdly, the storemen were given a budget to revamp their office and relaxation area which they painted floor to ceiling pillar box red and then realised this was an exhausting colour to live with so the budget was extended to allow for re-work of the initial renovation. And lastly, in recognition for the hard work and growth, I arranged high tea at the Cape Grace Hotel.¹⁰³ The storemen were told to dress up because we were going out! This event was a highlight for us all (and the other guests at the hotel at the time). We enjoyed a sumptuous tea and an in-depth behind-the-scenes tour of the hotel’s storerooms and stock keeping methods.

The teaching methods were geared toward experience rather than classroom teaching. The aim was to teach the practice of following a standardised store procedure and to inculcate an ethos of helping each customer in turn so we devised a way of simulating the intense frustration of not being served when it was one’s turn. This exercise was the very first of the course before any standard introductions or objectives were laid out. We laid out homemade scones, oodles of cream, jam, and cheese on a table outside the training venue and Louise and I served the storemen, but not all of them, and not in turn. Some people were back for seconds before others had been served and stocks on the table were

¹⁰³ The Cape Grace is a five-star hotel in the Cape Town Waterfront on land where many of the storemen’s fathers and grandfathers had worked as I&J had leased the property.



Photograph 4: I&J Limited Head Office, Woodstock)

diminishing rapidly. Amidst growing frustrations and accusations, Louise and I kept up the favouritism treatment until some of the storemen were quite dejected and had given up hope of getting served. We then started the course formally in the training venue and unveiled more scones and toppings for those who had missed out ... and began asking how this exercise had made the storemen feel. And so we began.

3.10.2 How did Programme Eight Influence my Education Theory and Praxis as an IVET Educator?

I learnt that IVET4 is slow and careful work. It is not mass education as each learner must be met and engaged with where he is at, and they were all at different places in terms of literacies and store skills. The power of love (trust and confidence) as a mediation mechanism was reinforced for me again; I realised there are many ways of achieving this relationality. If one considers how love was built in the Mentorship Programme, the Production Project, Project Safari, Skippers Development Course, and the Chief Engineers Programme, it was different every time. An illumination of the topic may be found in Chapter 7 (cf. 7.2.5) when considering the practical application of Practice Architecture (PA) of Relationality in IVET4 which is one of three PAs which constitutes the overarching PA of Methodology and Methods.

3.11 Programme Nine: Development of Key Position Profiles for Other Divisions

3.11.1 What Happened? Performance-related project

Between 2008 and 2010 I was asked to develop Position Profiles for other divisions in the I&J Limited Group. The reason for this was the efficacy of the input (of tasks) and the output (measurable contribution) of the profiles was acknowledged beyond Trawlers.

The first request came from the Woodstock Factory¹⁰⁴ which is a large red facility in Woodstock where fresh fish from the trawlers are converted into 65 different products, 54 of which are for the international market and the remainder for the local market. This property has been in the business since the factory was near the seafront and Woodstock Beach. This was before the more recent drainage and development of downtown Cape Town. The majority of the 700-strong staff working in the factory are women and they are the focus of the Change Management Programme explored next. In addition to the factory, Woodstock is the epicentre of the financial, administrative, technical, and executive functions. The task before me was to write job profiles for assorted jobs including the food technology department.

The second request came from the Abalone Division¹⁰⁵ which has two sites. The abalone farm is situated at Danger Point near Gansbaai which is shown in Photograph 5. Land-based farming of fish was also trialled here. The abalone processing facility is in Walker Bay near Hermanus. The farm and processing facility have strict physical and bio-security protocols as armed poaching and bio-contamination are ever present dangers. My task was to write profiles for every job at both sites.



Photograph 5: Abalone Farm, Danger Point

3.11.2 How did Programme Nine Influence my Education Theory and Praxis as an IVET Educator?

As an irrepressibly curious person, I enjoyed this assignment very much because abalone farming, and processing was completely new to me. It increased my knowledge of I&J Limited and the complexity and breadth of the business. Having worked at Trawlers and Danger Point, I realised how unique the culture of Trawlers was in comparison to the other divisions. The Trawlers culture was maverick and stepped to its own beat especially before Anglovaal Industries Ltd bought the family business. Even then Trawlers was referenced with frustration as the ‘independent republic’. This self-declared autonomy had an important influence on all the IVET4 programmes described in this chapter. There was room for innovation and space for failure which is why at least seven of the programmes described

¹⁰⁴ Available at:

https://www.google.com/search?rlz=1C1ASVC_enZA865ZA865&sxsrf=AOaemvK6ruEM_nyrbtNWT3dbsZzD4tOV6g:1639248698223&q=images+of+the+IN+woodstock+factory&tbn=isch&chips=q:images+of+the+in+woodstock+factory,online_chips:cape+town:tbGPtENdSBE%3D&usg=AI4_-kSmfVnyUh6hS7x5xjwmqJQ-EeJ-fg&sa=X&ved=2ahUKEwikjOyitdz0AhUKiFwKHU-vD1sQgIoDKAB6BAgDEAs&biw=1094&bih=415&dpr=1.25#imgsrc=cGI110SDIJQgoM [accessed 11/12/21]

¹⁰⁵ Available at: <https://www.ij.co.za/cape-abalone/> [accessed 11/12/21]

were successful and firsts in the industry. In my lived experience, the gap for innovative work, particularly around using Internet Technology Computer mediated IVET4, narrowed and closed altogether in May 2021. Nevertheless the successive management teams had taken advantage of this ‘blue sky’ culture as long as it lasted to innovate. The benefits, albeit dwindling, are still evident in the fleet.

3.12 Programme Ten: Change Management Programme at Cape Town Processing

3.12.1 What Happened? IVET4 Programme

In 2006-2007 I was commissioned to facilitate a large-scale change project at the Woodstock Factory. It involved about 700 women and a few men drawn from permanent and contract staff and other internal stakeholders. The Woodstock Factory is the size of several rugby fields built on land bought by the original owners because it was near Woodstock Beach before the city’s reclamation efforts. This is also where I&J Limited Head Office is housed. Woodstock Factory processes the fresh fish arriving from Trawlers daily. This is a large-scale, highly mechanised operation with precise specifications for products produced at the facility to meet food safety and international certification requirements. The pace is relentless and work rate of individuals and departments is measured several times a day. There are a number of processing halls. One of the primary processing areas is a triple volume hall of very large proportions which is cooled to 7°C and the walls, floors, machinery – everything – is wet and moving all the time. The hall is white, all the staff are dressed in white, their gumboots are white, white spades are used to shovel white ice ... The Woodstock Factory had been upgraded over the years and large-scale improvement was planned. The entire processing machinery from one hall was to be replaced with a more sophisticated computerised system. This could only be done over the Christmas shutdown period of three weeks. The ladies would come back from the holiday to the new system which would be running at close to full capacity to keep up with the fish arriving from Trawlers and customer demand. My brief was to prepare the staff to use the new equipment without having seen it. This was done by curating video footage of the new systems and providing supporting procedures to enable a smooth transition. I met with ten people at a time, and thus facilitated 70-80 training sessions before the implementation, and followed this with question and answer sessions during and after the implementation. We also had a competition to generate excitement for the new venture. Organisational changes were also required, for example, the staffing requirements changed which involved matching people to jobs. Women who had been working at Woodstock Factory for decades and witnessed system changes before were championed at these sessions – these were wonderful historical moments.

The assessment of this IVET4 programme could only be evaluated on the day, the proof was in the pudding! Although there were a few teething problems with the system itself as could be expected, from a staffing point of view the transition was seamless; and we witnessed performance enhancements in key areas e.g. trimming and packing lines. The project last six-months.

3.12.2 How did Programme Ten Influence my Education Theory and Praxis as an IVET Educator?

This was a high-profile project which was overseen by the Executive and there was not much room for flexibility as had been the case in preceding IVET4 projects described. As soon as we went ‘off script’, for example, encouraging the workers to monitor their own progress per hour, we were reigned in. Although this was understandable given the high stakes and nerves around the project, I suggest it was also regrettable as I think we could have leveraged more personal buy-in and teamwork if the practices which enable relationality had been permitted more broadly.

3.13 Programme Eleven: Production Programme

3.13.1 What Happened? IVET4 Programme

The Production Programme (PP) is at the heart of this research project and the object of study. With reference to the research questions, the practices and practice architectures of this programme are explored to understand what key dimensions confounded learning and which ones promoted it, and to consider how similar programmes could be improved, scaled, or transferred. Although further described in Chapter 5, with respect to the nested nature of this case study, I wish to emphasise that the Production Programme is nestled amongst the other 13 programmes which I ran at I&J Limited over 25 years. It cannot be seen as a stand-alone programme but was part of an ecology of programmes, practices, practice arrangements and practice architectures which fed and took nourishment each from each other. In this PhD, I focus on the PP and draw in perceptions and experiences from the other programmes.

The description of the PP differs from the other programmes described in this chapter. Here I introduce the PP; and in Chapter 6 I describe and analyse in detail the practices which are clustered into five key themes, namely Practices of the Creation of Courseware; Practices of Teaching and Learning; Practices of Assessment; Practices of Love (Trust and Confidence) and lastly, Practices of Management. The PP began in 2016 and evolved into three generations over five years. The presentation and analysis of the corpus of data is done through the lenses of the three generations and the five practices. My consultancy, Future People (Pty) Ltd led this multi-generational evolution until I handed over the PP to the Training and Development Department of I&J Limited in May 2021.

I&J Limited process fish at sea in compact, convoluted factories designed for this purpose. As intimated in the description of I&J Limited in Chapter 2, in simplified terms two main kinds of product are produced at sea on different classes of vessels. The ‘wetfish’ or ‘fresh fish vessels’ produce headed and gutted fresh whole fish on ice. They are at sea for approximately seven days before the vessels come in for a 24-hour ‘turn-around’ to land the product for distribution, to receive engineering support, to change crew due for shore leave, and to pick up victuals,¹⁰⁶ fuel, fresh salted ice, and water. The ‘freezer vessels’ are bigger vessels and are at sea for about 35 days and land multiple frozen fish products ready for national distribution and international export. The freezer vessels’ turn around in five days and the crew self-discharge thousands of tonnes of product. The wet fish and freezer factories are wet, fast moving, dangerous cold places. The wetfish vessel factories are simpler than the freezer factories, however, both involve extremely complex processes and require a specialised skill set from each factory worker. Each bag of fish ‘brought in over the back’ by the skipper contains a different mix of size and species of fish so no one production run is like another. This differs materially from other food production facilities which produce exactly the same products with the same ingredients and processes every day, like biscuits. This in turn informs the type of learning required by the production factory workers.

About 80% of the sea-going complement at I&J Limited work in the factories and this is nearly 400 people. The characteristics of the factory workers, previously called ‘spare-hands’, were described in Chapter 1 (cf. 1.2.5). These were the ‘cellophane people’ often only known by company number and management looked right through them. The deck and engineering staff have always required South African Maritime Safety Association certification and by law a vessel may not leave port without specified qualified deck and engineering officers on board. In contrast, there was neither industry training available nor any prescribed internal I&J Limited production courses for factory staff. In addition, the Company set low minimum recruiting standards for factory staff. All sailors are required to have Pre-sea Safety Training and pass a medical.

In the 100-year history of I&J Limited no production training was conceived nor offered. One factory hand learnt from another which meant good and bad production practices were deeply ingrained and passed on from one generation of factory hands to the next. This learning would be regarded as *unformal learning* or as previously mentioned, in industry parlance ‘Johnny come sit next to me and I will show you what to do’. This ingrained learning both benefitted and hindered the pedagogical process of the unfolding PP. Following the investment of the retrofitting of freezer vessels with state-of-the-art flow ice machinery to improve the cold chain, attention was turned to the factory workers for the first time. In early 2016 the Executive initiated the first generation of the Production Programme. They must be commended for their foresight and preparedness to invest in the production staff and this intervention was a first in the company and remains a first in the deep-sea trawl industry. We started from scratch.

¹⁰⁶ Victuals is the maritime term for food and drink supplies usually provided to the vessel by a ship’s chandler.

The First Generation of the PP (cf. 6.2 and 6.5.1) consisted of four courses namely, Freezer Production Courses 1 & 2, the Wetfish (Fresh Fish) Production Course, and a Refresher Course which were developed and rolled out in 2016-2019 to approximately 400 staff. These courses targeted critical production processes and all training took place ashore. Mostly ‘soft’ or informal assessments took place on these programmes. For the first time the rule ‘No Certificate, No sail’ was introduced. This meant that every freezer or wetfish employee had to complete the relevant production course and a miniature certificate was stuck into his Seaman’s Book. These books, which look much like a passport and hold legal tender, are required by South African Maritime Safety Association, and are kept by the Master of the Vessel on the Bridge for the duration of a voyage.

Generation Two of the PP (cf. 6.3 and 6.5.2) focussed entirely on the freezer vessels and commenced in 2019 completing in 2021. It was a very much expanded version of the courseware of Generation One and a 500-page manual was produced which included standard operating procedures to support every process, task, or workstation on the production line. ‘Hard’ or formalised assessments were conducted for every Turner. Theoretical and practical training was conducted ashore and at sea, both in the messroom and on the line in real time. Future People (Pty) Ltd conducted a Train-the-Trainer programme; and handed the PP over to the I&J Limited Training and Development staff in its entirety in May 2021 with the view that the PP was well established and could be handled routinely by the Training Officers. One could say that the PP was a Mature Ecologies of Practices which could have been converted into a transferrable and scalable IVET4 programme, although this was not the intention of I&J Limited due to the proprietorial nature of the PP content. An illumination of the topic may be found in Chapter 8 when considering the conception of a PA of Maturing Ecologies of Practices.

Before my introduction to Ecologies of Practices I introduced the Production Training Ecosystem [D14 *modified*] which is illustrated in Figure 3.1 below. I developed this illustration to provide a bigger picture for management to explain the articulation between courseware, training, assessment, and results in IVET4. Making explicit the course design in this way was key to joining the dots for operational management, and it invited their input. The core purpose of Generation Two was to improve production efficiencies, and the first-grade fillets in particular, as this is the highest value product. This performative ethos drove the development of the courseware rendering it a fact-bound mechanical process.

Generation Three (cf. 6.4 and 6.5.3) ran concurrently with Generation Two and was an exploration into a transformative blended learning model. The objective was to move the epicentre of the production training from shore to sea and from facilitator-led to learner-driven VET. This was a seismic shift capable of declaring the classroom-based model obsolete. The push factors were firstly, that all learning could take place in the working factory at sea; secondly, the model could accommodate Covid-19; and thirdly, that the price per capita of the training would be substantially lower. I first proposed the ‘Earning

and Learning Model’ in 2019 which was a move towards transgressive learning. In addition to the push factors, the affordances of this model made IVET4 100% *inclusive* of all production staff who were able to receive continuous training in ‘bite-size chunks’, at a time which suited the individual’s shift schedule and in his home language – *all for the first time*. Two models were conceptualised, and pilot programmes were conducted at sea during 2019-2020. The first was called the Micro Enterprise Media Engine B and used community TV-technology developed by the Council for Scientific and Industrial Research; and the second was the Future People Online-In-person Learning Platform which I devised based upon WhatsApp in combination with other ubiquitous applications. The Future People Online-In-person Learning Platform went live in 2020 to mediate the Chief Engineers Programme; the Production Programme content fabrication was underway.

Different to Generations One and Two, the focus of Generation Three was not a particular programme or content but rather the development of a blended online platform capable of delivering IVET4 into a learning environment where there are low levels of digital literacy and low/no Internet Computer Technology connectivity. Nonetheless the primary targets were the PP and Chief Engineers Programme.

Despite showing promising results and attaining Anglovaal Industries Ltd Board Approval, the ‘Earning and Learning Model’ was stopped in May 2021 when there was a change of the Executive Team. It appeared to me, and others, working closely with the ‘Earning and Learning Model’ that the discontinuation of using Internet Computer Technology-mediated learning opportunities to leverage training was a result of two factors. Firstly, in the cut and thrust of the restructuring the top team at

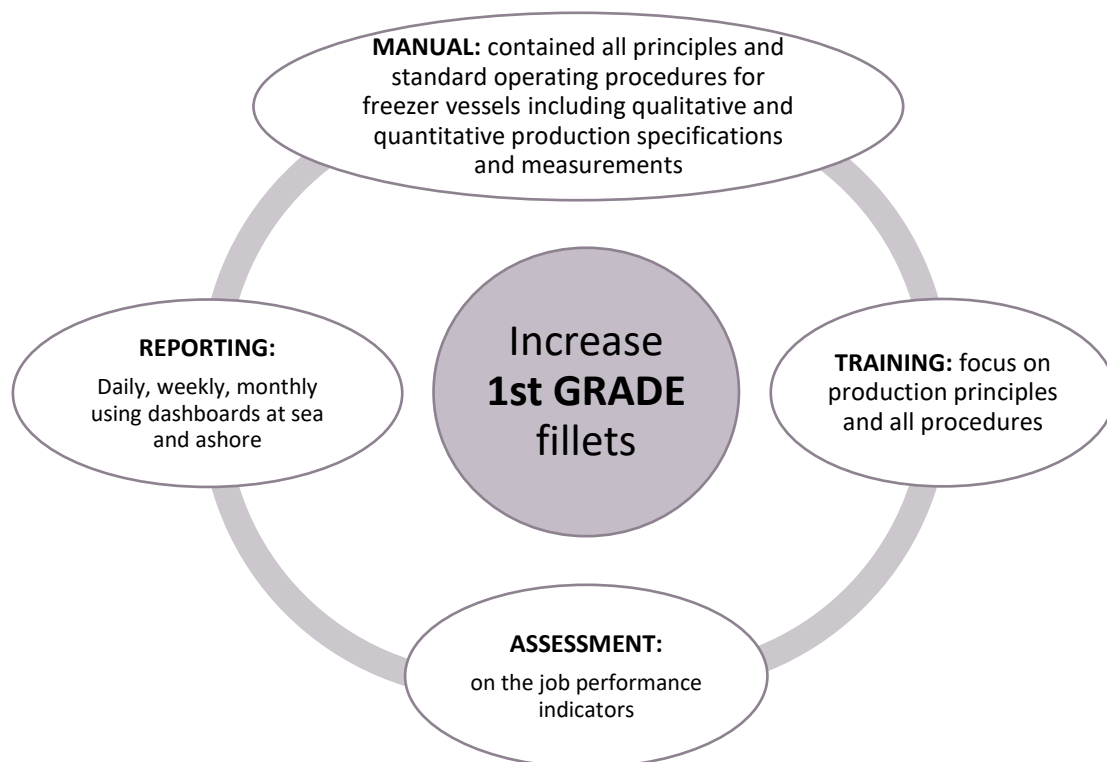


Figure 3.1: Production Training Ecosystem

Trawlers, the executive and senior management did not have the time nor capacity to apply their minds to the blended model which had a more complex programme design than conventional VET, as well as being less (physically) visible to shore-based personnel. The second reason was a resistance to change and a default to the well-worn ‘chalk and talk’ and formalised assessments pathway. Despite the fact that the blended learning was discontinued, the confidence, knowledge and e-learning skills, which were gained by the learners whilst the course ran, have continued to reverberate through the personal and professional learning of the recipients.

The PP is a complex and multi-faceted programme which created learning and teaching opportunities for hundreds of men who were previously excluded. The PP also created outward ripples through the organisation which required organisational change in activities and attitude. For example, these changes were observed in the measurement of production processes previously not written down or measured; reporting of production statistics to create big data; managers shifted towards a more positive mindset concerning production workers; and recruiting practices were refined. Chapter 6 unpacks the PP and its attendant practices/architectures. My own onto-epistemic growth as an IVET4 educator as a result of the PP is described fully in the summary presented in Chapter 9 (cf. 9.6.2).

3.14 Programme Twelve: Skipper Development Programme



3.14.1 What Happened? IVET4 Programme

Context, Course Objectives and Content: Above is the logo of an IVET4 programme. This programme started at the behest of the Executive because their perceptions following a site visit were: ‘Do the skippers know what they are doing?’ This made for a difficult start to the programme for two reasons. Firstly, the skippers all had the South African Maritime Safety Association qualifications which are aligned with the International Maritime Organisation and include people management and leadership skills. Most of the 17 skippers had been in the job for 20 years or more and many were at the

top of their game. They were catching fish, producing products on board, and bringing the vessel and crew home safely. The skippers were insulted as a group because management's view was that they needed to be 'developed' which did not make sense to the skippers in the light of their evident competence and successful workplace performance on the vessels. They also equated the name of the course with Early Childhood Development. In the decade before the Skipper Development Programme commenced, operational management at the time had stripped the skippers of many responsibilities and given these responsibilities to shore-based personnel. One of the imperatives of the Skipper Development Programme was to give back this responsibility with support from the shore staff so that the skippers could 'own your vessel'. One could say that we were rebuilding the relational and responsibility gains won during the Mentorship Programme which had eroded over the years due to multiple management changes. The second reason the Skipper Development Programme got off to a rocky start was that the Executive expectations were that this 'development' would render the skippers, who were '24/7 masters at sea' into senior shore-based managers over a short period of time. The standard option at I&J Limited was to send their managers on Management Development Courses for the duration of a year or two. This was not an option for the skippers due to logistical and literacy constraints; there was also doubt about the relevance of the course content for a skipper whose job at sea cannot be compared to a managerial job ashore. I was running the PP at the time and was asked to head up this brand-new initiative and work with the Marine Manager as the Internal Champion. In his words we ought to have stretched...

... this development programme over the progress of a career. I think we were trying to fit in, and it is not a negative it is a reality, we tried to fit in what should have happened over the course of a career ... fit in to a couple of months or a year or two. [II-1]

Nevertheless, we began building in flight. All modules began with the same three questions: What did we want the skippers to know, do (apply), and how would this be measured?

The Skipper Development Programme had three original objectives, which are detailed in Table 3.1 below, and juxtaposed are the Skipper Development Programme modules which were created to meet these objectives.

As the Skipper Development Programme progressed, as in other IVET4 programmes, it shaped the teaching and learning practices and in turn the programme was shaped by the cultural-discursive, material-economic, and social-political arrangements in play at both an operational and executive level. Table 3.2 below indicates what *actually* happened and how much was achieved that was unexpected over the couple of years of the programme's duration. The achievements are juxtaposed with the activities which were required to sustain the training and development gains.

Table 3.1: Original SDP Objectives and Modules [Source: Skipper Development Programme Interim Report in September 2018]

ORIGINAL Skipper Development Programme OBJECTIVES (January 2017)	EVIDENCE
1. Commercial and business acumen to run vessel as a business unit	Module 3: Commerciality, including tour of facilities & application assignments
2. Align and manage diverse teams	Module 1: Launch & Overview Module; Teamwork exercises in Module 2: Quality and Production; Module 4: Human Resources (performance management); multiple individual and group facilitated contact sessions. See Additional objectives 6-8.
3. Improve technical skills	
➤ Fish finding equipment & fishing gear	Module 5: Business Intelligence
➤ Power generation and capabilities	Module 6: Engineering
➤ Production processes, focus on freezers	Module 2: Production & Quality

Table 3.2: Additional Skipper Development Programme Achievements and Actions Required to Sustain Training and Development Gains [Source: Skipper Development Programme Interim Report in September 2018]

ADDITIONAL ACHIEVEMENTS	REQUIRED TO ENSURE SUSTAINABILITY OF DEVELOPMENT
1. One Team: onboard and ashore	Established a formal engagement platform and flow of information. Narrowed gap between vessel management and senior sea-going management through facilitated contact sessions. Skippers moved in thinking from “here to fish” to “part of the business”. Majority of skippers are engaging in development process. (2017 & 2018)
2. Skipper 2020 & Shore Services 2020	Established this vision and what is required to get there. Identified skippers who have the 2020 capacity. (2017 & 2018)

3. Management of staff at sea (Industrial Relations & Human Resources)	Human Resources Module (2017 & 2018)
4. Marine and Safety Best Practice	Marine and Safety Standing Orders Module – completed SMS (2017 & 2018)
5. Change management	Ensured the embedding of processes, measures and innovations which have arisen in the development of the Skipper Development Programme. This ensures lasting change and supports One Team. (2017 & 2018)
6. Enhanced personal mastery of leadership skills and insight into areas of unconscious incompetence	Participated in Apollo 13 simulation delivered by external provider; and underwent Individual Aptitude Assessments delivered by an external provider
7. Tried and tested the content and delivery methodology which works in a training environment where the following challenges must be overcome: ➤ High diversity ➤ Multiple languages ➤ Different levels of formal education (literacy, numeracy and digital) ➤ At sea ‘invisible’ and unavailable for traditional group classroom training	Created the capacity to roll out vessel/shore management training vertically and horizontally. The Skipper Development Programme is the first of its kind in the industry and this was the pioneer group which provided such a rich opportunity for innovation in the learning and organisational change field of practice.

Teaching and Learning Practices of the Skipper Development Programme¹⁰⁷

Considering the Skipper Development Programme’s Ecologies of Practices was still in an *emergent stage*, the Skipper Development Programme took this a step further and followed an innovative delivery methodology to cope with the challenges of training sea-going personnel. Although common training practices, none of these practices had been tried before for sea-going staff. This included:

- Written reference material for both preparation and reinforcement purposes
- Group sessions around specific topics e.g. performance management
- Individual assignments designed to get the skipper to apply this knowledge at sea
- Multiple facilitated contact sessions which have proved to be the driver for the behavioural change. 204 contact sessions were held altogether during the course of the Skipper Development Programme.

¹⁰⁷ Revised text taken from Skipper Development Programme Interim Report submitted on 6 September 2018

For each skipper, for each activity, and for each module, qualitative and quantitative performance data was logged over the duration of the course. This data was curated for each skipper and a report card provided.

Assessment Practices of the Skipper Development Programme¹⁰⁸

In addition to the information mentioned above, the skippers' progress was measured in the Skipper's Individual Performance Agreement which included the commerciality elements of the Skipper Development Programme. Each skipper had a Results Review Meeting with the Marine Manager and me every month. This was a discussion on his performance in the previous calendar month for each data point on his Individual Performance Agreement. These Results Review Meetings formed the basis of the mid-year and year-end formal appraisal process and ensured that the final score was transparent and substantiated. It was also a mechanism to maintain relationships which had been built.

Highlights of the Skipper Development Programme

There was enormous resistance by the skippers to attend any of the Skipper Development Programme training events and they needed to be won over one at a time. Two Skippers refused to leave the Bridge of their vessels every time they were in port. After a few weeks of this, I went to see them on the Bridge which is very much their turf, and one doesn't pitch up uninvited. Nevertheless, these two fine skippers accepted that I was standing in front of them and offered me a cup of 'java' (coffee) which is a sign of great hospitality on any Bridge. As time went by, both skippers had tough personal circumstances to deal with and we walked these miles together too.

One of the highlights was arranging for the skippers to visit other I&J Limited divisions i.e. Woodstock Factory, the Value-Added Plant, and the I&J Limited cold storage facilities. For the first time the skippers could see what happened to the fish they caught; and they understood that they were the first block in the company's value chain.

A highlight for all participants, myself and the operational managers at Trawlers was the *power of contact in an invisible world*. The sea-going staff are invisible to the shore-based staff, and vice versa. When asked what he was most proud of about the Skipper Development Programme, the Marine Manager replied,

I think it is the development of ... the interactions we had. I mean you had allot of interactions with the guys in my absence, or me being absent at stages, and the feedback that you gave to me around their individual competencies ... but also the interactions that I had with them in terms of their personalities ... that bond we had, or that we formed at that stage. And like anything, relationships ... I mean are sometimes strenuous but at least there was something to be strenuous (II-1).¹⁰⁹

¹⁰⁸ Revised text taken from Skipper Development Programme Interim Report submitted on 6 September 2018

¹⁰⁹ See Analytic Memo 8

He went on to reference the value of the mutual learning and development which occurred amongst all of us involved in the Skipper Development Programme, and not only the growth of the skippers. A simulation exercise arranged by Human Resources with an outside consultant group was designed to ‘create a burning platform’ and give insight to the skippers of their lack of leadership skills. The simulation was of the Apollo 13 Mission and was very effective in other companies by all accounts. It failed completely with the skippers (by the admission of the facilitators) because the skippers were so used to ‘making a plan’ under emergency conditions that they aced every curved ball thrown at them. It was then we realised that we needed to deal with leadership differently!

The development of the Skipper Individual Performance Appraisal *based* upon the Skipper Development Programme was another ‘kicker’ in the success of the programme as the skippers could see exactly how they were performing which affected their bonuses. The controversial stance taken by the Marine Manager and me with the Human Resources Department meant we did not include a qualitative measurement for leadership which had been one of the key requests at the inception of the course. We believed that the leadership abilities were showing up in the quantitative Individual Performance Appraisal metrics because if the skipper was not leading he would not be getting these scores.

The Executive resisted including first mates and second mates as it was believed the issue lay with the skippers; however, if the second tier had been included it would have obviated a shortage of certified deck officers which was in the making. The Executive made the same decision, and for the same reason, that only chief engineers would be included in the Chief Engineers Programme. The difference in this instance was that the second and third engineers were so keen to be involved in IVET4 that they disregarded this injunction and joined Chief Engineers Programme anyway.

Lastly, change management requirements poured out of the Skipper Development Programme because the objective was to give responsibility and accountability back to the skippers. This meant that most procedures, protocols, and the locus of control needed to shift from shore to ship. For example, if Human Resources wanted the skippers to enact the Discipline and Grievance Procedures aboard, they needed to embark on a course similar to Programme One as all the capacity from that course had been lost; or if the Finance Department wanted the skippers to make commercially sound decisions, they needed to supply the financial information to the skippers so that they were not acting blind. In some instances the required change management practices occurred; however, in some of the key areas the change required was at best partial which constrained the impact of the Skipper Development Programme. There was a resistance to change borne of fear; or an inability of the Executive to grasp what sustained practices were required to embed change at sea; and there was a lack of commitment to the process as new crises appeared on the horizon for departments which were already short-handed.

3.14.2 How did Programme Twelve Influence my Education Theory and Praxis as an IVET Educator?

The first lesson I learnt here was to attempt to be more explicit with the Executive up front about the Ecologies of Practices of an IVET4 interventions (*if* there is a preparedness of the Executive to engage in such a conversation). In retrospect, on one hand, and given the *modus operandi* of the new Executive Team, perhaps the marine manager and I should have insisted upon time to develop a curriculum and assessment strategy. Time was needed to agree upon specific measurable outcomes and reporting protocols with all the stakeholders for all the modules, rather than doing it one module at a time as we built and delivered the Skipper Development Programme simultaneously. The mismatch was that the Executive wanted the Skipper Development Programme to start *immediately* and yield results; *and* they wanted a *fully developed course* before we started which would have taken three to four months to complete. Thus, their expectations were at odds, especially as the Skipper Development Programme was a first in the industry, we were pioneers and ‘making the road as we walked it’. There were no ‘off the shelf courses’ available. However, on the other hand, if we had developed a fully-fledged course up front, we may have missed out on the unexpected gains of the course as they emerged with the processes of building the course in a reflexive way as we went along.

The second lesson was simply a confirmation that without relationships, the benefit of any training or development will be diminished; and there is no short cut to developing love (trust and confidence) as it takes time (204 contact sessions) and genuine intent from all parties. And relationships need to be sustained after programmes finish.

It was a great privilege to work with the skippers who enriched my life and professional practice-praxis so deeply. They did this simply by who they were, and how they went about caring for others on their vessel, in their communities and in their extended families.

3.15 Programme Thirteen: Individual Competency Files and Engineering Modifier

3.15.1 What Happened? IVET4 Programme

Individual Competency Files: I was instructed by the General Manager of Trawlers to create an Individual Competency File for each skipper, chief engineer and production manager – 35 in all. The purpose of these files was to ensure that operational management knew their staff; and the files were also used for succession planning and individual training plans. The Individual Competency Files document focussed on the attainment by staff of five key competencies which the operational managers at Trawlers had agreed upon, namely: people management; leading for results; delivery focussed – keep

calm and fish hard; self-drive and resilience. The Individual Competency Files also recorded the results of the Individual Performance Appraisals; required marine certifications and ancillary qualifications; and records of the discussions between the shore-based manager and the vessel personnel. These were regularly updated and formed the basis of discussions between the managers and those reporting to them. The Individual Competency Files were also used by the Managing Director to update the Executive on the vessel management teams' progress. With the departure of the general manager in mid-2020 these files fell into disrepair.

Engineering Modifier: During the second year of the Skipper Development Programme roll-out, I was asked to assist with a project known as the Engineering Modifier. A new engineering manager had been employed and was required to restructure the Engineering Department entirely – people, processes, and machinery. This was to make good on a technical debt which had arisen over the years due to insufficient repairs and maintenance spend on the vessels. My work was in the People Workstream and involved supporting the engineering manager to review the organisational structure; revise all the Individual Performance Appraisals for the engineering staff; and to manage change management initiatives within the Engineering Department where the 'way of doing things around here' was substantially changed. An example of this was that the engineering superintendents were allocated particular vessels and this was changed to overseeing particular engineering systems for the entire fleet. It was a high-profile project which had the attention of the Executive. There were a number of iterations of the Engineering Modifier and in total the work lasted about 18 months. This project took me deep into the Engineering Department and set me up to lead the Chief Engineers Programme which was a recommendation of the Engineering Modifier.

3.15.2 How did Programme Thirteen Influence my Education Theory and Praxis as an IVET Educator?

I think that my split focus on the PP, Skipper Development Programme and then the Engineering Modifier constrained my effectiveness as a IVET4 educator as there was not time to finish one programme properly before starting the next. There were also constraints on the operational managers' time as they were also fighting fires. Nevertheless, the Executive were responding to the most urgent needs of the business. A repeated observation for me is that frequent changes in senior staff is constraining on both the IVET4 and in supporting on-the-job related initiatives. This is an example of 'frenetic standstill' which is expanded in the conceptual chapter. Karger makes use of Rosa's concept of 'social acceleration', commenting that more effort is put in for less value or results where there is a "heightened turnover of technologies, norms, workers and decision-makers" (Karger, 2021, p. 426).

3.16 Programme Fourteen: Chief Engineers Programme

3.16.1 What Happened? IVET 4 Programme

Role of Chief Engineers Programme in this thesis: The intention of Generation Three of the PP was to move into the Earning and Learning Model where all production training would take place on the ships. The learning would be mediated by Future People Online-In-Person Learning Platform and assessments would be done by the Production Management onboard. I had begun with the production of mobisodes for the Production Academy when there was a change of senior management and all the IVET4 projects were stopped with immediate effect. Nevertheless, as the Chief Engineers Programme and the PP were running concurrently, I had got far further with Chief Engineers Programme when the training was halted. Thus, I used the Chief Engineers Programme to illustrate the modest achievements which we managed in the time available. The blended online mediation, using Future People Online-In-Person Learning Platform, was a move towards transgressive learning, and thus, was key to include in this PhD as it points to a potential future for IVET4.

Summary of Chief Engineers Programme: The courseware creation, teaching and learning, as well as the assessment practices of the Chief Engineers Programme are covered in depth in the description and data analysis in Chapter 6, and I will not repeat them here. A summary of the programme is offered below:

- The Chief Engineers Programme was initiated by the Engineering Department to upskill all chief engineers (17 Turners). The content of the course was aimed directly at ancillary skills required in the day-to-day work of the chief engineer and these tied in exactly with his key performance areas on his annual Individual Performance Appraisal.
- The five areas included: mastering MS Office 2019, accurate use of procurement forms, implementing Planned Maintenance System on the vessels, accessing theoretical drawings and manuals to solve problems, and improving practical skills by assisting in the workshops alongside (ashore).
- The course was planned to run over 18 months and be taught using a blended E-Learning, Turner-driven approach which was a first in the industry i.e., the Earning and Learning Model mediated by Future People Online-In-Person Learning Platform. The five topics were divided into 50 smaller learning tasks which the Turner was required to complete in any order he chose.
- The Chief's progress was charted on a spreadsheet called Blokkies, he submitted timesheets for the workshops, and also had a Record of All Engagements maintained by the Facilitator. He was required to achieve a minimum of 80% for each task. The tasks are benchmarked against internal Trawlers standards and/or external standards as is appropriate to the topic.

- Two Formative Assessments (April and September 2021) and one Summative Assessment (March 2022) were planned for this course. A report was to be submitted for each Turner following these periods of assessment.
- The first intake, catering for the chief engineers only, commenced at full speed in February 2020 and ran for a month before the national lockdown. We continued during lockdown but at slower pace as we ramped up Internet Computer Technology-mediated learning using Future People Online-In-Person Learning Platform. A second intake begun on 1 March 2021 for the second engineers (15 Turners) and third engineers (13 Turners) and factory engineers (6 Turners). This intake was planned to run to September 2022.
- The programme was met with enthusiasm by the engineers and there has been a high level of engagement. The magic seems to come from the fun, interactive e-learning approach.
- The Chief Engineers Programme had an additional imperative which was to manage any organisational changes which became apparent through the delivery of the Chief Engineers Programme as the programme was interactive and responsive to improving bad engineering practices. These changes were found in policies, procedures, workflows, job responsibilities or performance indicators.

An emergent model of IVET4: A model of IVET4 had been ripening through the PP and the Skipper Development Programme and came to fruition in the Chief Engineers Programme. As illustrated in Figure 3.2 below there were seven steps which should be regarded as iterative rather than linear. Elements of this model can be observed in the reading of the PP and Skipper Development Programme above. A practical out-working of this model can be seen in the Assessment Matrix in Appendix 5. This power in this model is that: a) company goals; b) bespoke IVET4; c) and meaningful metrics are co-joined.

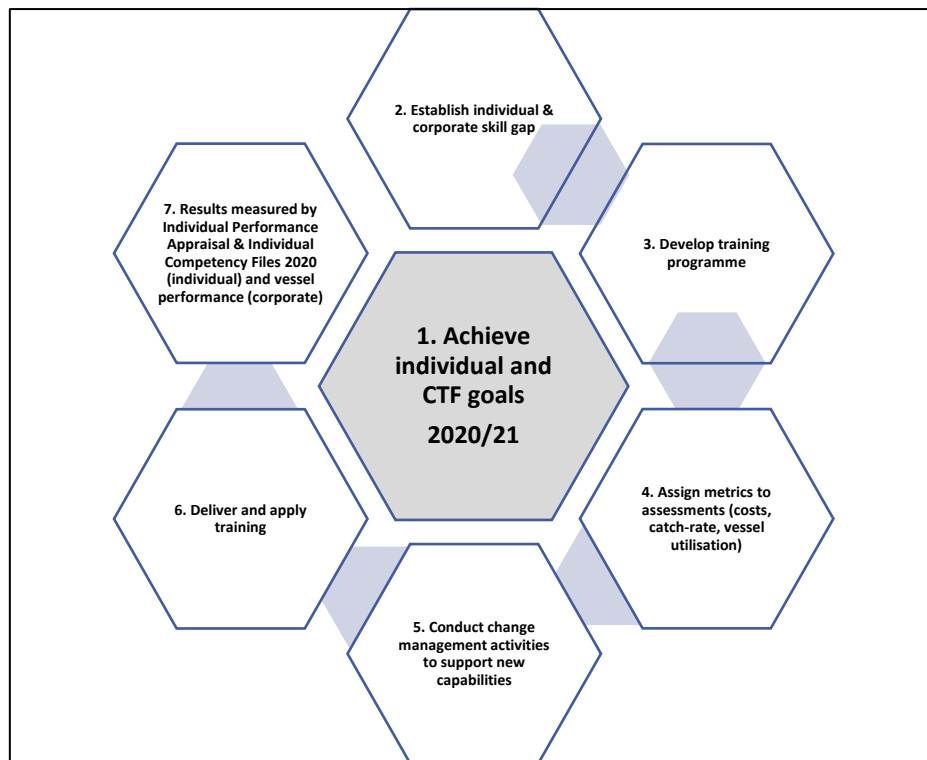


Figure 3.2: Emergent IVET4 Model

a) The **company's goals** need to be measured in meaningful metrics of operational and overhead costs, (fish) catch rate, and vessel utilisation. This data was drawn from the company's finance and administration software so that no additional work was required to generate the measurements, and importantly, the same numbers were being used for accountants and fishers. Shore and sea-going staff salary adjustments and bonuses are based on these figures too. Using the Company's goals as the 'north star' meant that all the personal goals and the company goals were aligned.

b) The IVET4 programme was a **bespoke training course** designed to build knowledge and skills capabilities which were required *on the job*, for example, the roll-out of the Planned Maintenance System or use of the procurement . The course was also tailor-made for the literacy requirements of the learners; and the logistical restrictions of training sea-going staff.

c) The **individual's performance** on the IVET4 is measured by his Individual Performance Appraisal or other job-related qualitative and quantitative metrics, for example, the PP's Standard Operating Procedure (Standard Operating Procedure/s) assessments for each job in the factory. This closes the circle as each individual's (positive, hopefully) results contribute to the company's goals. If the employee's results need improvement, this model allows the manager to pinpoint the skill or knowledge which is missing then the person can be re-trained. A detailed description of the seven steps can be found in the Chief Engineers Programme Module One Courseware (cf. Appendix 6).

3.16.2 How did Programme Fourteen Influence my Education Theory and Praxis as an IVET Educator?

The Chief Engineers Programme was one of the most exciting times of growth for me on two accounts: Firstly, the model explained above had become clear after years of trial and error; and secondly, my dream – of getting IVET4 to the sea-going staff, in their place of work, in a manner that made the learning comfortable and fun for them – was starting to happen. The ideation of Future People Online-In-Person Learning Platform, the mobisodes, the zoom contact sessions ... and all that went into the Learning and Earning Model became a reality. Even though the Chief Engineers Programme was cut, we had done enough for the Turners, the Leverage Professional and I to *know* it worked; and in our own ways have continued with the blended-online learning. It was a snowball that had been tipped just far enough to gather its own momentum – more of the unstoppable characteristics of IVET4 are detailed in the evidence chapter (cf. Chapter 6 and Section 6.7).

3.17 The Appearance of Formal VET in the midst of IVET4 Programmes

Going back in time to 2004-2006, I&J Limited paid for me to become a Sector Education and Training Authority accredited Courseware Developer, a Facilitator, an Assessor, and a Moderator. The thinking behind their investment at the time was that I had been delivering IVET4 for Trawlers for nearly a decade, and we anticipated converting some of the past and future IVET4 into formal VET. I&J Limited had also become an accredited training provider for the industry for various accredited courses. For reasons relating both to I&J Limited intellectual property, and the time-consuming accreditation process required by the Sector Education and Training Authorities, the IVET4 programmes which I continued to lead were never formalised. The need was too great to get the skills and knowledge into the workplace as soon as possible. This is evidenced above as the PP, Skipper Development Programme and Chief Engineers Programme were all ‘built in flight’ and we barely finished one before starting the next.

I used the Sector Education and Training Authority qualifications for other clients to develop, facilitate and assess accredited training in the areas of leadership, finance for non-financial managers, and performance management. I was grateful for the training as I was introduced to formal VET and some practices ‘travelled’ (Jane Wilkinson et al., 2013) well into IVET4, like the Assessment Matrix.

3.18 Conclusion to Chapter 3

Qualification Framework: As with the preceding chapter, to conclude I apply the Quality Framework (as laid out in Chapter 1) to this particular chapter. The knowledge characteristic of ‘Ethical awareness in research and professional conduct’ (CHE, 2018) is the most relevant quality characteristic for

Chapter 3. I made my ethics explicit as proposed by Benton and Benton (2004) by giving a thorough account of my relationship with I&J Limited and its people, and my own onto-epistemological growth *into* IVET4 over 25 years. This historical reflective narrative provides a rich description of the sayings/thinkings, doings and relatings which moved through the intersubjective spaces to expose the cultural-discursive, material-economic, and social-political arrangements underpinning the fourteen programmes described. I rely upon the “thick place in deep time” (Gill, 2002) description of this chapter as I press into the data description and analysis (Chapter 6); and the illumination of key cross-cutting dimensions or the over-arching PAs of IVET4 (Chapters 7 and 8). As established in the Introduction (cf. 3.1), history has its place in a practice-based research project, particularly of this nature.

A Reflection: Each programme added to my practice-praxis of IVET4 – much like one would build a stone cairn along the path, one stone at a time. The growth was exponential, gathering momentum over the years 1995-2015, and then rising steeply between 2016-2021 with the delivery of the PP, Skipper Development Programme, and Chief Engineers Programme. The emergent IVET4 model of Earning and Learning mediated by Future People Online-In-Person Learning Platform was as far I had got in my thinking before applying my mind through the lens of TPA. I now see that this emergent model was the kernel of a much larger Ecologies of Practices of IVET4 which matured over time.

If nothing else, IVET4 is complex!

CHAPTER 4: CONCEPTUAL FRAMEWORK



It was a lengthy and turbulent voyage through the literature on theories of learning that led me to the safe harbour of Practice Theory and into the comfortable berth of Practice Architectures Theory.

– Robin Ferguson, October 2021

4.1 Introduction to Chapter 4

For my research project I chose a socio-material approach drawn from the group of theories which constitute Practice Theory. Socio-materiality resonates with the enduring theme of this work – to make the invisible practices, visible. I used a derivative of Practice Theory, namely, Practice Architectures Theory (TPA). This chapter provides an outline of how I will open up this rich theory. In metaphoric terms, when I first came to TPA I thought of it as a single room and that it was likely that I would require additional theory or an under-labouring philosophy, like Critical Realism. However, as I read deeper into TPA, I realised not only was the theory a whole house but in fact a castle with many rooms to discover and that it was unlikely that I would ever reach the limitations of TPA for the purposes of this study. All thought of requiring more theory was dismissed.

I start with a description of how I became ‘stirred into’ Practice Theory, and subsequently TPA, and continue with my justification for the choice of TPA for this particular project (cf. 4.2). Next follows a description of the foundational building blocks of TPA which are illustrated by the figures provided to me by Professor Stephen Kemmis in July 2021 (Kemmis, 2021, personal communication); and will include the Ecologies of Practices (Kemmis, 2022, in press; Kemmis & Mutton, 2012) and the Education Complex of Practices (cf. 4.3).

Once this foundation has been laid, contemporary conceptual developments of TPA will be introduced (cf. 4.4). This begins with the conception of a ‘Trellis of Practices which Support (Formal) Learning’ (Francisco, 2020). The Trellis of Practices which Support Learning has particular potential to enrich IVET4. I then look at **learning** through the lens of TPA, and here witness the exchange of views between Kemmis and Schatzki on the essence of learning (Kemmis, 2021). This is followed by a discussion on the nature of engagement between **learner’s practices** and **teacher’s practices** as seen through the TPA lens (Kemmis et al., 2020). Next is **leadership** through the TPA looking glass with an emphasis on ‘leading from the middle’ and socially just leadership (Edwards-Groves et al., 2020; Gibbs, 2020; Grice, 2019). Leadership has particular significance in the central question of this dissertation whether the form of leadership relates to oneself or is positional, self-appointed, the leadership of teams,

or the selfless leadership of ‘leverage professionals’ (Jenkin, 2020). Jenkin’s (2020) creation of a leverage professional or actor builds upon the management studies ideas of “ leveraging intellect” (Quinn, Anderson, & Finkelstein, 2009) which acknowledges the contribution of employees’ capabilities in an environment where hard assets were privileged. Although not recent, but nonetheless essential to answering the fourth research question concerning transferability and scalability, I will discuss the ‘power of practices to travel’ (Wilkinson et al., 2013). Given the longitudinal nature of this study, **time** plays a significant role so I review the work of practice theorists who show a renewed interest in the place of time in practices; and time’s role in the reproduction of practices (Blue, 2019; Karger, 2021; Southerton, 2003). What follows is a substantial recent development to TPA where TPA has been embedded in a Theory of Education (Edwards-Groves, 2018; Kemmis, 2021; Kemmis et al., 2020). This chapter concludes with opening up the transgressive nature of TPA by offering four vantage points on this topic.

In Chapter 5 the heuristics (S. Kemmis, personal communication, July 31, 2021) which TPA offers have been woven into the research design and methods to enable a systematic generation, analysis and synthesis of the available data which maintains the internal consistency of this research project (cf. 5.3 and 5.4).

4.2 Being ‘Stirred Into’ TPA and ‘Coming to Know How to Go On’

4.2.1 Searching for a Theory

It took time to find a suitable theory for my study, firstly because I came from a self-taught, practical background of facilitating IVET4 rather than a formal education background; and secondly because the data was historical and had occurred over the last 25 years. This is different to data arising from real-time activities like observing a teaching lesson (Maton et al., 2016) where Legitimate Code Theory would be suitable; or data emanating from engaging in a formative intervention (Engeström & Sannino, 2010) where Cultural Historical Activity Theory would be fitting. I read into a number of theories and bodies of literature and explored the works of authors in the field, and I provide a sample below:

Bodies of Literature: Explored through reading and attendance of online lectures

- a) Cultural Historical Activity Theory
- b) Legitimate Code Theory
- c) Critical Theory
- d) Critical Realism
- e) Decoloniality
- f) Transformative-transgressive learning
- g) Just Transitions
- h) Monitoring and Evaluation

Key authors which influenced me outside of Practice Theory: Explored through reading over four years

Engeström and Sannino (2010); Maton et al. (2016); Daniels (2015); Le Grange (2018); Gherardi & Benozzo (2021) and Gherardi (2021); James (2019); O'Donoghue et al. (2019) and O'Donoghue (2014); Mukwambo (2021); Annecke & Swilling (2012); Capra (1996, 2002; 2007); Jordan (2013); Olsen et al. (2018); Glasser (2018); Wals et al. (2009); Illeris (2018); Yucel (2018).

Although it is not the intention of this thesis to provide an extensive history of Practice Theory or TPA because this thesis is an *application* of TPA rather than a *theorisation* of TPA (cf. 4.2.6 for an elaboration of this point), I include *Figure 4.0 Early Mapping of Practice Theory* below. Figure 4.0 was created in an online discussion with Lotz-Sisitka and Ramsarup in June 2020. Although it is not within the scope of this thesis, I acknowledge that a detailed genealogy of TPA would be useful especially in the light of the current critique or debate within TPA concerning the theory's lack of generative affordances (cf. 4.4.8.4 for further elaboration).

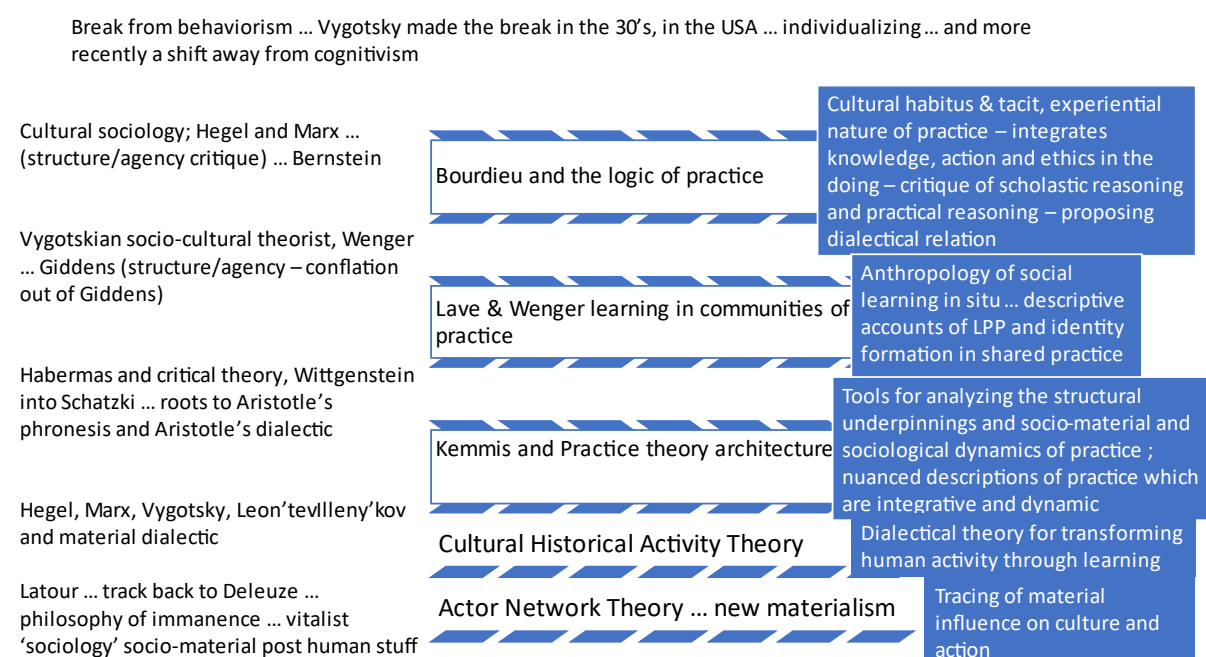


Figure 4.0 Early Mapping of Practice Theory

Each theoretical tradition is rich and deep, and they cannot be regarded as entirely discreet from one another as ideas appear to ebb and flow amongst them. After about a year of searching I picked up an article by an Australian, Nick Hopwood (Hopwood, 2014b).

4.2.2 Finding a Theory

A Special Edition of the *Journal of Workplace Learning* (Hopwood, 2014b) published a selection of the papers presented at the 2013 Research Work and Learning Conference held at Stirling University,

Scotland. The theme of the Special Edition was to introduce the visible and the invisible in work and learning. It was in this context that Hopwood (2014a) introduced his work on the four dimensions, which he suggests, are part of any learning experience. Prima facie these dimensions offered a way of potentially deepening my understanding of the IVET4 practices of the Production Project (PP). The four dimensions are times, spaces, bodies and things (Hopwood, 2014a, pp. 355–369). Hopwood’s central argument is that any learning (at work) cannot happen without all four dimensions being present in one form or another. Therefore, this theory offered the IVET4 PP at least four other vantage points from which to examine what took place before, during and after the programme. Although Hopwood works mainly with medical professionals, and especially those who deal with children, his work has broad applicability e.g. application to partnerships, signatures and accountability, or the practice of brilliance (Hopwood, 2014b; Hopwood et al., 2021a). During 2021 Hopwood et al. provoked the TPA community with papers on transgressive teaching and learning practices (Hopwood, 2021; Hopwood et al., 2021a). Hopwood’s work stirred me into Practice Theory which led me to TPA. TPA made sense to me because the starting point was the sayings/thinkings, doings and relatings of practices of the PP (which I had lived through). TPA provided me with the conceptual and heuristic tools to get into the ‘mechanics of the engine’ of the PP to understand the confounding and promoting practices which made this IVET4 programme work, and which offered ways of considering scaling of IVET4 practices.

4.2.3 Meeting the PEPpers

With the idea in mind of ‘only using as much theory as the problem requires,’ and as my work deepened, I found my research resonating with the approach to TPA taken by Kemmis et al. (Kemmis et al., 2014; Mahon et al., 2016). As I explored this approach to TPA, I drew upon the works arising from PEP – Pedagogy, Education and Praxis International Research Network (Gothenburg, 2020). Commissioned in 2005, PEP is a cross-institutional, collaborative research programme which brings together researchers from 13 universities in Australia, Columbia, Finland, Norway, Sweden, the Caribbean, the Netherlands, and the UK (Gothenburg, 2020). Recent contributing authors to PEP (Edwards-Groves, 2018; Francisco, 2020; Hopwood et al., 2021a; Mahon et al., 2016; Rooney et al., 2018; Sjølie et al., 2020), amongst other contemporary authors, have pushed the frontiers of TPA into new territory. This is of special relevance to my project as this new work pertains to the integration of TPA into the Theory of Education and TPA’s growing transgressive affordances.

4.2.4 Meeting Other Academics

In addition to PEP, I turned to the contribution of authors whose writings engage, directly or indirectly, with the Kemmis-Schatzkian Practice Theory Project in substantive, robust, and ongoing conversation. Interestingly enough other academics in the practice theory stable have found it necessary to be clear concerning the theoretical approach chosen. For example, Blue (2019, p. 924) made his alignment

explicit in his research concerning rhythm analysis and ‘time is practice’ when he explicated that his work drew from the Schatzkian approach.

4.2.5 Related Fields of Practice Theory

Practice Theory appeals to the mind, heart and body and relies on the five senses and human intuition; it distinguishes itself by appealing to a posthuman agenda which prioritises practices (Schatzki, 2001, p. 11). It moves away from privileging people, representational forms of knowledge and the subjugation of non-human elements in the learning process and allows for the exploration of “... learning and knowing (which) are rooted in action – including the ongoing action that brings forth the objects and identities constituting our worlds” (Fenwick et al., 2011, p. 1). There has been productive engagement with Practice Theory over the last three decades which has produced a plurality of approaches with diverging views of what constitutes a practice, what entities mediate practices and how practices should be analysed (Schatzki, 2001, p. 2). Nevertheless, there is a core consensus that “activity is embodied and that the nexus of practices are mediated by artefacts, hybrids and natural objects...” (Schatzki, 2001, p. 2). Practice Theory is dynamic, diverse, and informed by several intellectual traditions which endows the theory with a flexibility to support the complexity of education and professional practice.

Practice Theory has been used in a wide diversity of settings which seems to add to the complexity of the genealogy of this group of theories. Examples which are relevant to this study are organisational studies, professional practice and learning, technology in the workplace, and group learning. Although studies in unrelated fields like consumer resistance to the banning of plastic shopping bags in Chile (Gonzalez-Arcos et al., 2021) or marketing strategies (Jarzabkowski et al., 2013) were helpful in understanding the application and research designs used when applying Practice Theory.

4.2.6 Application not Theorisation of TPA

Although worthy of study and consideration, I decided to trace neither Practice Theory nor TPA to its genesis but to pick up the conversation with contemporary thinkers who have advanced TPA over roughly the last 15 years. The reason for this choice is that TPA is already an extensive theory with substantial recent progressions to describe. I concentrated my efforts in putting TPA to work in its most advanced form. This study is an *application* of TPA. The *application* of Practice Theory is not uncommon, for example, Spee (2022) opened up the contributions of Wittgenstein, Giddens, Heidegger, Bourdieu, Foucault and Schatzki to provide a Social Practice Theory Interpretative Framework which he then applied to his subject of strategic management research and practice-praxis. By following the Kemmis and others approach (Mahon et al., 2016), both a conceptual framework and a heuristic process (Kemmis, 2022) were provided; and this was suitable for guiding me towards answering both descriptive and expansive research questions. The intention was not a further study into the theorisation of TPA.

4.2.7 Justification in Summary

As we move towards the next section of this chapter which describes the nuts and bolts of TPA, to sum up the justification for choosing Practice Theory, and then TPA specifically:

- Firstly, Practice Theory and TPA provide a framework which surfaces the invisible allowing the researcher to move from the known, and what can be observed by the five senses, to the unknown, for example, the affective impact;
- Secondly, this theoretical approach allows for all dimensions (known and unknown) to be recalled and analysed by all participants regardless of literacies proficiency levels;
- Thirdly, TPA provides tools for data synthesis and analysis supported by an active and engaged TPA community;
- Fourthly, TPA has recently been successfully employed in research which tackles learning in the marine sector in South Africa (Bell, 2018). Lastly, Practice Theory and TPA differ, and it is precisely these differences which make TPA a desirable choice for this research project. The affordances of TPA which distinguishes it from Practice Theory are presented below (Mahon et al., 2016, pp. 16–18):

- politicises practice: makes the invisible, visible; and highlights constraints/enablers,
- humanises practice: encompasses ‘praxis’ – doing good,
- theorises relationships between practices,
- provides an ontological perspective: what’s, where’s and how’s of practice,
- offers insights to education, and
- offers us the concept of Ecologies of Practices.

For the object of my study, the PP and related IVET4 programmes as described in Chapter 3 (cf. 3.13, 3.13 and 3.16), TPA is particularly relevant to this research project because, as Edward-Groves stated (2018, p. 134):

The theory of practice architectures contributed to the field of social science for its capacity to show the nuances and distinctiveness of the practices and practice architectures of pedagogy that may indeed remain elusive in a highly complex field of study.

4.3 The Building Blocks of TPA

This section explicates the fundamentals of the TPA. In July 2021 Professor Emeritus Stephen Kemmis generously shared with me the figures which he had created to illustrate the elements of TPA. I centred my description of TPA around these diagrams. In this section I have developed my understanding of TPA from participating in the reading groups mentioned, from journal articles, and I found particular inspiration in four books on the topic: *Changing Practices, Changing Education* (Kemmis et al., 2014a); *Exploring Education and Professional Practice Through the Lens of Practice Architectures* (Mahon et

al., 2016); *Understanding Education: History, politics and practice* (Kemmis & Edwards-Groves, 2018); and *A Practice Sensibility* (Kemmis, 2019). I wish to acknowledge the deep work of many over the years that has built TPA, and I recognise the advantage and privilege of joining the conversation at this point.

Figure 4.1 below represents the basic building blocks of TPA, and each ‘block’ will be described individually below. Examples from this study are provided to illustrate how these elements have been interpreted and applied in the Production Project.

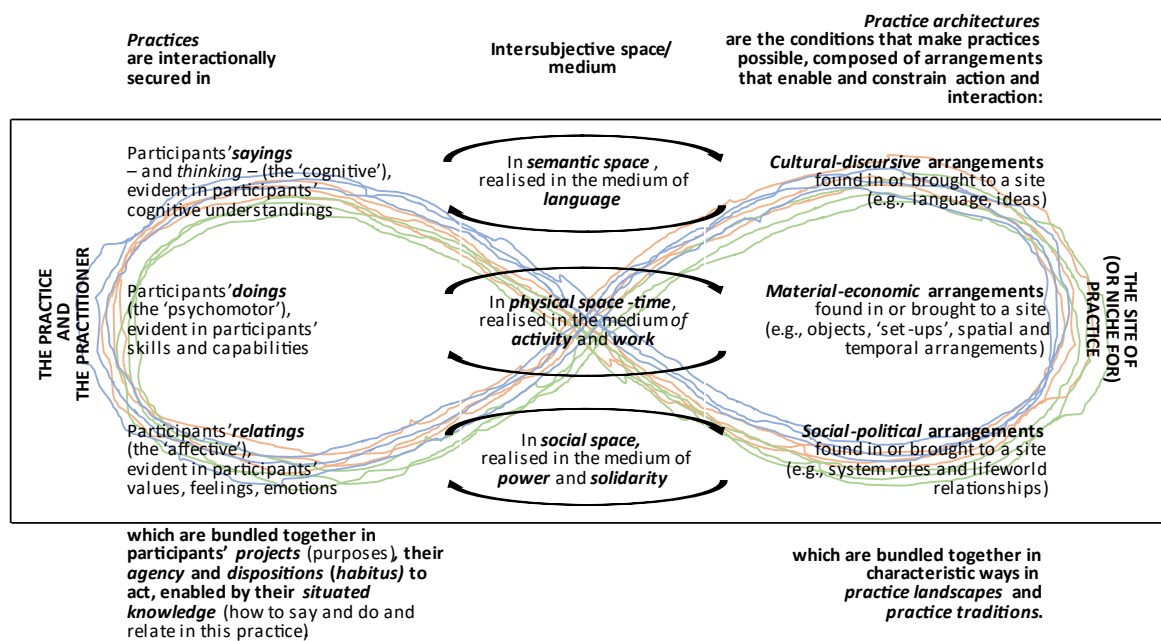


Figure 4.1: The Theory of Practice Architectures (Mahon et al., 2016, p. 13)

“The Theory of Practice Architectures is an account of what practices are composed of and how practices shape and are shaped by the arrangements with which they are enmeshed in a site of practice” (Mahon et al., 2016, p. 7). Practices are ‘sayings’ (and thinkings), ‘doings’ and ‘relatings’ which hang together in ‘arrangements’ forming ‘practice architectures.’ Practice arrangements are respectively described as cultural-discursive, material-economic, and socio-political. There is a constant interplay between ‘practice and practitioner’ and the site or niche of practice as illustrated in Figure 4.1.

4.3.1 Practices

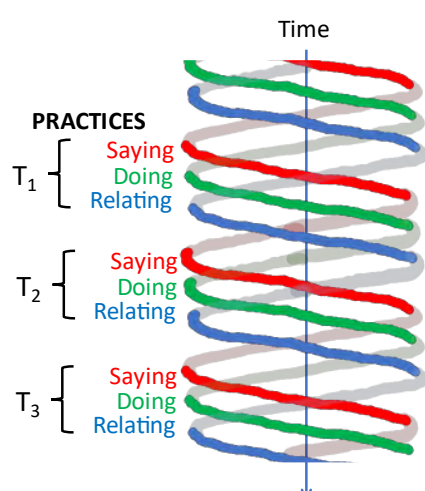


Figure 4.2: Practices (S. Kemmis, personal communication, July 31, 2021)

Practices are the smallest building block of TPA and may be described as:

A form of socially established cooperative human activity in which characteristic arrangements of actions and activities (doings) are comprehensible in terms of arrangements of relevant ideas in characteristic discourses (sayings), and when the people and objects involved are distributed in characteristic arrangements of relationships (relatings), and when this complex of actions – or interconnected sayings, doings and relatings – ‘hangs together’ in a distinctive project. (Kemmis et al., 2014, p. 31)

Figure 4.2 shows the movement of practices through time (T1-T3). This is pertinent to my study as it moves through Generations One, Two and Three of the PP over a five-year period as introduced in Chapter 3 (cf. 3.13), and that the PP is embedded in the practices of ‘deep time’ over 25 years. As explained in Chapter 3, the PP was shaped by preceding IVET4 practices, and the PP shaped the IVET4 programmes which occurred concurrently or after the PP.

To provide a concrete example of the conception of practices described above, I turn to practices which occurred in Generation One of the PP, and which are analysed in Chapter 6 (cf. 6.1, 6.5.1 and 6.6.1). These practices show the interrelatedness of sayings/thinkings, doings and relatings of the Executive Senior Management Team, the Operational Management at Trawlers and the IVET4 educators. The Executive Senior Management Team gave ‘top-down’ instructions (sayings) to Operational Management to commence the PP. The senior team did this because they held a negative view of the sea-going production staff and their level of competence (thinkings). Their instruction was taken up by the Operational Management who instructed the IVET4 educators to create and deliver the PP courseware and assess the learners (doings). The consequences of the IVET4 educators practices were that the PP went beyond conventional content-driven workplace training to relationship-driven IVET4 (relatings). Prima facie the sayings and thinkings of the Executive Senior Management Team look like confounding practices, especially if one considers the organisational culture of fear at the time; however, in the lived reality these practices promoted IVET4. To conclude this explanatory example, because of the interrelatedness of practices, practices which may appear to confound IVET4 may actually promote workplace learning, and vice versa.

Edwards-Groves (2018, p. 128) elegantly summarised the concept of practices into seven points:

- i. Practices are social
- ii. Practices are constituted by sayings, doings, and relatings
- iii. Practices are site-based and so nuanced and distinctive to conditions that exist at that site

- iv. Practices are shaped (or enabled or constrained) by practice architectures or mediating cultural-discursive material-economic social-political arrangements
- v. Practices are made and remade in the doing of it at the time in everchanging constellations
- vi. Practices are ecologically arranged and interdependent with other practices
- vii. Practices account for the individual and the collective.

4.3.2 Intersubjective Spaces and Practice Arrangements

Practices move through an intersubjective space or medium to become enmeshed in arrangements.

Sayings and thinkings are expressed in *semantic space* brought forth by language, where ‘semantic’ refers, not only to the actual words, but to the meanings or connotations of those words said in a particular context. This gives rise to *cultural-discursive arrangements* which may be ‘found in or brought to’ a site, and they constrain or advance education. To provide an example, language/s and the meaning of words shaped and were shaped by the PP. The Turners *brought to the site* many different languages; and they *found in the site* that the medium of instruction was English where one word may have more than one meaning, for example, ‘yield’ may be a road sign, or it may be the ratio of fillets of hake expressed as a percentage of the whole carcass. These cultural-discursive arrangements are *confounding* as the spoken language made learning more difficult.

Doings occur in *physical time-space* through *activity and work* and as they move through the *intersubjective space* the practices are enmeshed in *material-economic arrangements*. These arrangements “make possible or shape the doings of the practice by affecting what, when, how, and by whom something can be done” (Mahon et al., 2016, p. 10). Material-economic arrangements may include, for example, human or other-than-human entities, the classroom, the layout of the chairs, funding, artefacts used for mediation, schedules, or forms. In the PP, the creation and fabrication of the hard copy workbooks for the Freezer One and Two Courses; or the shipping schedule and shore leave rosters are solid examples of *material-economic* arrangements. The material-economic arrangements surrounding the courseware manuals *promoted* learning, while the shipping schedule and shore leave rosters *confounded* learning as it made the VET logistics complicated.

Socio-political arrangements arise by relatings moving through the intersubjective space of solidarity and power. Such arrangements shape and are shaped by the resources which enable or disable relationships. Examples could be the organisational structure, organisational rules, the ‘grapevine,’ power dynamics and social solidarities. Examples drawn from the PP include the conscious inclusion in the Freezer One and Two training courses of exercises to build relationships amongst the Turners themselves, and with us as facilitators. These relationship building practices *promoted* education because they increased trust and self-confidence. The Turners *brought to the site* their fears, prejudices, and expectations; and what they *found in the site* were *socio-political arrangements* established to value each person and to scaffold the knowledge building so no-one looked silly or was left behind.

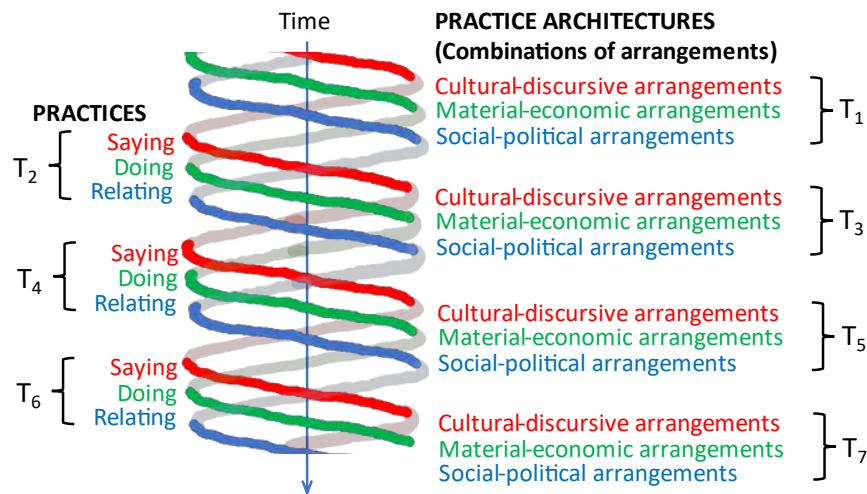


Figure 4.3: Practice Arrangements and Architectures (S. Kemmis, personal communication, July 31, 2021)

4.3.3 Practice Architectures

Practice architectures are combinations of the arrangements which hang together and move through time making practices possible. The distinctiveness of Practice Architectures lies in that they are an alchemy of the cultural-discursive, material-economic, and social-political arrangements i.e. the arrangements are amalgamated to form the overarching entity of Practice Architectures.

Figure 4.3 (Practice Arrangements and Architectures, S. Kemmis, personal communication, July 31, 2021) illustrates the dynamic and multi-directional process of practices (thinkings/sayings, doings and relating) bundling together into practice arrangements (cultural-discursive, material-economic and social-political) which combine to form practice architectures over time. In Figure 4.3 the illustration starts with practice arrangements (T1) and moves left to influence practices (T2) which in turn moves right to influence practice arrangements (T3) and moves left again to influence practices (T4) and so on over seven time periods in this illustration. Figure 4.3 shows a cycle of mutual shaping which occurs between practices and practice arrangements combining to form overarching practice architectures.

An example of a practice architecture is the shipping schedule as this schedule determines which ships will dock when and, therefore, which seamen can receive PP ashore.

4.3.4 The Practitioner

The *practitioner* in TPA departs from the classic understanding of an adult professional practitioner and means any human actor involved in the practices even a child, evident in, for example, work on the practice of brilliance in a multi-disciplinary team devoted to a paediatric feeding scheme (Hopwood et al., 2021a). In the instance of this research, the practitioners would include the VET educators, the Turners, executive senior management team and operational management, the leverage professional

(Jenkin, 2020) (cf. Section 7.2.3 for description of the term), Internet Computer Technology specialists, production, and engineering subject matter experts, and myself as VET educator-researcher. The *practitioner* shapes and is shaped by the site of practice. For example the Turners as a group brought into the site the need to be recognised, respected, and a need to have their self-confidence built before learning could take place. This need *shaped* the VET educators' onto-epistemological practice of teaching substantially, and in turn the Turners *were shaped* by the pedagogy of love. According to Mahon et al. (2016, p. 13) drawing on Marx (1845):

The materialist doctrine that ... [people] are products of circumstances and up-bringing, and that, therefore, changed ... [people] are the product of changed circumstances and changed upbringing, forgets that it is ... [people] who change circumstances and that the educator must himself [or herself] be educated.

4.3.5 The Site or Niche of Practice

Practices are “*situated* in time and space” (Schatzki, 2005 in Kemmis, Wilkinson, Edwards-Groves, Hardy, Grootenboer, & Bristol, 2014, p. 33). TPA provides a site *ontological* rather than an *epistemological* perspective on practices. “This means that the theory focuses more centrally on what practices are – how they are enacted in the world – rather than on what we need to know in order to practice them. Other practice theories, by contrast, focus more centrally on the knowledge ‘behind’ practices that appears to ‘drive’ practices” (Kemmis & Edwards-Groves, 2018, p. 124). An example of an application of the TPA ontological perspective can be found in Hopwood et al. (2021a) who described how brilliance is *made possible* and *enacted* and moves away from the prevailing literature which describes brilliance thematically.

Practices occur in physical or virtual places like classrooms or Internet Computer Technology platforms like Zoom, or in the instance of this research there are multiple sites of teaching and learning ashore and at sea. The site shapes the practices which occur there, and the practices in turn shape the site. An example of this shaping is the practical trimming and packing exercises which occurred at the Woodstock Factory. The Turners observed ‘that nothing gets wasted’ and that they ought to ‘up their game’ on the vessels to waste less fish. The factory was in turn shaped by the practice of teaching and the assessing of the Turners because a dedicated ‘line’ was set up in the factory especially for the sea-going staff. A visual outworking of this example was on the first occasion that the 20 men walked across an overhead gantry in the factory to get to their training line, the 300 women, processing fish two-storeys below the walkway in this enormous processing hall, started shouting, waving and banging their knives against the machinery in acknowledgement of the men’s arrival! As I walked with the men, it was unclear to me whether or not this spontaneous eruption was friendly or hostile. The sites of the PP are of particular importance in this work, as stated by Kemmis and Edwards-Groves (2018, p. 125) the TPA,

... site ontological perspective thus allows us to see *how* every site is unique, and *how* every practice is unique. We stop thinking about practices like teaching or learning, *in general*, and start thinking about how they are unique, in all their *particularity*.

4.3.6 Projects and the Habitus of Practitioners

Practices hang together in *projects*. Projects have objectives, are expediated by actions (sayings/thinkings, doings and relatings) which may or may not achieve the intended outcomes of the project (Mahon et al., 2016, p. 25). Habitus is a concept first introduced by a French Sociologist, Pierre Bourdieu (1977, 1990). The *habitus* of the practitioners effect the project. We each bring to the project our personal histories and habitus, where habitus means an individual's constitutional, physical make-up, his/her/their cultural background, how they perceive and react to the world. Habitus is often shared with others with similar backgrounds and opportunities. An example of this is the creation of courseware for Generation One of the PP. The aim of the project was to create three courses, Freezer Courses One and Two and the Wetfish Course. We achieved this largely because of the habitus of Charlene, Kevin, and me as the course creators because we shared a similar disposition, sense of humour and work ethic.

4.3.7 Practice Landscapes and Practice Traditions

Practice architectures bundle together in distinctive ways in *practice landscapes* and *practice traditions*.

A practice landscape

...refers to practice settings ... where multiple kinds of different practices occur, and in which there may be multiple and overlapping sites of practice. The term encompasses the people who are emplaced in the setting, the practices that are enacted there, the practice architectures that give the setting its character, and the practice traditions that have been established in the setting over time. It encompasses the relationship between practices, practice architectures, and the practice traditions within, and constituting, the setting. (Mahon et al., 2016, p. 25)

To provide an example, the practice landscape of Generation One of the PP was dominated by classroom teaching ashore, whereas the practice landscape shifted to mostly ship-based training mediated by an online learning platform in Generation Three of the PP.

Practice traditions “carry the imprints of prior sayings, doings, and ways of relating enacted in the practice. They encapsulate the history of happenings of practice ... and act as a ‘collective memory’ of the practice” (Kemmis, Wilkinson, Edwards-Groves, Hardy, Grootenboer, & Bristol, 2014, p. 26). Practice traditions are invoked in a workplace when people refer to ‘the way we do things around here’. (Mahon et al., 2016, p. 25). Sea-going life is rich with practice traditions, for example, a ‘nightie’ is an unexpected night ashore; or an ‘odd job’ refers to work that is done as a punishment like chipping and painting; or ‘spillow’ is a period of rest after a bout of ‘heavy fishing’; and lastly, ‘fry’ is a box of frozen fillets which is given to the crew as a benefit. An example of changing practice traditions in the PP is

the change from classroom based teaching with only group assessments in Generation One to mostly onboard training with individual assessments.

These landscapes and practice traditions hold the history of the practices, enable reproducibility, and “act as a kind of collective ‘memory’ of the practice” (Kemmis, Wilkinson, Edwards-Groves, Hardy, Grootenboer, & Bristol, 2014a, p. 31). This concept of collective memory in TPA is useful for this research which spans a quarter of a century. Kemmis noted the resemblance to Schatzki’s concept of ‘practice memory’; however, their views depart on how these memories are stored. Kemmis et al. (2014,) posited that memory keeping is neither simply the individual’s memories and nor could it be regarded as a collective memory. Rather,

We view practice memories as **sedimented** into the architectures of practice settings in terms of the languages spoken and discourses used there (for example, the discourse of technical sea-food processing at sea in English and interpretations in other languages), the physical set-ups and activity systems to be found there (for example, the set-up in the classroom to conduct group work and simulations and games), and the organisational arrangements that pertain there (for example, the respect, trust and love established with the Turners). Kemmis et al. (2014, p. 32, examples mine)

To ground this quote in the research, I substituted the school-based examples provided with examples from the PP. The Historical Reflective Review in Chapter 3 gives an indication of how the practice memories were ‘sedimented’ into the practice architectures of IVET4 which shaped the PP, and in turn were shaped themselves by the PP. The observation I make is that the ebbs and flows of these practice architectures shaped and were shaped by the culture of Trawlers. The culture itself was at the same time bigger than – and created by – the prevailing Executive Senior Management Team, and went through seasons of confounding and promoting IVET4.

4.3 8 Flows and Entanglement

The practices of sayings/thinkings, doings and relatings do not occur one at a time but all at the same time, all the time – they are entangled. The infinity sign in Figure 4.1 (The Theory of Practice Architectures) above denotes the following:

The left loop of the infinity symbol ... embraces the individual who enacts a practice (the person who is the product of circumstances and upbringing, who can change circumstances, and who must be educated), while the right loop embraces the site in which the arrangements together form the practice architectures for the practice (which are the historical circumstances that both form people and can be changed by people). In a true dialectical relationship, like the relationship of the chicken and the egg, each proceeds from the other.” (Mahon et al., 2016, pp. 13–14)

It is precisely both the ever-looping movement, and the ability to disentangle one practice from another, that made TPA a powerful analytical tool for my research. It allowed me to deconstruct the whole to its parts (practices); so that I could understand the whole (practice architectures), and thereby answer my

research questions on which practices and practice architectures confounded or promoted IVET4 in the PP and how such a programmes could be improved, transferred and scaled.

4.3.9 Ecologies of Practices

Kemmis and Mutton (2012, p. 201) described Ecologies of Practices in the plural as,

Distinctive interconnected webs of human social activities (characteristic arrangements of sayings, doings and relatings) that are mutually-necessary to order and sustain a practice as a practice of a particular kind and complexity (e.g. a progressive educational practice) ... Arguably, these practices form practice ecologies that are differentially hospitable to different kinds of teacher educational practices [or other practices] and student academic and social practices [or other practices], in the localised and broader sites where they play out.

The significant conceptual development for TPA of Ecologies of Practices was identified by Kemmis and Mutton (2012, p. 100) in their investigation of Education for Sustainability as an *emergent* practice which has resonance with the *emergent* and *emerging* Ecologies of Practices observable in the data explicated in Chapter 6 (cf. 6.2, 6.3 and 6.4) of the IVET4 PP, and further discussed in Chapter 8 (cf. 8.2.1).

The concept of Ecologies of Practices is of particular significance to this study as the Ecologies of Practices of IVET4 have particular distinguishing characteristics as do all Ecologies of Practices, however, the unfolding story of IVET4 is one of an emergent Ecologies of Practices which matures over the course of the PP between 2016-2021 which is explored in Chapter 8 (cf. 8.2.1, 8.2.2 and 8.2.3). Dispute over the term ‘ecologies of practices’ is manifest in the use of the singular or the plural words for ecology/ecologies and practice/practices (Kemmis, Wilkinson, Edwards-Groves, Hardy, Grootenboer, & Bristol, 2014a, pp. 44–46). As is evident in the preceding paragraph I have adopted the term ‘ecologies of practices’; this term may refer to a single IVET4 programme like the PP or to the interrelationship amongst more than one IVET4 programme, for example, the symbiotic relationship amongst the PP, Skipper Development Programme and Chief Engineers Programme depicted in Chapter 3 (cf. 3.13, 3.14 and 3.16).

At one time Ecologies of Practices may have been referenced as the ‘natural history’ of practices which is a term which still has relevance to this project given the length of time over which IVET4 practices were discovered and honed by me and others. The ontological perspective of TPA moves us from the general or abstract to how the practices and practice architectures exist in reality. The interest is not on how participants co-exist on a site but rather upon how practices and practice architectures co-inhabit a site, “sometimes leaving residues or creating affordances that enable and constrain how other practices [and practice architectures] can unfold” (Kemmis et al., 2014a, pp. 43–44).

When thinking about the Ecologies of Practices of the PP (or any project) there are a ten questions to be asked (Kemmis et al., 2014, pp. 43–54):

- Can we regard a practice *as* a living thing if it is made up of human and other-than-human elements?
- Are the outputs of one practice, the inputs of another?
- How are practices shaped by one another?
- Are the interconnections between practices strong or weak, and does this change over time?
- Are all practices present all the time?
- Can one practice assimilate another e.g. the teacher's words become part of the student lexicon?
- What practices endure over time, and which ones disappear?
- Which practices travel to a new site, or increase the capabilities of practitioners?
- Can practices be transformed to such an extent that they evolve into a different variant altogether?
- How do we determine if practices are, or are not, ecologically interdependent?

Inspired by the work of Fritjof Capra (2005), Kemmis et al. (2014, p. 49) provided scholars with a tool to answer these questions in one's own project by curating a table which acts as a translation device from nature-based ecosystems to Ecologies of Practices.

Table 4.2 is provided by Kemmis et al. (2014, p. 49) to illustrate the principles of ecology as criteria for determining whether practices and ecologies of practices are living systems in ecological relationships.

Table 4.1: Principles of Ecology (Kemmis et al., 2014, p. 49)

Concept ... If ecologies of practices are living systems, then ...
Networks: Different practices would derive their essential properties and their existence from their relationships with other practices
Nested systems: Different levels and networks of practices would be nested within one another
Interdependence: The sustainability of different practices (understood as different species of practice, manifested in reality in particular individual instances of that practice) would be dependent on one another in ecologies of practices (understood as an ecosystem), and the sustainability of an ecologies of practices would be dependent upon its relationships with other ecologies
Diversity: Ecologies of practices would include many different practices with partially overlapping ecological functions that can partially replace one another
Cycles: It would be possible to observe some kind of matter cycling through practices – for example, as in a food chain
Flows: Energy would flow through the ecologies of practices and the practices within it, being transformed from one kind of energy to another (in the way that solar energy is converted into chemical energy by photosynthesis) and eventually dissipated (as heat is lost from the bodies of living creatures)
Development: Practices would develop through stages, and ecologies of practices would also develop through stages
Dynamic balance: Ecologies of practices would regulate itself through processes of self-organisation, and would (up to some breaking point) maintain its continuity in relation to internal and outside pressures

Development: “All living systems develop, and all development invokes learning” (Capra, 2005, in Kemmis et al.. Development occurs through stages, each one sustainable in its own right although it may then be superseded.

Dynamic balance: “All ecological cycles act as feedback loops, so that the ecological community continually regulates and organises itself” (Capra, 2005, in Kemmis et al., 2014, p. 49). Living systems adapt to changes.

Figure 4.4 is an example of an Ecologies of Practices. It is the Education Complex and reflects the key practices found in formal education and grew up out of mass compulsory schooling (Kemmis et al., 2014, p. 52).

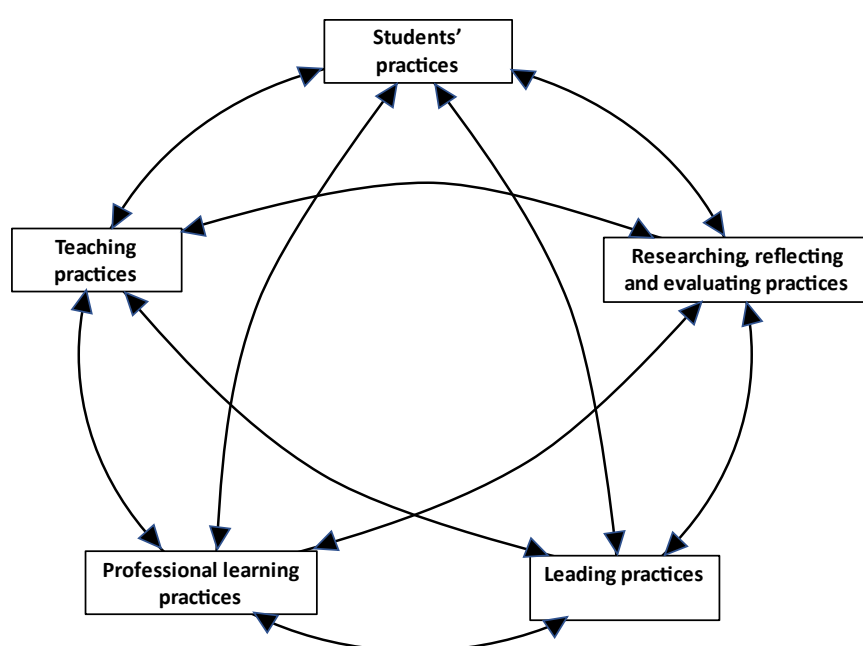


Figure 4.4: Education Complex
(S. Kemmis, personal communication, July 31, 2021; Kemmis et al., 2014, p. 52)

The IVET4 practices share core practices to formal education but have particular practices which create their own Ecologies of Practices. This idea is explicated in Chapter 8. Commenting on the transformative nature of the Ecologies of Practices, Kemmis et al. (2014, p. 51) said,

We contend that if *educational change* is to be realised, then the transformation agenda needs to address these practices not just one at a time; it seems to us that transformation of each requires the *transformation* of all five, in all their ecological interdependence.

Most recently Kemmis (2022, in press) has deepened the notion of Ecologies of Practices by applying the conceptions of the “co-production” of practices and the “mutual independence” of practices, and states that

When multiple practices are connecting with one another in a site, and if enough of these relationships of mutual interdependence and entanglement are formed, then an ecology of practices may begin to develop and evolve. We can identify whether and how this is so by examining whether the relationships exhibit the features of ‘*system-ness*’ that conform with Capra’s (2005) *ecological principles* between practices concerned. (Kemmis, 2022, in press, Ch 7 p. 1)

Through the reconceptualisation of the Ecologies of Practices, Kemmis (2022, in press) offers the research community further TPA tools for empirical observation and analysis, particularly in the instance of determining Ecologies of Practices.

One of the contributions of this PhD is the conception of the emergence and maturation of the IVET4 Ecologies of Practices which speaks to such a *transformation*. This is illuminated in Chapter 8 where I reference the theoretical foundation which I have laid above.

4.4 TPA Conceptual Developments

This section is intended to draw in the recent theorisation of TPA. The timing of the publication of these research papers and books has been both serendipitous and extraordinarily beneficial to my study and I owe a special debt of gratitude the authors mentioned below, and for my introduction to their writings through my participation in the Kemmis and Schatzki Reading Groups. This section has arranged itself loosely around the Education Complex. Firstly, I discuss a Trellis of Practices which is closely linked to the Ecologies of Practices discussed directly above; then in quick succession come IVET4 and Learning; Teaching and Learning; and Leadership. Then we move away from the key practices of education and turn to work on Travelling Practices; Time and IVET4; the (TPA) Theory of Education; and lastly, Transgressive TPA - making TPA dangerous!

4.4.1 A Trellis of Practices which Support (Formal) Learning and IVET4

The concept of developing a Trellis of Practices that Support Learning in the workplace was introduced by Francisco: “A trellis is made up of interconnected components that help support growth in a particular direction” (in Mahon et al., 2016, p. 110); and to expand further, trellises are considered to be interrelated practices which promote or hinder learning and underpin site-specific arrangements (Francisco, 2020). It is both the number of practices and the strength and diversity of connections which matters.

The research context examined by Francisco (2020) was the professional development of *formal* VET educators in Australia and was premised on the practices of the Education Complex (Kemmis et al., 2014). “Using the theory of ecologies of practices, it became apparent that some of these practices interconnected, and in some sites these interconnections were so extensive that they formed a trellis of practices that supported learning” (Francisco, 2016 in Francisco, 2020, pp. 107–108). The practices and

practice architectures which exist in a site pre-figure the development of trellises. They either enable or constrain the formation of trellises of practices that support learning. To detect the existence of a trellis and the strengths of the bonds, one can begin by examining the cultural-discursive, material-economic, and socio-political arrangements at a particular site surrounding a particular learner or VET educator. Where there is a dense concentration of practices which promote learning, and where these practices are interconnected, greater professional development of the VET educator is likely; and the reverse is equally true. Francisco suggested that features of a trellis of practices which support the learning of VET educators may include “mentoring, team teaching, discussions over shared morning tea, and collaborative development of teaching practices and resources: all practices that involved interaction with colleagues” (2020, p. 112).

The contribution of Francisco’s research “revealed that the development of a dense trellis of practices which support learning, rather than a small number of practices which support learning that were not inter-connected, better supported teacher learning” (2020, p. 114). This contribution was timely and pertinent for my research and my own praxis as a VET educator and for the Turners I taught for the following reasons:

- The concept of the trellis allows a deep dive into the experience of a single learner at a particular site, which provides insights into what broader practices could be changed or linked to improve the learning experience.
- I suggest that an application of the trellis concept could be extended beyond *formal* VET educators to *IVET4* educators and learners i.e. to the participants in the PP, Chief Engineers Programme and Skipper Development Programme. I explore this idea further in the Recommendations in Chapter 9 (cf. 9.2.1.1).

4.4.2 What is Learning?

This section is devoted to learning. This conceptual terrain is opened up by Kemmis in a recent paper entitled ‘A practice theory view on learning: Beyond a ‘standard’ view’ (2021) in which he reflected his dialogue with Ted Schatzki on the nature of learning. I present an extremely redacted version of Kemmis’s account of learning as my intention is not to theorise learning but to explain the ideas sufficiently so I can apply them. Some of the salient differences between Kemmis and Schatzki on learning expressed in this paper include:

- Schatzki suggested that practice theory can accede to the standard view of learning as acquisition (Sfard, 1998). He did, however, state that learning is more than knowledge and would include self-understanding, learning about feelings and normative values and so on. Schatzki’s view provides a *definition* of learning with his focus on the fact or acquisition of knowledge in a broad and inclusive sense.

- Kemmis (2021, p. 3) posited that practice theory has much to say about learning:

The view that learning involves the reproduction (with variation) and transformation of practices, and the production of new practices: a view of learning as coming to know how to go on in practices or coming to be able to go on in practices, or coming to participate differently in practices, or, most simply, coming to practice differently.

He explained how learning happens by taking a *dialectical* view of practices to avoid the dualism of knowledge and action. Through practices individuals enter the *intersubjective medium* of the semantic space, the physical time-space, and the social space. These spaces are greater than the individual and it is in these spaces that learning happens. Kemmis provides us with a *process* of *how* learning happens. When Kemmis concluded that ‘learning is not a practice,’ he realised that his views of learning were not as different to Schatzki’s views as he first imagined: Schatzki regarded “learning as what happened when at t^1 a person does not know a thing and at t^2 they do know it”. Kemmis (2021, p. 12) expanded,

On that formulation to say that learning has occurred when at t^1 a person can’t do some practice and at t^2 they can, or, more generally, when at t^1 a person enacts a practice in one way and at t^2 they enact that practice differently. In such a case, we can say that they have ‘learned’. But to say that people have learned is not, in my view, to say that they have participated in a practice of learning, it is merely to say that they have changed from one state to another, that their practice has undergone a transformation.

The reason I included this exposition on *learning* is four-fold. Firstly, this discussion sets up the conception of learning discussed in Section 4.4.8 on transgressive learning. Secondly, it provides insight into the idea that IVET4 moves from an emergent pioneer state (cf. 8.2.1) through a transition (cf. 8.2.2) to a mature settler state (8.2.3). Prima facie Schatzki’s view of learning represents the settler mindset of the Executive Senior Management Team; whilst Kemmis’s view explains the messiness of emergent IVET4 learning and reflects the mindset of the pioneering VET practitioners. And in the PP, both views are important. The third reason for this inclusion is that Kemmis’s *process* of learning is the theoretical basis for the decisions we made around *assessment* in the three generations of the PP which was if learning has occurred in the practice of teaching (facilitated or self-taught teaching) then it would show up in the workplace as an improved practice, for example, in t^1 a trimmer would over trim by 20%, and after a teaching intervention, his over trim (waste) would be reduced by 10% in t^2 .

The fourth reason stands apart as it levels a critique of an aspect of TPA. In the Afterword of a Special Issue in the *International Journal of Training Research*, Smith (2020) reviews five papers which addressed aspects of site-based learning for VET teachers. She suggests that there are six categories of learning namely, taught, sought, wrought, caught, brought and thought (Smith 2020, pg. 5). These papers all adopted a site-based theoretical positioning. The criticism of TPA was that the theory focussed the authors on contextual factors and workplace practices. And further that TPA did not isolate the practices of the individual learner even though the hubris of a learner is a significant factor in his/her learning (Smith 2020, pg. 5).

4.4.3 Teaching and Learning

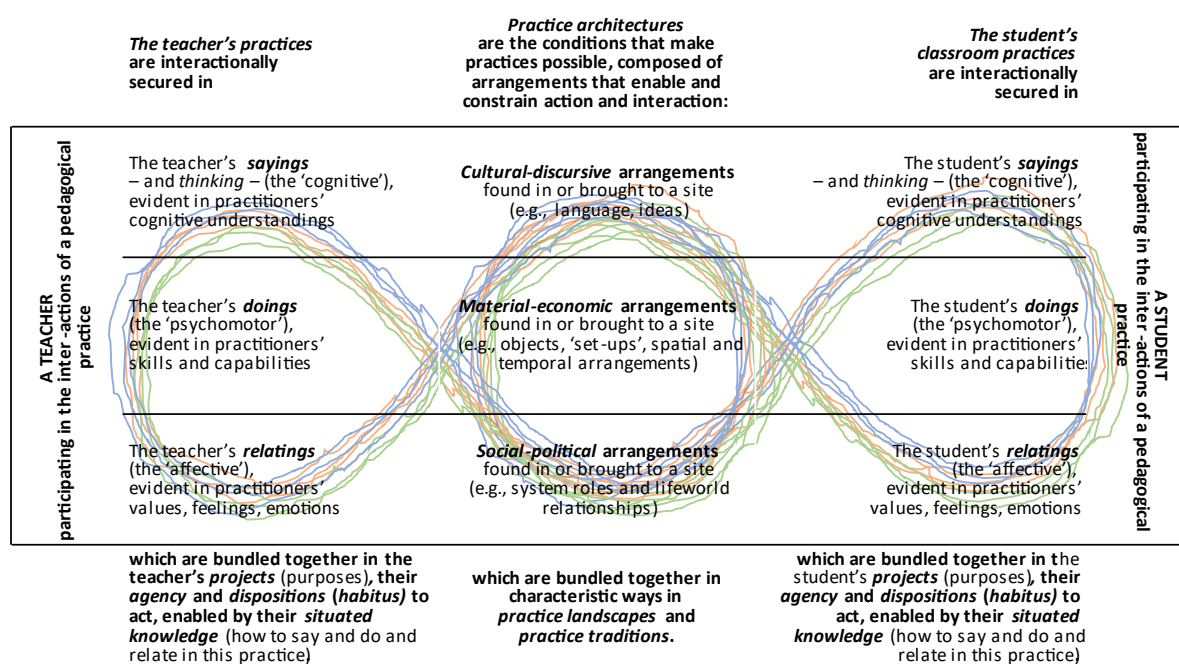


Figure 4.5: Teaching and Learning

(S. Kemmis, personal communication, July 31, 2021; Kemmis et al., 2020, p. 107)

Figure 4.5. above shows teaching and learning as ecologically connected in pedagogical practice and represents the dynamic relationship between teaching and learning which indicates a co-produced or dialectically related practice. This section provides the theoretical underpinning of an empirical reality which we observed as IVET4 educators in the PP. I reference the clarification of terms provided in Chapter 1 viz. learners who were acknowledged as Turners (with a capital T) which is an alchemy of the words 'teacher' and 'learner'. The capitalization of the word denotes the respect which we, as VET educators, hold for the learners. We learnt as much from the Turners as we taught them and together we figured out the pedagogical practice of the PP, Skipper Development Programme, and Chief Engineers Programme.

A less restrictive and less ambiguous perspective on pedagogy is opened up by Edwards-Groves (2018, p. 124) where,

Pedagogical practices are formed socially (within the company of others), dialogically (through talk and interaction), ontologically (in particular places) and temporally (in and through time) through a complex of actions constituted by characteristic sayings, doings, and relatings which 'hang together' in a distinctive project like learning about [production efficiencies and processes].

The left-hand side of the figure captures the practices of the teacher which hang together in the project to teach and are influenced by his/her habitus and agency enabled by the situated knowledge of the teacher/s. The right-hand side is a mirror image of the practices of the student/s. The middle of the

diagram represents the practice architectures which are composed of practice arrangements which either constrain or promote learning and teaching and are bundled together in *particular* practice traditions and landscapes. It is in the fluidity and at a granular level that this co-production happens “through turn-by-turn exchanges teachers and students co-create meaningful talk and interaction, pedagogical activities and roles and relationships” (Edwards-Groves, 2018, p. 130). Teaching and learning, teacher and learner, shape and are shaped by one another to create a distinctive pedagogical practice and as such are history-in-the-making.

This approach to the co-creation of the PP, Skipper Development Programme and the Chief Engineers Programme is helpful as it reflects the empirical data because it

... shifts attention to the particularity and the sociality of pedagogy as practices enacted in sites ... it accounts for the contingent, shifting and fragile relations among social phenomena like the pedagogical practices that happen in lessons [workshops, simulations, games] ... one that weaves teaching and learning into everchanging constellations of practices... and views pedagogy as happening in moments. (Edwards-Groves, 2018, p. 120).

Playing on the title *We Make the Road by Walking on it* (Horton and Freire in Edwards-Groves, 2018, p. 127), I reference our experience repeated in the PP, Skipper Development Programme and Chief Engineers Programme of *Building the Plane in Flight* (cf. Chapter 3, 3.13, 3.14 and 3.16). It was in the flying that we, the Turners and educators, ‘built the plane and learnt how to fly’ and, thereby co-created the IVET4 courses mentioned above.

4.4.4 Leadership through the Looking Glass of TPA

Kemmis et al. (2014 in Edwards-Groves et al., 2020, p. 122) noted that,

Leading as a practice may have as its central project the enabling, transforming, or reorientating of other practices, or the creation of conditions conducive to such change. Leading is thus constructed as a practice that orchestrates conditions in which a range of actors participate.

Leadership (or leading) is one of the practices represented in the Education Complex which is premised upon formal education. The topic attracts a high degree of interest in the ongoing theorisation of TPA (Charteris, Smardon, & Kemmis, 2021; Edwards-Groves & Grootenboer, 2021; Edwards-Groves et al., 2020; Gibbs, 2020; Grice, 2019; Kemmis et al., 2014). Leading practices are perceived as a transformative force. Despite the formal education context of this research, there are a number of leading practices which *travel* well into IVET4. These concepts are: [A] ‘leading from, within, and beyond the middle’ (Edwards-Groves et al., 2020); [B] relationality and middle leaders (Edwards-Groves & Grootenboer, 2021); and [C] ‘leading as a socially-just practice’ (Gibbs, 2020). The conception of the role of the ‘leverage professional’ (cf. 7.2.3) (Jenkin, 2020) is closely allied to the practices of middle leaders. I cannot do justice to the TPA body of leadership literature, however, I set out to create a theoretical platform for the discussion on ‘middle leading practices’ in Chapter 7.

Edwards-Groves and Grootenboer (2021) suggested that they were addressing an ‘empirical void’ in their work on middle leadership and relationality. I resonated with this term because I came to an understanding of ‘leading from the middle’ empirically in IVET4 many years before coming to the concept in the TPA literature.

The empirical outlook of this study on leading practices is: firstly, that I&J Limited is a commercial entity rather than an educational one; secondly, leading practices moved *beyond* the educational programme into organisational and management practices so leaders were employees of the company, rather than the principal or teachers of a school; thirdly, the majority of the *middle leaders* did not have positional or institutional authority to lead but they saw the leadership vacuum ‘and took it upon themselves’ for the good of the programmes with an attitude of ‘ask for forgiveness, rather than permission’; and lastly, all leading practices were in the context of pioneering, emergent IVET4.

I render this standpoint on the empirical context to provide the reader with an ‘insider’s view’ on why leading practices in the literature open up the sayings/thinkings, doings and relatings of un/official leaders connected with the PP, Chief Engineers Programme and Skipper Development Programme which appeared in the data in Chapter 6 (cf. 6.5.1 and 6.5.3) and are further discussed in Chapter 7 (cf. 7.2.3.1). TPA has a number of central characteristics which make the theory a powerful tool for conceptualising leading as a co-constructed, socially situated practice, which “focusses on the ‘happeningness’ of leadership, making the actual practices of leading its main emphasis” (Edwards-Groves et al., 2020, pp. 117 & 119).

[A] Leading from, within, and beyond the middle arose as a response to the neoliberalisation of education with its increased demands for control and surveillance which evoked a strong focus on site-based educational development in educational institutions (Edwards-Groves et al., 2020, p. 6). The genesis of middle leading is relevant to this study as the IVET4 programmes took place within a neo-liberal organisation and the rise of middle leaders in the IVET4 programmes was evident.

The conceptual development of leading from, within, and beyond the middle has evolved over a decade of research (Edwards-Groves et al., 2020, p. 128). Leading *from* and *within* the middle can be defined as:

The practice of teachers [IVET4 educators and employees of I&J Limited] leading from and within the middle involves engaging in simultaneously interrelated practices – *leading and teaching by managing and facilitating* educational [and organizational] development through *collaboration and communicating* to create communicative spaces for sustainable educational [organizational change] action. (Grootenboer, 2017 in Edwards-Groves et al., 2020, p. 129)

I have rooted this definition in my study by providing examples of how leading *from* the middle played out in the workplace (cf. 6.5.1, 6.5.3 and 7.2.3.1).

Leading *within* the middle can be explained as where positional authority is exchanged for shared responsibility and participation to achieve a particular end. The example given is of a principal ‘stepping down’ to work alongside her staff, the students and the community which enabled educational transformation (Edwards-Groves et al., 2020, p. 129). This is exactly what happened in Generations One and Two of the PP where the VET educators ‘stepped down’ and invited the operational manager and Turners to co-create the course materials and delivery of the programme as explicated in Chapter 6 (cf. 6.2.1 and 6.3.1). This resulted in a robust, relevant course which had the buy-in of all parties.

Leading *beyond* the middle ‘extends’ beyond the local to broader systemic spaces. This was a feature of both Generation One and Three; in the former my leading practices went *beyond* the training to initiating organisational changes at Trawlers to support the emerging outcomes of the IVET4. In the latter, we tackled online learning for the PP and the Chief Engineers Programme which involved going *beyond* to Anglovaal Industries Ltd and to the Council for Scientific and Industrial Research as described in Chapter 3 (cf. 3.16) and Chapter 6 (cf. 6.4). I suggest that this is more in line with Wilkinson’s ‘leading as travelling practices’ (2013).

[B] Relationality and middle leaders: “Leading site-based education [and organisational] development is principled *relational* work that creates conditions for bringing about effective, democratic, and respectful relationships” (Emphasis mine. Kemmis, 2009 in Edwards-Groves et al., 2020, p. 130). Relational trust is identified as a practice architecture which enables learning; and which has implications for middle leaders’ practices. In delineating relational trust three notions of trust, namely organic, contractual and relational trust are necessary for relationships amongst participants in a project, like the PP (cf. 6.7 and 7.2.3), if productivity is to be sustained, and if development and change are to emerge (Bryk & Schneider, 2002 in Edwards-Groves & Grootenboer, 2021, p. 4). In expanding the conceptualisation of relation trust for middle leading, Edwards-Groves et al. (2020, p. 130) identified five inter-connected forms of trust: interpersonal trust, interactional trust, intersubjective trust, intellectual trust, and pragmatic trust. Given the that the title of this PhD includes the words, ‘pedagogy of love’, relationality is a key dimension in the delivery of effective IVET4; and is illuminated in Chapters 6 and 7.

[C] Leading as a socially-just practice: Leading practices in education ought to promote good. In their systematic review on leading as a transformative practice, Edwards-Groves and Grootenboer offered three themes which relate to whether the leading practice was good namely, leading as enabling; shared leading, and leading as praxis. A pertinent outcome of this work for middle leaders is that if their praxis leads to the “fostering of safe places” this enables collaborative and group learning experiences (2020, p. 124). This practice was particularly important in Generation One and Two of the PP where relational bridges were built between the Turners and the VET educators before content teaching commenced.

Gibbs (2020) looked at the ‘emergence and development of leading as a socially-just practice’ in early childhood development. She examined her data through two lenses (complexity leadership theory and TPA) and her research question centred around organisational practices which promote or constrain socially-just practices of leading. This research orientation was useful to my study. Complexity leadership theory allowed for the conceptualisation of various forms of leadership namely, the hero (charismatic, authoritarian) leader, collective leadership, and leadership as pedagogical praxis which is “defined by key features of knowledge, theory, practical wisdom, craftsmanship and action” (Palaiologou and Male, 2019 in Gibbs, 2020, pp. 296–297). The theorisation of *praxis* as opposed to *practice* incorporates social justice and is covered under the section on transgressive VET below. Findings which are relevant for my study include looking beyond the individual leader towards collective approaches and including both positional and emerging leaders; and generating cultural-discursive arrangements which promote trust and informed decision-making which move away from the unquestioning application of policy or procedures (Gibbs, 2020, p. 305)

4.4.5 Practices which Travel

The theorisation of travelling practices is important when considering Research Question D regarding the transfer and scaling of IVET4. A “*practice-informed* lens can shed light on the spread of practices, which foster the conditions necessary for transformed pedagogy” (Wilkinson et al., 2013, p. 224). Wilkinson et al. selected the ‘leadership’ practice from the Education Complex and their observations are based on parallel case studies in Australia, Sweden, and Norway. Nevertheless, the authors note that the interconnectedness of the other practices (professional development, student, research and learning practices) in an Ecologies of Practices must be taken into account too (2013, p. 228). The empirical data is ‘read’ through two lenses: firstly, practice theory gives practices their “meaning and comprehensibility”, their “productiveness” and their “solidarity” (Kemmis et al., 2009 in Wilkinson et al., 2013, p. 228); and secondly, the *new* organisational literature which takes a sociological view of organisations and makes way for a more contextualised approach rather than individualistic one (Czarniawska and Sevón in Wilkinson et al., 2013, p. 224). This focus meant that the relationship between practices could be assessed, rather than the relationship between practitioners (Wilkinson et al., 2013, pp. 224–226). This is highly relevant to my second claim to new knowledge as I posit that matured IVET4 Ecologies of Practices travel (transfer and scale) and that this process is (mostly) agnostic of the participants. This is elaborated in Chapter 8 (cf. 8.2).

Schatzki (2002 in Wilkinson et al., 2013, p. 224) stated that,

The concept of *travelling* [is used] to analyze how a range of interconnected practices evolve and travel over space and time and then if the conditions are right, ‘hang together’ in the new sites to create distinctive educational ‘projects’.

An example from my own work would be: Could the PP *travel* down the quayside to Sea Harvest, another large commercial fishing venture? And how would this happen? In this instance, the answer is

‘yes’ as some of the practices of the PP did travel to other trawling companies, through the movement of staff between organisations, particularly Skippers.

In terms of organisational theory, in order for a practice/idea/object to travel, it must first become separated or ‘dis-embedded’ from its original institutional environment and then

... translated into an object such as a text, picture, or prototype ... travel through the relevant fields of organizations to another time and place, where it is translated to fit the new context (unpacked). Finally the object is translated locally into a new practice (re-embedded), and with time, the black box of the institution may close itself around the idea. (Erlingsdottir & Lindberg, 2005 in Wilkinson et al., 2013, p. 227)

Wilkinson et al. (2013, pp. 227–228) proposed that there are four elements which may promote or constrain practices travelling from set up to another. I discuss each dimension and provide an explanatory example from my own work:

- The *carrier* of the practice/s: This could be myself or Kevin who promote the ideas to the South African Maritime Safety Association or another fishing company.
- The *context* of the practices: This relates to where or how one gets to know about an idea. An example of this is my collegiate work with Dr Metelerkamp on IVET4 where I learnt about the power of WhatsApp as a teaching and learning mediation tool, which I then appropriated and adapted for my work in the fishing industry.
- The degree of perceived ‘fit’ of the new idea or *object* itself is also relevant here as new ideas are viewed through the ‘prism’ of the organisation’s mission [culture, VET needs etc.].
- The timing, quality, and frequency of *contact* that the carrier [human or other than human] has with the carrier of the new practice/s. My first meeting with Dr Ferguson who introduced me to the Micro-Enterprise Media Engine was followed by many conversations, demonstrations, and meetings to get to the point where the idea travelled from the Council for Scientific and Industrial Research to I&J Limited where this technology was applied and became known as I&J TV. The more frequent and meaningful the *contact* is, the more likely it is to travel.

To close this section, I provide an illustration of the potency of co-joining *time*, as discussed below, and *travelling practices*, by pointing to work done in the energy sector recently. The research centred around the need to increase flexibility in the energy systems. The practices which ought to *travel* to ‘foster flexible futures’ were those that supported the inclusion of social practices, which determined the *rhythm* of supply and demand of energy. One of the reasons that these ideas did not ‘*catch on*’ or *travel* was insufficient effort and weighting being given to – and taken by – the social sciences to thoroughly illuminate the historical and social notions of *time*, for example sequencing and synchronisation. Should social theories on *time* be embedded in similar studies in the future this would *promote the travel* of ideas to support a low carbon future (Blue et al., 2020). The power of linking the theorisation of *time as practice* and *travelling practices* can be demonstrated empirically (cf. 6.81 and 6.8.2) in the I&J

Limited example where the *travel* of the online learning practices was confounded by the *timing* of multiple senior management changes – a feature of *social acceleration*.¹¹¹

4.4.6 Time and Practice Theory

4.4.6.1 *The Importance of Social Theories of Time in IVET4*

The purpose of this section is to set up a sufficient conceptual foundation on *time* and *practices* as it is a significant dimension for IVET4 as already introduced in Chapter 3. Given the constraints of this PhD, this section is not an in-depth review of the social theories of time. I draw upon a number of theorists (Blue, 2019; Karger, 2021; Southerton, 2003) to open up different theoretical perspectives on the relationship between time and practices which are relevant to my study. There is an increased interest in time in practice theory and practice-based empirical research (Blue, 2019; Karger, 2021).

Time has a threefold importance to my study which deals with five key practices – creation of courseware, teaching and learning, assessment, love, and management practices (cf. 6.2 - 6.8). Firstly, because my project spanned 25 years (cf. Chapter 3), an analysis of time provided insight into how the past key practices abovementioned, shaped present and future key practices in indeterminate ways; and how this happened to form more or less dense, complex, and embedded IVET4 Ecologies of Practices which emerged and matured over time (cf. 8.2.1-8.2.3). Secondly, the passage of time was important in my own practice/praxis as I matured from a novice to an experienced IVET4 educator (cf. 9.6.2). Thirdly, this scholarship opens up the idea of institutional rhythms which has relevance for the relationship between the Executive Senior Management Team and the operational managers at Trawlers, for example, the Executive Senior Management Team were constrained by a corporate rhythm dictated by the neo-liberal agenda of a multi-national company; whilst the operational managers were constrained by the nature of an operation which deals with an unpredictable natural resource, weather, tides, and aging ships (cf. 6.8.1, 6.8.2 and 9.2.1.3). This work illuminates the invisible web or force fields which time weaves around IVET4 practices, past, present, and future, and the institutionalisation, or not, of IVET4 practices.

4.4.6.2 *Practice Theory and Rhythmanalysis*

Blue (2019, p. 922) proposed combining Schatzkian practice theory (Schatzki, 1996, 2002, 2010 in Blue, 2019, p. 924) and rhythmanalysis (Lefebvre, 1992 & 2004 in Blue, 2019, p. 924) in a bid to explicate processes of institutionalisation. This work opens up my first point above concerning the emerging and maturation process of the IVET4 Ecologies of Practices. Blue noted the risk in combining two different social ontologies and established that there is sufficient compatibility to combine Schatzki's work on practice theory and Lefebvre's contribution on rhythmanalysis. He also acknowledged that any such combination "inevitability requires both building and modifying each in

¹¹¹ Social acceleration is regarded as: "the processes of differentiation, rationalization, individualization and domestication of nature cease to unfold when they stop contributing to the acceleration" (Karger, 2021).

producing a new conception of the social” (Blue, 2019, p. 924). Blue proposed that practice theory offers an explanation concerning social phenomena (for example, an institution like I&J Limited) and for the reproduction of connected practices but that practice theory does not indicate *how* these practices *become* entrenched. He suggested that the reason for this absence is the way that time is conceived in social practice which is firstly, as *practices in time* (objective and quantitative); secondly, as *time in practices* (subjective and qualitative); and thirdly, as *time as practice* (Blue, 2019, pp. 925–935). To maintain the theoretical focus pertinent to my research I will only pick up on *time as practice*. In Schatzki’s words: “Time-space neither accrues to nor is built up through activity. It is, instead, a central constitutive feature of human activity, where by ‘constitutive’ I mean helping to make up what something, in this case activity, essentially is” (Schatzki, 2010, in Blue, 2019, p. 936). The density or sparsity of time-space connections creates webs where the past matters for the present and the future in indeterminate ways.

Having established that “time ... is an inherent and constitutive feature of practices”, Blue set about asking “How exactly do connections between practices *become* more or less entrenched, more and less densely and complexly established?” (2019, p. 936). This question goes to the heart of how IVET4 becomes institutionalised or fades away. Blue proposed a *rhythmic ontology of practice* and answered his own question by engaging Lefebvre’s ‘rhythmanalysis’ which also conceptualises time in ‘the third’ way calling it *practice is time* (2019, pp. 936–940). This explains how:

- Practices are linked;
- More or less densely connected, temporally and in other ways;
- Fixed and flexible within bundles, complexes, and constellations; and
- Connections are entrenched, established, and institutionalised.

Further Blue suggested (2019, pp. 939–940) that,

Time can instead be thought of as an expression of the forces that practices exert across the plenum of the social as they are enacted and repeated. Time becomes instead something like the rippling effect across the pond that matters objectively for when and where action happens and that matters subjectively for experiences of ‘time-squeeze’, ‘time-pressure’, and ‘chill time’.

Blue expanded on two other concepts: Firstly, *institutional rhythms* where “rhythms [are composed of] all kinds of social phenomena ... and are not closed entities ... [and therefore we can] consider practices as open spatiotemporal entities, [also] to be rhythmic” (Blue, 2019, p. 937). These rhythms may be *eurhythmic* which are healthy, synchronised, strong, dense, and create complex connections, for example, the working day; or *arrhythmic* which are pathological, desynchronising and disruptive, for example, the 2008 Global Crash; or lastly, *polyrhythmic* where *eurhythmic* and *arrhythmic* rhythms exist within a rhythm, for example the organisational practices of the ‘way things get done around here’

at the division of Trawlers and the multi-national corporation culture at the head office of I&J Limited (Blue, 2019, pp. 940–942).

The second concept is *entrainment* and is a similar idea to chronobiology (cyclical physiological phenomena). One would seek out the ‘time clocks’ in practices to identify the webs and connections woven by time. An example of entrainment in my study would be a change in the docking time of a vessel which would have a ripple effect on the timing of the fish discharge process, the timing of the delivery of all the shore services, and possibly whether or not there was time to visit family ashore before setting sail again (Blue, 2019, pp. 942–944).

4.4.6.3 *Squeezing Time in IVET4*

I have included Dale Southerton’s work on *Squeezing Time* (Southerton, 2003) because his conceptualisation of the ‘time squeeze’ and notions of being ‘rushed’ and ‘harried’ are useful in understanding why some practices and practices architectures in the PP were promoted or constrained. Firstly, this work is particularly useful when examining the impact of management practices on IVET4 programmes (cf. 6.8.2 and 6.8.3); secondly, when looking at the timing of shore-based training (cf. 6.2.1); and lastly, Southerton’s work offers insights on the liberatory effect of the blended online training in Generation Three of the PP (cf. 6.4). He wrote from the perspective of the first and second conceptions of time i.e., practices in time (objective) and time in practices (subjective); and moved away from the dominant academic narrative of (those) days which was that people are harried because they do more and consume more. Southerton was able to make this departure because he looked at the actual practices to draw his inferences. He noted, 19 years ago, that it is likely that society’s temporal structures will erode with the rise of ‘deroutinization, ‘flexibilization’ and ‘informalization’ (Southerton, 2003, p. 7). The Covid-19 pandemic has accelerated this erosion and set up a polyrhythmia where post-pandemic temporal structures are still in the making. IVET4 at I&J Limited was (and is) no exception to this temporal corrosion and uncertainty of ‘how to go on’. Examination of the third theme of this study on Work and Career bear testimony to the I&J Limited reality today (Southerton, 2003, p. 12). In his discussion on how to avert ‘harriedness’, the concept of *hot spots* and *cold spots* are introduced. “Hotspots are practical arrangements that permit the generation of cold spots ... [where] hotspots were characterized by a compression of tasks into specified timeframes so that ‘time’ was ‘saved’ for more ‘meaningful’ social activities [i.e. cold spots] (Southerton, 2003, p. 19). Programme One: Labour Relations was conducted during ‘hot spots’ when the fishers were ashore for a limited time and had many competing priorities; while the Chief Engineers Programme mediated Future People Online-In-Person Learning Platform, occurred in ‘cold spots’ whilst the engineers were at sea and could study in their own time (cf. 3.1.6 and 6.4). The former hot spot constrained IVET4 while the latter cold spot promoted it.

4.4.6.4 *Frenetic Standstill in IVET4*

Karger (2021) presented the concept of the *Frenetic Standstill* (also called Racing Standstill) based upon his recent work on the Czech National Qualifications Framework. In the instance of this study, this is considered ‘formal’ VET, however, the concepts are worth considering in the maturation process of IVET4. Beyond the two imperatives of ‘economisation’ and ‘vocationalism’ of (formal and informal) VET, is thirdly “learning represents a way to keep up with the pace set by the technological advancements in the economy” (Karger, 2021, p. 424). All three reasons are true for the I&J Limited informal VET conducted from 1995 onwards as described in Chapter 3. Karger wrote in the context of the Fourth Industrial Revolution and interpreted his data using the concepts of ‘frenetic standstill’ and Hartmut Rosa’s ‘social acceleration’. A frenetic standstill is “characterized by an expenditure of ever more resources to maintain the current state by losing a perspective of any strong direction of development” (Karger, 2021, p. 426); social acceleration is “the processes of differentiation, rationalization, individualization and domestication of nature cease to unfold when they stop contributing to the acceleration” (Karger, 2021). Particularly noteworthy in the I&J Limited scenario is that frenetic standstill is exacerbated when there is a “heightened turnover of technologies, norms, workers and decision-makers” (Karger, 2021, p. 426), or put another way, when there is increased social acceleration which “is exhibited through the increasing frequency of cycles such as the turnover of rulers/governments, jobs, or memberships” (Rosa, 2013, in Karger, 2021, p. 426). In its simplest form the thesis of Karger’s work is that the Czech National Qualifications Framework “produces a steady output of new standards and examinations, prolonged processes and an accumulation of maintenance requirements indicate that it takes more to produce the same” (Karger, 2021, p. 439). Nonetheless this is not producing the acceleration in adult learning that would be expected and the author suggested that Rosa’s theory of social acceleration provides the reason for this disjuncture: “social acceleration seems to be perpetuating itself as a relatively independent force, eroding institutions that are seen as key in adapting to the incoming transition” (Karger, 2021, p. 424).

The key relevance of Karger’s (2021) work to my research is that it can,

Facilitate tracking down the frenetic standstill in other empirical contexts ... [and] can be read as providing blueprints for developing a set of indicators to be used, ... [which are]:

- The rate of organizational mergers
- The rate of turnover of individuals
- The declarative rate of progress
- The organizational output
- The length of internal processes
- The rate with which technical and legislative measures are developed and abandoned

- The rate with which strategic documents are produced (and with which they aim to bring transformative changes). (Karger, 2021)

The value of laying out (albeit brief) this conceptual groundwork on *time* and *practices* is that it gave me another tool to open up practices through the lens of time. Understanding time as practice, rhythm analysis, entrainment, squeezing time and the frenetic or racing standstill is crucial when figuring out at an empirical level, the processes, and pitfalls of an IVET4 Ecologies of Practices as it transitions from an emergent state to a mature state as will be elaborated in Chapter 8 (cf. 8.2.1-8.2.4).

4.4.7 TPA and the Theory of Education

According to Kemmis et al. (2014, p. 26),

Education, properly speaking, is the process by which children, young people and adults are initiated into forms of understanding, modes of action, and ways of relating to one another and the world, that foster (respectively) individual and collective self-expression, individual and collective self-development and individual and collective self-determination, and that are, in these senses, oriented towards the good for each person and the good for humankind.

In the book *Understanding Education: History, politics and practice*, Kemmis and Edwards-Groves (2018) presented their ‘steps towards’ a Theory of Education which is conceptualised around TPA. They proposed a double purpose for education which is to “help people to live well in a world worth living in” (Mahon et al., 2016, p. 18). Building upon this is the question of: How are two pivotal questions in education connected?: “‘What is good for individual persons?’ and ‘What is the good for a society or for humankind?’” (Kemmis & Edwards-Groves, 2018, p. 116). The Complex of Education practices or similar such complexes and practices, are ‘grist in the mill’ and determine how the individual and the broader community, both human and other than human, are affected by the education they encounter. To ground these remarks in the PP, Chief Engineers Programme, and the Skipper Development Programme, as the IVET4 educators our sayings, doings and relatings hung together in a project which was to increase the knowledge and skills of the Turners. As the projects rolled out over the years, we observed benefits to the broader community of this education. Sites of influence were Cape Town Fishing, the sea-going ‘brotherhood’, and the families of the Turners as described in the IVET4 programmes in Chapter 3 (cf. 3.13, 3.14 and 3.16) and the data in Chapter 6 (cf. 6.7).

The role of knowledge, and its relationship to practices, appears to be key in the development of the Theory of Education. For the three strands of knowledge namely, forms of understanding; modes of action; and ways of relating to oneself, others and the world ought to twist into *knowledge* which is good for the person. A socially just, sustainable future for all is derived from educational practices which nurture individual and collective self-expression, self-development, and self-determination (Kemmis & Edwards-Groves, 2018, p. 116).

The authors expanded on the relationship between knowledge and practices which is where the alchemy of a theory of education and TPA begins. “Educators teach knowledge not merely so students may know it, but so they may practice it so they will enact and demonstrate it in living their lives” (Kemmis & Edwards-Groves, 2018, p. 116). Knowledge ‘arises from’, ‘is represented in’, is recalled and finally, ‘returns to its use’. The example in the Kemmis and Edwards-Groves (2018) text is about the knowledge and skills of building; however, I will use examples from the case study to ground these concepts in this particular research.

- Knowledge **arises** from the sayings/thinkings, doings and relatings of individuals and communities. For example, in the PP, the community would include the sea-going community of production staff and the shore-based personnel who support them. Knowledge arises from following the production practices of previous generations of mariners; or it could arise from observation and reporting by management ashore.
- Knowledge is **represented** in the individual’s cognition as well as a public working out of this knowledge, for example, language, drawings, documents, or specialist discourses. A specialised discourse is used in the factories at sea; and the development of the Production Manual is a public representation of generations of practice in concert with new developments in the field and standard operating procedures.
- Knowledge which is **recalled** is not limited to the individual’s subjective experience but will include recall of other knowledge like how things were done in the past, tools and techniques or the work of specialists. A good example of this in the PP is the (hake) trimming simulation exercise for the Turners at Cape Town Fishing in Woodstock. Once back on the boat at the trimming table, the Turner would recall the specialist knife handling skills, the list and physical presentation of defects, and techniques for removing these defects and he would meld this knowledge with his past experiences of trimming at sea.
- Knowledge **returns to its use** in the tried and tested practices of production or in trying innovative techniques. This was the very outcome of the PP i.e. that the knowledge taught would be put to use in the factories at sea.

This conception of knowledge sheds light on the Creation of Courseware Practices which we followed in the field as described in Chapter 6 (cf. 6.2-6.4). At the start of the Skipper Development Programme, the marine manager and myself asked all the department heads (finance, engineering, business intelligence, production, and human resources) the same questions: What do you want the skippers to *know*, to *do*, and how would you *measure* this behaviour? I used these questions in one form or another at the start of all 14 programmes described in Chapter 3. The minority of managers answered these questions definitively which *enabled* learning; whereas the majority of managers left me, as courseware creator, to take a best guess and then develop the courses over time as the managers began to articulate what they wanted to get out of the programmes, and how they wanted the learning of the employees to

benefit their departments. The lack of clarity on what knowledge was to be taught had a particularly *constraining* impact on Reporting Practices in the PP, Skipper Development Programme, and Chief Engineers Programme as expectations were not clearly defined by the operations managers nor agreed between the operational managers and the executive which is elaborated in Chapter 6 (cf. 6.8.2.4).

Kemmis and Edwards-Groves (2018, pp. 117–120) went on from the points mentioned above to extend the theorisation of knowledge, with a particular emphasis on the role of language. Given the boundaries of this PhD, I cannot explore this depth. Nonetheless, it was useful to establish that the sayings, doings and relatings of the diverse kinds of knowledge which arise from, represent, recall, and return to their use in practice are afforded visibility. “It also allows us to see how it is our practices (not only our knowledge or intentions) that produces the good for **individuals** and, in **the world we share**” (Kemmis & Edwards-Groves, 2018, pp. 133–134. Emphasis in original).

It is from this springboard that the TPA is embedded in the Theory of Education and is represented in Figure 4.6 below.

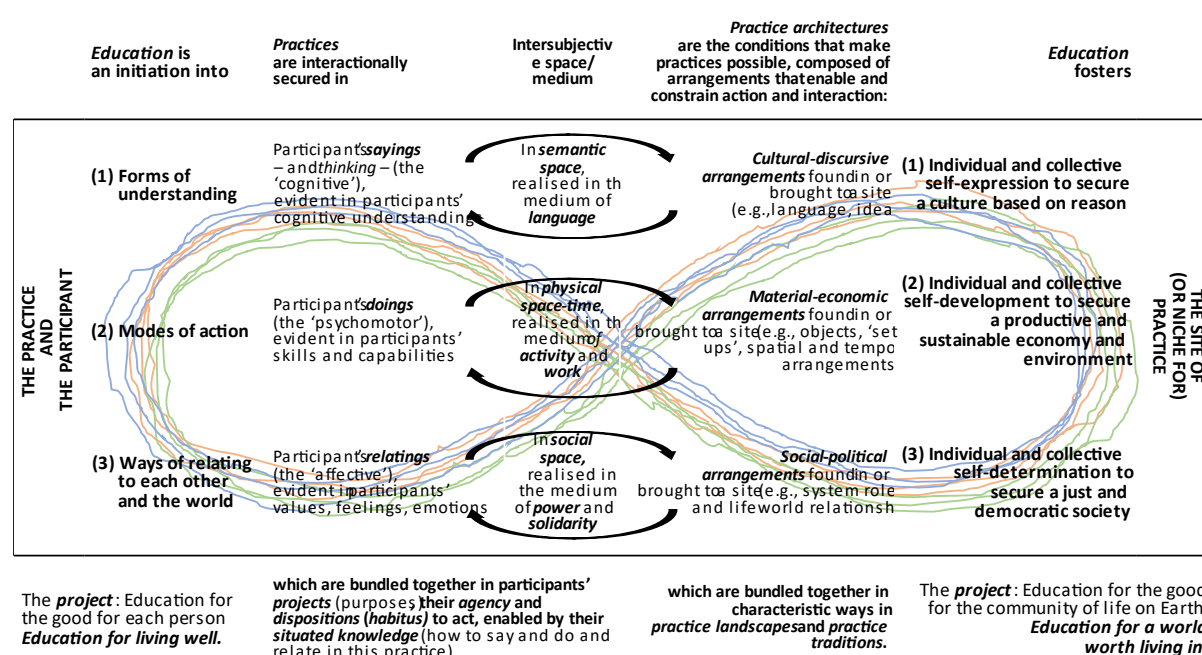


Figure 4.6: Theory of Education including TPA (Kemmis & Edwards-Groves, 2018, p. 134)

On the right side of the TPA ‘block’, the practices of education initiate the **individual** into an education which is good for him/her – an “**education for living well**”. On the left side of the TPA ‘block’ the practices of education foster an education which is good for the **community** (for all life on Earth) and produces an “**education for a world worth living in**” (Kemmis & Edwards-Groves, 2018, p. 134). The individual practices are easier to identify than the collective ones in the corpus of data of this research project because of the commercial (extractive) imperative of the PP which was aimed at the profitability

of the company rather than the good of the Earth (cf. 2.2.3). Notwithstanding this, the company did build up social capital amongst its staff (cf. 6.7) and particular communities supported by the I&J Limited Ltd Corporate Social Responsibility initiatives (cf. 2.4.2).

The Theory of Education provides educators with the theoretical tools to move from a “curriculum of knowledge” to a “curriculum of practices” (Kemmis & Edwards-Groves, 2018, p. 134). The “curriculum of practices” is significant for IVET4 education especially considering that the practice of the creation of courseware informed the four ‘downstream’ IVET4 educational practices of teaching, assessment, love, and managerial practices in the Three Generations of the PP as described in Chapter 6. The IVET4 educational practices were all centred on field-based fishing practices to improve the success of I&J Limited’s value chain. If one considers the questions mentioned above which we asked when we set out – *Know, Do, Measure* – we were already unravelling the twisted cord of knowledge into its three constituent strands – *Say, Do, Relate*. The Theory of Education enabled me to unravel the IVET4 practices (past tense); it allows me to reflect on my own IVET4 practice-praxis (present tense); and it provides me with insight on how to improve an IVET4 Curriculum of Practices for the good of the individual and the collective (future tense).

In the broadest sense, the ‘community of educators and the educated’ are invited by Kemmis and Edwards-Groves (2018, p. 135) to look through the lens of one or more educational phenomena mentioned (I have used square brackets to contextualise my study):

An individual episode of learning; the work of the classroom [ships messroom; online space]; the day-to-day life of a school [commercial organisation or a ship]; the structure and consequences of a curriculum; the quality and consequences of an educational policy [company’s training and development policies; formal VET policy and legislation in South Africa]; the way an education system differentiates students, rewarding some and penalizing others; or the historical consequences of a traditional education [or non-education under apartheid].

To do this evaluation Kemmis and Edwards-Groves proposed using a Table of Invention (cf. find examples in 6.2.2 or 6.2.3) which is a “kind of tool to guide thinking and analysis (and used since the time of Aristotle, through the scholastic period in the middle ages)” (Kemmis & Edwards-Groves, 2018). In conjunction with other published works (Kemmis, 2021) concerning the heuristics of TPA, I created eight Tables of Invention to analyse the corpus of data in Chapter 6 which helped me see my data through fresh eyes.

With reference to the Theory of Education advanced, Kemmis and Edwards-Groves (2018, p. 135) suggested that,

The value of the theory will be evaluated in terms of whether thinking about educational phenomena through the lenses that make up the framework leads to:

1. a greater **understanding** of what is and how it has come to be, and thus to a **practical** grasp of how one might act more wisely and prudently in the situation in the light of this understanding;

2. a richer **critical** grasp of whether the situation is properly understood, sincerely appreciated and morally right and appropriate; and thus
3. an increased capacity to see **how people might organize to do things differently** under the circumstances in the interests of pursuing the good for individuals and the good for humankind.

To lead us towards the transgressive affordances of TPA, I note that another significance of the Theory of Education for my research is that, on one hand, it includes Education for Sustainability for individuals, and on the other hand, it speaks of learning which, by implication, is transgressive if education is to lead us away from the “metanarrative” of an ailing neo-liberalism (Glasser, 2018) towards a ‘good life for all’ (Shiva, 2005, 2012). This contribution may be ecological, social, or economic through job creation.

4.4.8 Transgression – Making TPA dangerous

Because it is exciting, there is a temptation to get lost in both the history and the unfolding theoretical developments of the transgressive capabilities of TPA; however, I resist this temptation and describe these developments only to the extent that they have *application* to my research project as I am not attempting a *theorisation* of TPA. Relevant to my research, I have identified a few key conceptual enhancements in the theory which enable substantial and disruptive change to ‘the way things are done around here’. I begin by exploring where the ‘critical’ in TPA came from by turning to Critical Theory (Lotz-Sisitka, 2016); and what ‘transgression’ means in the learning, living¹¹² and leading of it (Kulundu et al., 2020). I then look at the transgressive affordances of TPA which include praxis and critical praxis (Francisco et al., 2021), and lastly, at two theoretical contributions by Hopwood (2021) on ‘connective enactments’ and ‘collective accomplishments’, and moving from response and adaption to agency and contribution (Hopwood et al., 2021a).

4.4.8.1 TPA and Critical Theory

The transformational opportunities of TPA offers have deep roots in Critical Theory. Critical Theory is a deep, thick blanket of theories woven in complex patterns over three generations of the theory. The weavers of the fourth generation are at work. The threads of Practice Theory can be traced through the generations of Critical Theory. In a seminal work on the topic, Lotz-Sisitka (2016) explicated the four generations of Critical Theory. I consider here only on the first and fourth generations which speak, respectively, to the early critical thinking of Kemmis and others and the generative possibilities for TPA which are emerging in the fourth generation.

Applied to Higher Education for Sustainable Development, Lotz-Sisitka (2016) considered emerging generations of Critical Theory, noting in her applied case of Higher Education for Sustainable Development in Southern Africa, that in the First Generation the focus was on the potential of education for emancipation, justice, and democracy *in* and *through* research for Higher Education for Sustainable

¹¹² I acknowledge but do not include the authors’ thoughts on ‘living and leading’ given the restrictions of this chapter.

Development. This generation of Critical Theory was led by a number of theorists Horkheimer, Marcuse, Adorno, Hegel, and Marx and others (Lotz-Sisitka, 2016, p. 207). Other critical theorists who influenced Higher Education for Sustainable Development at the time were Gramsci's counter-hegemonic practice and Freirian conscientisation. Lotz-Sisitka noted that, drawing on this generation of critical theorists' work to critique educational theories, we find amongst others, Apple (1982), Giroux (1988) and Kemmis et al. (1983). Kemmis is regarded as one of the founders of TPA. Lotz-Sisitka explained that, in the early 1990s, pushed forward by academic debate held at the North American Association of Environmental Education (NAAEE) and distilled in the writings of Mrazek (1993), was the core idea of developing Environmental Education theory and research which were capable of catalysing social and political change. It was a *praxis-orientated approach* which influenced policy and practice when it was put to work by UN Decade for Sustainable Development which commenced in 2005. For South Africa there was particular relevance in the First Generation of Critical Theory as it provided an alternative, and an alluring promise of social transformation, to the positivist approach employed in support of Apartheid (Lotz-Sisitka, 2016, p. 209).

In the emerging Fourth Generation of Critical Theory there is a reaction to the dead-ends of an over reliance on critique shaped in the previous generations of Critical Theory. The core idea is that criticism can only take one so far but 'What is to be done about it? To bring about transformation?' Taking inspiration from Critical Realism and Bhaskar's "commitment to situated, action oriented transformational processes", Lotz-Sisitka (2016, pp. 219–120) suggested that,

This potentially offers us a 'fourth generation' of critical theory that is rooted in transformative praxis acts, where 'what is to be done' is the central question to focus on, not in a superficial manner, but informed by the many lessons of earlier critical theory.

Here the touchpoint of the emerging fourth generation of critical theory and the TPA becomes apparent as both call for a situated, action-oriented praxis and (transformative) critical praxis. I suggest that the Theory of Education as described above provides one way (of many) to realise the transgressive education imagined as it provides the *theorisation* and *research heuristics* for the application and reflection upon a transformative educational project. "Any practice theory must also liberate the entangled dimensions of [the] social world to offer ways to understand the multidimensionality, interrelatedness and complexity of practices" (Edwards-Groves, 2018, p. 120).

4.4.8.2 What could Transgressive Learning mean?

Transgressive theorisation and practices are not unique to TPA. Drawing upon a Think Piece which addresses the learning, living, and leading into transgression (Kulundu et al., 2020), I present a few of the descriptions of transgressive learning to bring light to the meaning of the term. For Kulundu in Kulundu et al. (2020, p. 114),

Learning into transgression means learning to see and feel into what parts of oneself and the collective are left outside the ontological demarcations of our current reality ... This kind of

learning requires a stripping away of conditioned norms that no longer serve us or that were never of use.

She asked five questions which resonate strongly with the three questions (mentioned above) which Kemmis and Edwards-Groves suggested to interrogate the Theory of Education (Kemmis & Edwards-Groves, 2018, p. 135). Kulundu's questions are (2020, p. 114):

1. What are we learning right now?
2. What are we currently creating from what we are learning?
3. What does this serve?
4. What still remains in exile?
5. What does this mean for individual change and what does this mean for collective solidarity?

McGarry proposed that transgressive learning is “most likely a process of unlearning ... a practice of challenging the very ideas we use to think ideas with ... [he encourages us to be] ... comfortably uncomfortable with tensions” [and borrows a term from Donna Haraway (2016) that we need] to be brave and learn to “stay with the trouble” (McGarry in Kulundu et al., 2020, pp. 115–116).

Within the constraints of this thesis I have discussed past influences of critical theory and the current thinkings of a ‘definition’ of transgressive education. This provides me with a launchpad for discussions on praxis and critical praxis and the transgressive theorisation of TPA.

4.4.8.3 Praxis and Critical (Pedagogical) Praxis in TPA

Praxis: As touched upon in Section 4.2, TPA politicises practice. It differentiates itself from similar work by Bourdieu, Giddens, and Foucault in four ways namely, the enmeshment of sayings/thinkings, doings and relatings in cultural-discursive, material-economic, and social-political arrangements; the explicit inclusion of relatings which foregrounds power and solidarity; attention is given to the agency of entities (human and more than human) to either constrain or enable practices. Lastly, TPA provides a fully theorised account of *praxis*, which is indicative of the authors’ ethical commitment to move towards a just transition (Mahon et al., 2016, p. 16). From a TPA perspective two related views of praxis are entwined, the first reflects Aristotle’s writings that practices ought to be for the benefit of the participants, and humankind in general; and the second arises from a Hegelian and Marxian understanding of “praxis as ‘history-making action’, that is, as action with moral, social and political consequences – good or bad – for those involved in and affected by it” (Kemmis et al., 2014, p. 26). In the Theory of Education, the concept of praxis is extended to include an explicit sustainability and ‘other than human’ agenda. This inclusion of praxis in the Theory of Education means that the individual may be equipped for “living well”; and from a societal perspective the purpose of education is to create or sustain a “world worth living in” (Kemmis & Edwards-Groves, 2018, p. 134).

Critical (Pedagogical) Praxis in TPA: For Kemmis et al. (2020, p. 109), Critical (Pedagogical) Praxis

... is manifested in teaching [and learning] practices that aim not only towards the good, but also to overcome or ameliorate unreasonable, unproductive, unsustainable, and unjust

conditions in educational institutions [commercial organisations] and in communities and the wider societies which they exist.

Given the ‘definition’ of transgressive learning, critical pedagogical praxis in TPA can be considered transgressive and requires continuous questioning of all elements of pedagogical practices from a site-ontology perspective. This is where the Table of Inventions are helpful to interrogate one’s own or others’ practice – past, present, or future.

Three themes were identified which enable or constrain critical praxis which are agency, power and relational trust (Francisco et al., 2021). The context of Francisco et al.’s research was professional learning where “the role of professional learning in education is to support educators to deeply and continuously consider the purpose of their educational actions” (Francisco et al., 2021). The key characteristics identified by Francisco et al. (2021) are:

- Agency: agency as consensus; and agency as participation and continuity;
- Power: power over; and power with; and
- Trust: interpersonal trust as the foundation for building all forms of trust; interactional trust as authentic dialogue; intersubjective trust as shared activities; intellectual trust as non-hierarchical; pragmatic trust as mediation.

A finding of this paper was the incontrovertible evidence that the socio-political arrangements at a site directly dis/enabled professional learning (Francisco et al., 2021). The corpus of data in this PhD resonates strongly with this finding on relationality.

4.4.8.4 Making TPA Dangerous: A current debate within TPA

Hopwood challenged the TPA community of practice to put the theory to work dangerously. He called forth the transgressive spirit which has always resided in TPA, providing two conceptions of how this may be achieved in theory and in practice (Hopwood, 2021; Hopwood et al., 2021a). His notions introduce the idea of ‘collective enactments’ and ‘collective accomplishments’ and he offered a reading of TPA through the work of Stetsenko’s Transformative Activist Stance. In both instances, Hopwood subscribed to the conception of ‘praxis’ (good practices) and ‘critical praxis’ (good practices which transform), and to the recent developments of the understanding of learning which Kemmis (2019, p. 123) articulated as:

I now think the notion of coming to know how to go on in a practice encompasses and improves upon the notions of *being initiated into practices* and *being stirred into practices*. It is more inclusive, and allows for the case where B, the learner, is learning alone, without an A to do the showing or teaching or initiating or stirring.

4.4.8.4.1 Collective Enactments and Collective Accomplishments

Hopwood contributed the idea of ‘collective enactments’ and ‘collective accomplishments’ from his research on professional learning which advances critical praxis, and the practice architectures which shaped, and are shaped by such critical praxis. The context of the study was simulations of a dangerous

birthing complication followed by de-briefing discussions with the groups of specialist medical staff. The nature of these emergencies could be regarded as an *emergent practice* where the outcome is highly consequential, but the standards, procedures and protocols may not be sufficient for the professionals to know how to act. “Stability and change can be conceptualized as co-present features of emergent practices”; and although the cultural-discursive, economic-material and social-political arrangements prefigure particular emergency practices, they do not necessarily determine how the practices will actually occur, which makes way for change and a transformation of practice (Hopwood et al., 2021a, p. 4). The objective of the professional learning was to improve on the current procedures (praxis) and to transform the practices to go beyond the levels of improvement already experienced (critical praxis). The transformative effect on practices of the simulations and discussions were detected in the changes in observed in the practice arrangements.

Based on the findings of this work, three identified connective enactments hang together through the sayings, doings and relatings of: a) narrating, listening, and attuning; b) questioning, seeking, and giving confirmation; and c) directing actions. Three collective accomplishments were also identified, namely: a) fluid role-switching; b) coordinated, responsive sequencing and pacing; c) producing calm and security. “The collective accomplishments were key to how praxis was enacted, and the connective enactments were the means to realize the collective accomplishments” (Hopwood et al., 2021a, p. 9).

The enhancement to TPA offered by Hopwood is particularly valuable when emergent practices are in play where one is “navigating indeterminacy and uncertainty” and where one is asking “what should I/we do next?” (Hopwood et al., 2021b). Hopwood et al.(2021a) noted too the importance of. “identifying and promoting relevant complexes of action (hangings together, bundles of sayings, doings and relatings) and their contribution to collective accomplishments that constitute the means to realizing the ultimate ends of practices.”

4.4.8.4.2 From Response and Adaption to Agency and Contribution

Hopwood (2021) further enhanced TPA by deploying the view of learning ‘of knowing how to go on;’ and by applying Stetsenko’s Transformative Activist Stance framework to throw into relief the potential power to transform which is endemic in TPA. He did this with a re-reading of a paper by Sjølie et al. (2020) on the pedagogical response and adaption of four academics to the C-19 pandemic, making the case that the academics’ response both is, and could be, transformative by moving away from response and adaption towards agency and contribution. The sites of this research were universities in Australia, Sweden, Norway, and Finland. The authors built “on a view of learning as coming to *practice differently* and as *situated* in a particular site”; and prominent findings were the retention of a praxis-orientated approach and the renewal of community engagement amongst the academics which they reference as the ‘communitarian’ character of academic life (Sjølie et al., 2020, p. 85 and 104).

“Stetsenko’s *transformative activist stance* connects ontology, epistemology and praxis, foregrounding agency in a theory of mind, personhood, development and learning that is resolutely non-dualist, deeply dialectical, and flagrantly partisan” (Hopwood, 2021, p. 83). Hopwood suggested that

Overt political and ethico-political commitments in Transformative Activist Stance can be mobilized to strengthen collective and committed aspects of TPA, guard against TPA being taken up in banal ways, and help to make the theory of practice architectures ‘dangerous again. (2021, p. 79)

It is impossible to do this work justice within the confines of this PhD, however, Hopwood’s challenge is to contribute rather than to participate where the latter implies that we adapt to the status quo. And in the former, “the idea of contribution suggests that we need to ask not just what differences are manifest, but where those differences take us, what responsibilities they enact, what commitments they advance, what futures they realize” (Hopwood, 2021, p. 84). Note the echo of Kulundu’s questions mentioned above. If we choose to contribute as described, then we take up the agency we have which may be lying dormant. Stetsenko proposed that

... it is time to move past ecological and relational approaches in their emphasis on reactive/responsive modes of agency-while preserving their important insights-and toward more explicitly political and activist accounts of agency that challenge the status quo and that are urgently needed today in our world in the state of profound crisis and turmoil. (Stetsenko, 2019)

The challenge of making TPA dangerous by attending to one’s contribution and agency is illuminated in Chapters 7 and 8. Besides the relevance to my own work, by including the work of Stetsenko I wished to signal that her contribution is enjoying a rising interest from TPA scholars which is already influencing the theorisation and application of TPA and may continue to do so in the future (viz. Hopwood, 2021 above). I would like to note the point of overlap or integration between Hopwood’s work which draws on Stetsenko, and the work of the Southern African scholars mentioned (cf. 2.3.2.5) who draw on Cultural Historical Activity Theory, and in particular the identification of activities, action, or practices, seems to be the meeting place and the point of generative transformation. An example of this ‘agore’ or intellectual meeting place can be found in Mphepo’s work where he identified five local farming practices and then explored existing contradictions in these, and associated, activity systems through change laboratory workshops (Mphepo, 2020). I suggest that this nexus between Cultural Historical Activity theorists in Southern Africa and the work of Hopwood and Stetsenko is worth further conversation (cf. 9.2.3).

In closing this section on transgression in TPA, I express the questions which remain with me for discussion in later chapters concerning the transgressive or ‘moving towards transgressive’ learning in the PP (cf. 6.4 and 8.4). Figure 4.7 (S. Kemmis, personal communication, July 31, 2021) below

demonstrates the reproduction of practices with variation, leading to the transformation and evolution of practices.

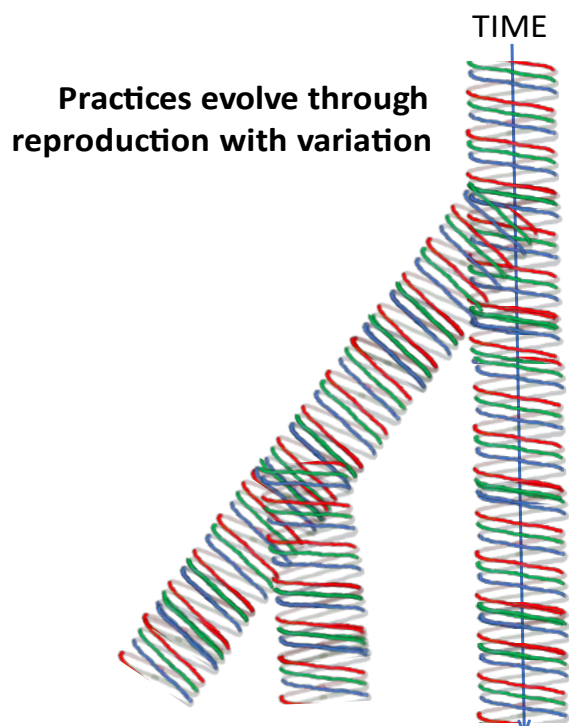


Figure 4.7: Evolution of practices through reproduction with variation (S. Kemmis, personal communication, July 31, 2021)

The following questions can be considered in relation to the figure:

- If the long perpendicular 'leg' represents Generation One of the PP, when does a practice move from being a variation to a new species of practice (transgressive practice)? Does the long diagonal 'leg' of practice arrangements represent a variation (Generation Two of the PP) and the short vertical one represent a move towards transgressive arrangements in the PP (Generation Three of the PP)?
- What are the characteristics of a transgressive practice versus a variant practice?
- How or what is the mechanism which changes a practice from a variant to transgressive one?

4.5 Assumptions and Limitations of the Theory and Application of TPA

4.5.1 Assumptions

In Chapter 6 I used the Table of Invention, one of the heuristic methods suited and promoted by TPA, to analyse my data. I could not include all the data available to me, so I chose the most explicit examples to develop my inferences and to make claims. The assumption which I made is that most social theories, and the heuristics suited to them, are likely to have the same restrictions and would require the same prioritisation of data.

4.5.2 Limitations

If you are looking through one lens, you are not looking through another. Practice Theory is a group of theoretical traditions rather than a single theory. I used a practice theory which has grown out of the Kemmis-Schatzki lineage. Furthermore, I have specialised and used TPA. There is no doubt that this work could be reread by looking at the data using a different theoretical approach which is likely to produce further rich insights into IVET4. Nevertheless, I assert that TPA was both 'fit for purpose' and

(more than) sufficient for this particular research project considering the nature of the data and the research questions asked.

A second limitation is my own understanding of TPA. I have been actively studying it for three years, whereas, for example, academics of PEP have been working with TPA for decades as is evidenced by their research output. Kemmis in the opening sentence of his book on *A Practice Sensibility* stated that he has “been studying practice and practices for more than 40 years” (2019). TPA has caught my imagination and I look forward to working with this theory in the future as I feel I have only just scratched the surface. Notwithstanding, I posit that I have understood enough of the theory to apply TPA to my study.

A third limitation is my application of TPA with regard to my subjective decisions on whether a practice is a saying/thinking, doing, or relating as many practices are a blur of at least two practices. To mitigate this limitation, I have attempted to be *consistent* in my subjective decision making. I further suggest that there is sufficient weight of data represented in the descriptions and Tables of Invention in Chapter 6 to provide reliable evidence of practices, practice arrangements, projects and situated knowledge, and practice traditions and practice landscapes to identify the practice architectures and illuminate the cross-cutting dimensions of IVET4 or overarching practice architectures.

4.6 Conclusion to Chapter 4

In terms of the Quality Framework set out by the Council for Higher Education (CHE, 2018), I suggest that the *knowledge* characteristic most relevant to this conceptual chapter is the ‘broad, well informed, and current knowledge of field ... and expert, specialised, and in-depth current knowledge of specific area of research’. I have attempted to demonstrate a thorough knowledge of TPA which is sufficient for me to use the TPA framework to interpret my data. I would not claim to be an expert or specialised in TPA as laid out in the limitations above. The *skills* characteristics most relevant to Chapter 4 are ‘evaluation, selection and application of appropriate research approaches, methodologies, and processes in the pursuit of a research objective’; and ‘reflection and autonomy’. I have attempted to substantiate my choice of TPA sufficiently in Section 4.2.6. In addition, I have woven examples from my research project to demonstrate the applicability to my study of the core tenets and the advancements of TPA.

On *reflection* I can trace my onto-epistemological and methodological growth from being ‘stirred into’ TPA to ‘coming to know how to go on.’ Over the three years of studying TPA, there were times when I had teachers, for example the Reading Groups; but most of the time I taught myself as I became more reflexively skilled in ‘coming to know how to go on’. This was extended to my research design and

methods. Chapter 3 carries the ‘imprints’ of a failed attempt to use TPA to analyse my data; while Chapter 6 demonstrates my growth as I applied the Table of Invention to analyse my data.

The TPA building blocks, the recent theoretical advancements described above provide an interpretative framework for this research. These concepts are put to work in Chapters 7 and 8 which is a discussion and illumination of overarching practice architectures of IVET4 which were derived from the corpus of data presented in Chapter 6. The affordances of the heuristics and methodologies of TPA are presented in the next chapter covering research design and methods.

“TPA is both a practice theory and a response to the field of practice theory.”

(Mahon et al., 2016, p. 7)

CHAPTER 5: RESEARCH DESIGN AND METHODS

5.1 Introduction to Chapter 5

In opening this chapter I make four general remarks concerning the research design and methods. This is followed by in-depth discussions on the research design and methods.

Firstly, turning to the analogy of building a house, the research design or methodology can be regarded as the architectural design or blueprint, while the research methods are the tools and methods the builder uses to build the house (Maxwell, 1998; Mouton, 2001). The research design and methods of this dissertation ‘began with the end in mind’, and are thus, centred around the four research questions (Mouton, 2001). The questions are both explorative and expansive, thus the empirical, qualitative research design chosen enabled a dialogic call and response between the theory, the data, and the questions.

Secondly, an ethnographic case study was a suitable methodology to ‘hold’ the data. The heuristic tools provided by Kemmis (2022) proved useful in ‘getting at’ qualitative data in a consistent way and were used as a device for ‘translation’ between data and theory. The case study is commonly used locally and abroad in TPA and Vocational Education and Training (VET) research. This is referenced below (cf. 5.2.3). One could consider this nested case study as an egg in a nest, where the egg is the IVET4 Production Programme (PP) and the nest is the 25 years of IVET4 programmes’ practices in I&J Limited and practice architectures which enrich this study by remembering ‘thick place in deep time’ (Gill, 2002). Lotz-Sisitka and Raven (2004) argued that the nested approach to case studies in southern Africa is particularly useful because the ‘context-dependent knowledge’ which constitutes these studies is effective in providing a thorough understanding of the milieu in order to develop meaningful educational reform initiatives (Lotz-Sisitka & Raven, 2004, p. 67). This argument is supported by later research (Cundill et al., 2014) which suggests one of the reasons for the common use of the case study, in social learning research in sub-Saharan Africa, is that case studies provide the depth of detail required to understand long-term change orientated projects; the PP is such a project. The PP cannot be viewed in isolation as it did not ‘pop up out of nowhere’. The PP was built on the foundations of the IVET4 interventions which preceded it, and those programmes which occurred concurrently, whilst the PP was being *built in flight* and rolled out over a five-year period, as described in Chapter 3.

Thirdly, as outlined in the Research Ethics Application, the intention was to collect data in a planned and systematic manner for the PP case study using five methods namely, a historical reflective narrative; semi-structured focus group and individual interviews; document and artefact analysis; and audio/video recordings of live IVET4 sessions. During the months of data collection, nine different methods were used to collect data: a historical reflective narrative; two semi-structured focus group interviews; three

semi-structured individual interviews; four WhatsApp videos and one mini-podcast; two Mobisodes (3–4-minute teaching videos); 29 documents, ten questionnaires and 16 photographs. In some instances of data generation, this occurred as planned. In others, the ‘best laid plans’ were ‘bent’ with the seismic changing circumstances within I&J Limited due to the Covid-19 crisis and a concurrent change of executive and senior management. In some instances, ‘in-person’ data collection was possible, while in others this was done online using Zoom, email and WhatsApp. I noted these deviations from the original Ethics Application (2020) in my Annual Ethics and Progress Report (2021) and was granted permission to continue with the ‘plan B’. The research design principles which guided data collection through these impediments could be regarded as a ‘methodology of chance’ which embraces the obstacles one finds in the field and calls for a methodological agility to accommodate such contingencies (Yahalom, 2020).

Fourthly, how much data is enough? I turned to the concept of ‘Information Power’ (Malterud et al., 2016) to answer this question throughout the generation, analysis and synthesis of data. I also used this concept as a reflective tool. I returned to the five criteria, which constitute Information Power, as I wrote up the discussion and summary chapters in order to re-assess whether or not sufficient data had been amassed to adequately answer the research questions for this thesis.

The research design and methods are described in three sections. The first section looks at the **research design** and starts by explaining two of the fundamental principles which informed the design namely, the philosophy and historicity of the project. The decision to use a case study, and the choice of data sources and quantum are substantiated. The second section deals with *what methods* were used to collect data and *how* this turned out in practice and includes a summarised data table. The final section covers the **processes and the heuristic devices or tools** used to analyse and synthesise the data. I identified four iterative phases which occurred during the four years of the PhD journey in my search for *how* to analyse and synthesise the corpus of data. Once I had figured this process out, I knew *what* to do and followed eight clearly defined steps to analyse the data.

The evidence for this thesis is captured on the Data Code Table (cf. Appendix 7) and is available to the reader at the link below. This includes access to the interactive data of four WhatsApp videos, one WhatsApp podcast and two Mobisodes so readers can access the IVET4 programmes which occurred at sea and ashore. All clips are only a few minutes long and are illustrative rather than definitive of the empirical data.

https://drive.google.com/drive/folders/1NBQfNUmyZ1CZL5sqqZq0KQb33S_zPB8e?usp=sharing

5.2 Research Design

5.2.1 A Qualitative Philosophical-Empirical Approach to Research Design

5.2.1.1 A Qualitative Approach to Research Design

I was committed to making my research decisions explicit: “Because a design always exists, it is important to *make* it explicit, to get it out in the open where its strengths, limitations, and consequences can be clearly understood.” (Maxwell, 1998, p. 3). A qualitative research design draws from qualitative data generated, for example, by semi-structured interviews, photographs, videos, or irreducible texts. The intention of a qualitative design is not to quantify the data, although this is possible after some initial interpretation of the data, but rather to,

Draw on observations from the data to introduce abstracted knowledge that can generalise beyond the specific contexts. Inductive theorizing grounded in data can broaden the researchers’ epistemological frame with longer leaps than hypo-deductive logic based on quantitative data, thereby, yielding completely novel ideas. (Bansal et al., 2018, p. 1190)

A qualitative design cannot be regarded as a linear process but is rather a reflexive one where the “activities of collecting and analysing data, developing and modifying theory, elaborating or refocussing the research questions, and identifying and addressing validity threats are usually all going on more or less simultaneously, each influencing all of the others” (Maxwell, 1998, p. 2).

The *strengths* of a qualitative design are that there is high construct validity and (usually) a positive rapport and trusting relationship with participants is established. The *limitations* of the design are that the researcher must intentionally review data rigorously and systematically which is done in this work by applying the heuristic tools available in TPA, particularly the Table of Invention. A further limitation is the nature and extent of generalisations which can be made from the specific, in-depth qualitative data. Common *errors* include observer and interview bias as well as a lack of rigorous control, for example, no control groups or randomisation of subjects (Mouton, 2001).

I wish to acknowledge the scholarship which is emerging on (post) qualitative research which is an umbrella term for new ways of thinking and doing research in the Anthropocene and in the context of decoloniality. It is informed by (post) humanist theories and indigenous philosophies (Le Grange, 2018). I recognise this body of work for four reasons: Firstly, it is at the leading edge of social science research and the subject of education, particularly, has been deeply embroiled in the debates around and the emergence of (post) qualitative research; secondly, should elements of this PhD be taken further, it is likely that a (post) qualitative research design may be called for; and thirdly, I reference TPA research by using a (post) humanist epistemology of practice (Gherardi, 2021) to explicate the courseware design of Generation Three. This is where this work edges tentatively towards (post) qualitative research.

In a most redacted form: the contestation between positivism (quantitative) and interpretivism (qualitative) particularly in educational research was called the ‘paradigm wars’ and in retrospect eight moments (Denzin and Lincoln in Le Grange, 2018, pp. 2–3) were identified :

- The traditional period (1900s-1950)
- The modernist phase (1950-1970)
- Blurred genres (1970-1986)
- The crises of representation (1986-1990)
- The postmodern (1990-1995)
- Post experimental inquiry (1995-2000)
- The methodological contested present (2000-2004)
- The fractured future (2005-)

“In practice, many qualitative research projects will of course not simply align with only one of these moments and will inevitably draw on what was produced in two or more moments” (Le Grange, 2018, p. 3). The fourth reason I identify (post) qualitative research is so that I can explicitly position the qualitative approach of this work amongst the moments described above, and justify my choice for doing so. I suggest that my research design falls into the *post experimental inquiry (1995-2000)* – “a moment of ethnographic alternatives; novel forms expressing lived experience through representation that were literary, poetic, autobiographical, visual, performative, and so forth” (Denzin and Lincoln in Le Grange, 2018, p. 3). My justification for choosing a qualitative rather than a (post) qualitative research design is based upon the research questions I set out to answer. The heart of this research project is to understand the inner workings of the IVET4 PP, what promoted/confounded learning, and how similar IVET4 programmes could be improved, transferred, and scaled. This PhD has a tight, narrow and ‘deep-dive’ focus rather than a broader societal imperative, therefore, the classic qualitative approach will suffice.

5.2.1.2 A Philosophical-Empirical Approach to Research Design

The research design and methods of this work are faithful to the conceptual framework which employs TPA as the theoretical tool to open up the practices and practice architectures of the PP and shed light on the research questions. In keeping with this, a philosophical-empirical approach to the research has been chosen.

I describe research using the theory of practice architectures under the general rubric of philosophical-empirical enquiry which Kemmis (2021, p. 1) described in the following way:

Various approaches, methods, and techniques may be located. My principal reason for using this rubric is to emphasise that, to explore the relationships between practices and the practice architectures that make them possible, researchers must take care to interrogate and, where needed, to explicate the dialectical relationships between evidence and claims, between empirical observations and (theoretical) observation categories, between empirical

observations and participants' and observers' values and interests, and between theory and practice.

Kemmis (2022, p. 3) proposed that this approach resonates with other approaches to qualitative social and educational research, for example, critical hermeneutics, critical ethnography, institutional ethnography and critical participatory action research. This philosophical-empirical approach to research also elegantly avoids a 'methodolatry' positivist-empiricist approach to social science research and makes way for a 'pursuit of understanding' and exemplifies the German term for human sciences, *Geisteswissenschaften* which means 'sciences of the spirit' (Kemmis, 2021, pp. 3–5).

This philosophical-empirical approach to the research makes for a responsive conversation which is ongoing between data and theory. This will be particularly evident in both Chapters 7 and 8 where I substantiated the two claims to new knowledge which I make in this PhD.

5.2.2 The Production Programme: A justification

Most TPA research is based on contemporary cases where data can be collected as the practices occur in real time e.g. observations, videos and recording of conversations (Edwards-Groves, 2018; Francisco, 2020; Hopwood, 2014; Hopwood et al., 2021a). Nonetheless, there is current research on the impact of the pandemic, which relies on generating data from memories of the recent past (Sjøløe et al., 2020). In both instances, data is then analysed and synthesised after the event. One of the challenges arising in this project is the historicity of data, The PP occurred within the last five years (2016-2021) which coincided, in part, with this PhD study (2018-2021). I am working with 'deep time' (1995-2021) which makes this work a variation on many TPA studies to date as I am working reflexively with data which has been generated over time prior to- and during the PhD data gathering phase.

Considering this entanglement with time, I chose the PP from amongst the ten IVET4 programmes for five main reasons namely,

REMEMBERING: In support of the reflexive approach, the PP occurred in the recent past which potentiates the mitigation of the risk faded memories.

DATA: The PP afforded me access to data in two ways, firstly I had access to others who still worked or lived in Cape Town and who were also present at the time of 'making history' of the PP. And through the interviews, WhatsApp videos and questionnaires I have included their sayings, doings and relating pertaining to the PP. Secondly, I also referenced photographs and internal project reports to bring the past closer. This data provided mirror data for me, as researcher, to reflect on my own memories of the discourses, workplace activities and power relations.

SPAN OF PROJECT: The PP was a programme that touched all departments at Cape Town Trawling over 5-years and evolved through three generations or iterations of the training.

INNOVATION: The PP was a programme which had not been attempted before in the industry, and therefore, demanded a pioneering and innovative approach to learning which is particularly noticeable in the first and third generations of this project as described in Chapter 6 (cf. 6.2, 6.4, 6.5, and 6.6).

EMBEDDEDNESS: The Production Programme cannot be seen as a ‘stand-alone’ programme because it is embedded in, and the product of, and the precursor to, other nine VET programmes I conducted at I&J. One could imagine the practices and practice arrangements over 25 years as a small stream starting out in the mountains and gathering tributaries and strength along its journey to the sea. Some of the tributaries have gone over waterfalls where the practice has changed dramatically making moves towards transgressive education; others have dried up in the sand. The ‘deep time’ of this project allows for a long look backwards to seek out patterns and trends of changing practices and practice architectures which may not be apparent in shorter term research projects of a few years or projects looking at the ‘here and now’. For this reason I was able to draw upon relevant data from the Chief Engineers’ Programme and the Skipper Development Programme which occurred concurrently with the PP. Where data is drawn from these two additional programmes this is flagged in the text, for example, in courseware creation practices of Generation Three of the PP (cf. 6.4.1).

Figure 5.1 below illustrates the timeline of, a) when the events took place; and b) and when the data was collected. Both the first block (1995-2021), which spans the full duration of the 14 programmes referenced, and second block (2016-2021) which indicates the duration of the Production Project, indicate that while relevant data was generated it was never collected for the purpose of a research project. Block three (2018-2021), however, indicates the period where evidence was deliberately collected for this thesis.

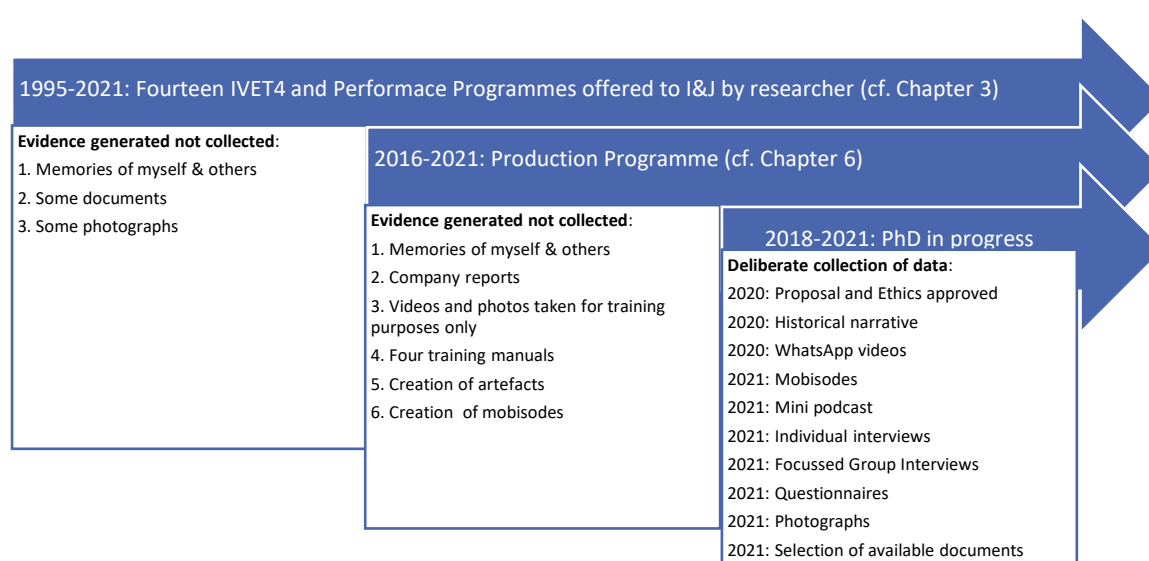


Figure 5.1: Timeline of Events and Data Collection

Returning to the matter of historicity in this doctoral study, and drawing upon the earlier discussion on *time* in Chapter 4 (cf. 4.4.6), there are two dynamics at play: the first is the longitudinal nature of the study which aligns with historicity in practice theory studies (Jarzabkowski et al., 2021); and the second is the rhythms of learning in the PP, and other VET interventions, which leans into Blue's (2019) work on the rhythmic ontology of practice. I suggest that the first point has bearing on the *quality* of this work as the *trustworthiness* and *authenticity* (Maxwell, 2013, p. 128) is increased by the triangulation of eight data sources covering many, many practices over a long time. The second point is a matter for *analysis*, if 'time as practice' is considered (Schatzki, 2010, in Blue, 2019, p. 936), then time furnishes the researcher with another tool, handle or lens to look into the data, and thus to bring forth a richer understanding of how the practices and practice arrangements hang together in the web of *time* and *institutional rhythms* (cf. 9.2.1.3).

5.2.3 Case Study: A Justification

In case study literature Mouton (2001) has described the case study as usually qualitative in nature and used to provide in-depth insights into one or more cases. Its characteristics, weakness and strengths are reflective of qualitative research as described in Section 5.3.1. The case study is flexible enough to accommodate primary and existing data where hybrid data is generated in a low-control field setting. The case study is suited to descriptive and exploratory research questions. Data can be generated from inter alia, semi-focussed interviews and documents using theoretical or judgement sampling. The strengths of a case study include 'high construct validity' and the provision of in-depth insights into the topic and rapport with research participants. The limitations of this design (seen from a positivist, experimental view of research) are a lack of generalisability of results and non-standardisation of measurements. Generating data e.g. transcriptions of interviews is also time consuming. Research bias and inadequate analysis of data are the main sources of error in case studies (Mouton, 2001) even though 'bias' is a construct that opposes subjectivity and objectivity in research (i.e. from a positivist tradition). Qualitative researchers would rather acknowledge subjectivity and reflexively engage it, than reduce their role to a pretention of being unbiased.

In my decision making around the research design and the quality framework, I also considered the Interactive Qualitative Model for Research Design proposed by Maxwell (1998) who placed the research questions in the middle of a looping, iterative framework of goals, conceptual framework, methods and validity. He deepened his work in later years in *A Realist Approach to Qualitative Research* (2013) by expanding the components of 'understanding, validity and evidence'. The case study design for my enquiry resonated with this model and the additional components which he introduced.

The qualitative case study is also a common approach for TPA researchers. In my search to understand how other researchers have used TPA as a methodology, I turned to the extensive output of Pedagogy Education and Praxis (PEP). Commissioned in 2005, PEP is a cross-institutional, collaborative research programme which brings together researchers from 13 universities in Australia, Columbia, Finland, Norway, Sweden, the Caribbean, the Netherlands, and the UK (Gothenburg, 2020). It is evident that the case study research design was a dominant approach in these studies – see for example, Mahon et al. (2016); Wilkinson (2021) and Wilkinson et al. (2013); Gibbs (2020); Sjølie et al. (2020); and Hopwood (2014) and Hopwood et al. (2021a).

Case studies for VET research are also found to be a generative methodology as illustrated by recent contributions from VET researchers both locally (Ramsarup, 2017) and abroad (VET4.0 Collective, in press.). Bell (2018), a South African scholar, used the case study as a basis for her doctoral research on VET in the maritime industry, and she used TPA as one of her conceptual and analytical tools. As part of the Transforming Education for Sustainable Futures Project, two case studies were used to illustrate the use of mobile technology in IVET4 in the maritime and agriculture sectors (Metelerkamp & Ferguson, 2021).

The PP has practices and practice architectures which could be regarded as precursors, or an evolution, or variation to practices and practice architectures, for the IVET4 programmes and organisational change activities which occurred concurrently, or followed, or preceded the PP respectively. In the Chief Engineers Programme, the breakaway to online, workplace-based IVET4 is proposed as more than a variation on a practice and a move towards a more transgressive practice. This progressive learning from each VET Programme is woven through the PP case study.

Summing up the suitability of the case study as a research design, given the explanation above drawn from case study literature (Maxwell, 1998, 2013; Mouton, 2001), and the trend of the case study research design amongst eminent TPA and VET scholars, and the data available to me from the ten IVET4 programmes and four performance-related programmes, a qualitative nested case study was well suited to the nature of my project. The case study provides room to generate, synthesise, and analyse the data in the PP in order to answer both the exploratory and expansive research questions. The ‘nested’ PP case study promoted the qualitative, philosophical-empirical research approach – where theory, participants, researcher, and data were invited into a dynamic dialogue which echoed back and forth from present time to deep time. See the ‘Rubik’s 3D cube’ illustration in Figure 5.2 below – this conversation, held by the case study, was in 3D.

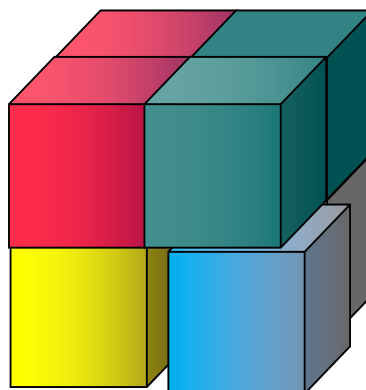


Figure 5.2 Rubik's 3D Cube of Time

This figure represents the infinitely looping relationships between Present ∞ Deep Time; Educators ∞ Turners; and Individual/Generational ∞ Corporate Experience. In the workplace, one could consider that these flows happen together continuously – represented by a Rubik's Cube which is at once both one solid block but at the same time, is many little blocks moving and shifting in relation to one another. Sometimes pleasing patterns are created (eurythmic cf. discussion on institutional rhythms in 9.2.1.3); and sometimes patterns are jarring (arrhythmic cf. 9.2.1.3).

The nested case study was particularly suited to this research project as it allowed me to draw in data from other IVET4 programmes which were occurring at the same time. I drew particularly on the Chief Engineers Programme and the Skipper Development Programme. Where I have drawn upon these ancillary programmes, I have noted this in the text. This is particularly prevalent in the courseware creation (cf. 6.4.1), teaching and learning (cf. 6.5.3) and assessment practices (cf. 6.6.3) of the Third Generation of the Production Project. The reason I have included the insights, particularly from the Chief Engineers Programme, is that this programme was further ahead in the online blended learning journey than the PP; and it was important to include these insights of online-mediated learning for IVET4.

5.2.4 How Much is Enough?

How much data is enough? To answer this question I used the concept of 'Information Power' (Malterud et al., 2016) which was repeatedly deployed to answer this question throughout the dissertation process. The authors suggested that the researcher ought to be able to demonstrate how she decided that enough interview data had been collected to render the study valid, reliable, and applicable; they suggest that many researchers simply state 'saturation' has been attained without substantiation. 'Saturation' in qualitative studies is the point where new data gathered is becoming repetitive of previous data gathered.

This idea is seen as firstly, inconsistently applied by researchers and secondly, is not fit for purpose as ‘saturation’ was originally used in the analysis of data in support of a grounded theory approach to a study (Malterud et al., 2016, p. 1). Instead, the authors offer the idea of Information Power which considers five criteria to establish the ‘power of the information’ and the greater the information power, the fewer samples (participants or interviews) are required. These criteria are namely: 1) the aim of the study; 2) sample specificity; 3) use of established theory; 4) quality of dialogue; 5) analysis strategy (2016). According to Malterud et al. (2016), Information Power is not a checklist and they acknowledge the model’s limitations concerning recruitment of participants and sample size e.g. focus groups.

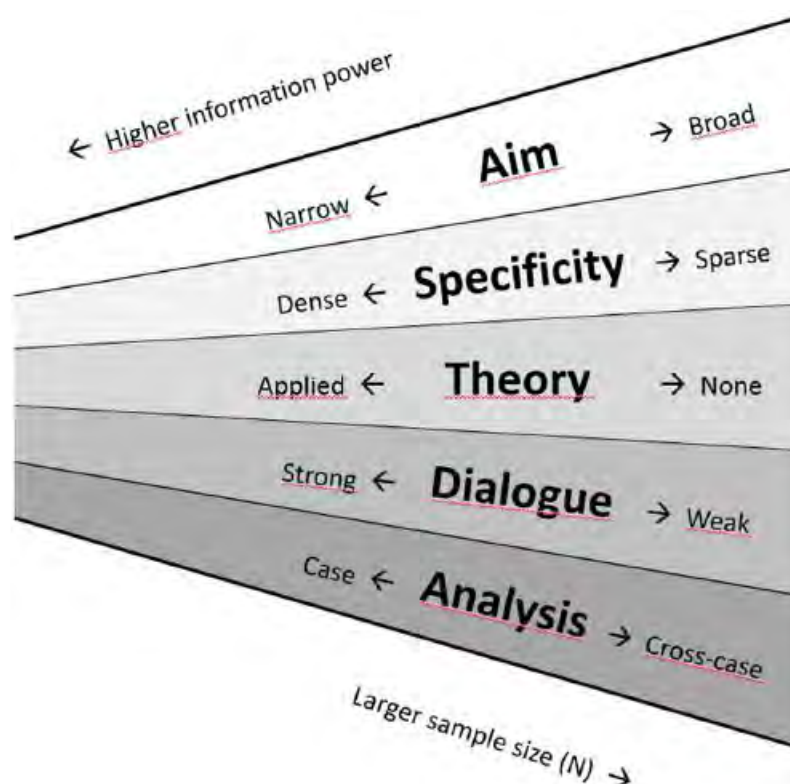


Figure 5.3: Information Power - Dimensions (Malterud et al., 2016, p. 4)

In a nutshell, this PhD study scores to the left of the board for all criteria which implies a smaller, rather than a larger sample of participants or interviews are required. This assertion is justified below.

The *broader* the *aim* of the research, the bigger the sample size as sufficient data must be gathered to address the comprehensive nature of the study (Malterud et al., 2016, pp. 2–3). My research has a *narrow aim* as it is looking at the specific practice and practice architectures of one IVET4 programme to determine what practices confounded or promoted learning in this programme. Malterud et al. noted that a narrow study may have implications for the transferability of the research, and therefore, the researcher must carefully consider whether or not sufficient data has been gathered to answer the research questions or promises made by the researcher (2016, p. 3). This point is important to my study

as the research sub-questions are expansive and seek answers on the transferability and scalability of the IVET4 practices and practice architectures identified.

To determine whether the Information Power criterion of *sample specificity* is dense or sparse for the interviews used in this research, the questions to ask would be – are the participants’ knowledge, experience and properties specific to the topic, and do they exhibit some variation or offer experiences not previously described (Malterud et al., 2016, p. 3)? I suggest the score is dense as all the participants were in various organisational roles in production ashore or on the vessels, they had all attended multiple production training events and brought different perspectives to the interviews. The interview with Rick Achmat, a ‘leverage professional’ in this study, brings a variation to the data as he was an insider-outsider of the PP. His role and the concept of the ‘leverage professional’ is explicated in Chapter 6 and Chapter 7 where practices are described/analysed and illuminated respectively.

Theory can be used to synthesise and extend knowledge and it can explain relationships in the data in a coherent manner; therefore, if the research is supported by a substantial theoretical framework, the Information Power will be high and vice versa (Malterud et al., 2016, p. 3). This study has a high theory score as it is applying TPA and cogent heuristics for analysis recently provided by Kemmis (2022). The data has been collected, analysed, and synthesised using TPA Tables of Invention which have been precision tools for exploring the fine mechanisms of mediation in the PP.

Further, if the *quality of dialogue*, which is determined by the skill of the interviewer, the articulateness of the respondents, and the chemistry between them (Malterud et al., 2016, pp. 3–4) is considered, the Information Power score would again be strong. The interviewers were skilled and the relationships between themselves and the interviewees were open, positive and well established over the years.

A cross case *analysis* would require more data than an in-depth study of a single case. However, even in the latter, sufficient evidence must be gathered to pick up divergences or deviations from the main line which is covered above under *sample specificity* (Malterud et al., 2016, p. 4). The PP is the single focus of this research; thus, the Information Power is high.

The ‘Information Power’ matrix will be applied at all stages henceforth in this dissertation as Malterud et al. (2016) suggested that the consideration of how much is enough cannot simply be considered at the beginning of the study but must be revisited through the work all the way to the end. I referred to Information Power at each stage of the work in an attempt to make my decision that sufficient data had been gathered explicit and transparent. Although Malterud et al. (2016) addressed the sufficiency of evidence arising from focussed group and individual interviews, this research project gathers and triangulates data from an additional seven sources.

5.3 Research Methods for Data Generation

5.3.1 Data Generation Summary

Shove (2020, p. 616) pointed to some of the dynamics of practice research:

Quite quickly it turns out that there is no such singular thing as “a” practice-based study ... it is apparent that “practice” is a rather elusive concept to work with: it has multiple interpretations and there are no simple methodological rules to follow.

With this in mind, the point of departure for the methods used in this study involved starting with defining specific tasks required to collect data about the many practices which had already occurred over time. The methods of data collection called for the elasticity of ‘methodological agility’ (Yahalom, 2020) as these methods were derived from iterative data gathering attempts, convenience sampling, and historical processes. The research designs and methods used by TPA scholars also provided ‘guardrails’ for my data collection process as these works exhibited well-used methods, for example, focussed interviews and trend analysis. There is also a growing suite of heuristic tools, for example, the explanatory figures used in this thesis (cf. 4.3), provided by Kemmis per email in July 2021, and other heuristic tools reflected in his published literature which include the Tables of Invention (Kemmis, 2022; Kemmis & Edwards-Groves, 2018). This approach of choosing which methods of data collection to use, and which methods to discard, helped to reduce the ‘data haze’ where so much data was available, and which was so hard to collect because of the ship-shore disconnect exacerbated by Covid-19. Discarded methods included inter alia the live video and audio of IVET4 sessions and more face-to-face interviews with sea and shore-going staff.

Table 5.1 that follows presents a summary of data generation methods. It covers the nine methods as well as a brief discussion on the salient or ethical points of consideration which arose during the data collection. Extensive use of every method of data collection, and an exhaustive description and analysis of the data is presented in Chapter 6, and thus the descriptions and the specific applications of the methods are presented briefly in the table below to avoid repetition. The data table indicates the method of data collection, the reason this data was included in the corpus of data, and which research question/s this data may address.

Table 5.1: Summary of Data Generation

METHOD	REASON FOR INCLUSION	RESEARCH QUESTION
Method 1: Historical Reflective Narrative	Chapter 3 in the thesis describes a) My relationship with I&J Limited from 1995-2021; b) the 14 IVET4 projects implemented during that time. This history provides context to the work and indicates how the IVET4 process evolved. It was compiled by drawing on historical references (reports and programmes), my memory and my own experiences. The systematic engagement with two questions outlined in Chapter 3 (cf. 3.1.1) for each case, aided a systematic, reflective account, which was kept brief and focussed on the object of study.	A, B, C
Method 2: Focus Group Interview 1: Charlene Coetzee and Kevin Gaynor	Charlene was the Internal Champion of the Production Project for most of its duration; and Kevin was the facilitator for many of the production training sessions and developed a large part of the courseware. I also wanted to test my own research ‘thinkings’ with them for validity. This interview was transcribed due to the centrality of the evidence and given to the participants for comment (member checking).	A, B, C, D
Method 2: Focus Group Interview 2: Sea-going production staff (10 Pax)	This was a short discussion facilitated by Kevin Gaynor with the sea-going production management staff following their final ‘hand-over’ of the Train-the-Trainer session. Field notes were generated for this interview.	A, B, C
Method 3: Individual Interview 1: Gerard Wessels	Gerard is the Marine Manager and was the ‘internal champion’ of the Skipper Development Programme. His insights into the sea-going training were invaluable as his involvement spanned years from 2017-2021. Field notes were generated for this interview.	A, B, C, D
Method 3: Individual Interview 2: Johann Botha	Johann was the General Manager of the Cape Town Trawling Division and commissioned the IVET4. His insight into the development needs of the organisation as a whole, and the sea-going IVET4 requirements were invaluable especially as he drew upon experience in other sectors of the marine industry. His involvement spans several years from 2017-2020. Field notes were generated for this interview.	A, B, C, D
Method 3: Individual Interview 3: Ricky Achmat	Rick is referred to as a ‘leverage professional’ in IVET4 i.e., someone who improved the outcome for both the learners and the facilitators on a purely voluntary basis. He made a substantial contribution to Generation Three of the PP and the blended-online model extended in the Chief Engineers Programme (cf. 3.16). Field notes were generated for this interview.	A, B, C, D
Method 4: WhatsApp video (4 Pax)	These four short videos provide personal reflections of the sea-going production training. They were recorded by Kevin on board ship and profiled four production staff members. The opportunity to make these videos was serendipitous as Kevin was on the vessels for other reasons. I requested he make the videos if this was convenient for himself and the staff.	A, B, C

METHOD	REASON FOR INCLUSION	RESEARCH QUESTION
Method 5: WhatsApp podcast	Kevin created a short podcast on his embodied experience of being centrally involved in the PP.	A, B, C
Method 6: Mobisodes	A mobisode is a 3-5 minute ‘lecture’ on a single topic and can be transmitted over WhatsApp in very low connectivity environments to individual learners on a ship. A number of mobisodes were created during the roll-out of the courses and two were selected for illustration purposes.	A, B, C, D
Method 7: Questionnaire (10 Pax)	Ten production staff leaders filled in a questionnaire on their impressions of the production training over the years (cf. Appendix 8: Questionnaire Sample). The opportunity to conduct the questionnaires for research purposes arose when Kevin was conducting Train-the-Trainer for the IVET4 PP with senior sea-going staff.	A, B, C
Method 8: Future People (Pty) Limited soft copy	Many reports were generated over the years by myself and some documents have been retrieved from the e-filing system on my own computer (cf. list in Appendix 7). These concern the Production Project and other IVET4 interventions. The documents also illustrate the IVET4 process; and the move towards transgressive learning through the development of Future People Online-In-Person Learning Platform and the invention of the mobisodes.	A, B, C, D
Method 8: Websites	I&J Limited website and related commercial fishing websites were accessed for accurate contextual information.	A, B
Method 8: I&J Limited documents	A few documents were generated concerning the Production Project and related IVET4 projects by I&J Limited staff. Some have been selected which illustrate the training process and/or the effectiveness thereof. A list of these documents may be found in Appendix 7. These documents were selected on two criterion: 1) If the document was still available at the time of this study, as the documents were not generated for research purposes but rather in the course of business and they were never intended to be enduring records; 2) I only selected documents which did not compromise the intellectual property of I&J Limited and fell within the ambit of the ethical injunction to ‘do no harm’. <u>Note:</u> Only the front covers of the four production manuals are included and none of the contents, as this represents I&J Limited intellectual property.	A, B, C
Method 9: Photographs	Many photographs have been taken over the last 25 years and 16 photographs have been selected to provide context. No photographs which identify people or proprietary processes were included.	A, B, C
Method 9: Artefacts	Photographs of the artefacts e.g. fabric fish, scales etc. are provided in explanation of some of the training methods used. At the time of conducting the training, it was not necessary to take photographs of these artefacts. It was good fortune that samples of all the ‘props’ we used could be accessed in the dusty storerooms and photographed to provide a record for this research.	A, B, C, D

5.3.2 Special Considerations concerning Data Collection

5.3.2.1 *Ethical Considerations around the Inclusion of Photographs and Videos of Sea-going Staff*

One of the restrictions on including personal data pertaining to sea-going staff is that they are very difficult to locate. The treasure trove of videos and photographs that were taken over a 25-year period for the purposes of the PP, other IVET4 programmes were taken just for fun, not for research purposes. This meant that the requisite permissions were not sought at the time. A shore-based trainer assigned to the PP in January 2021 recognised a number of the sea-going staff and sought written permission from each Turner by working through the Skippers on the freezer vessels where he thought these individuals may be, or had been, deployed. He was able to attain four written and signed permission letters, and therefore I was able to include the four WhatsApp videos in the data record.¹¹³

5.3.2.2 *Ethical Considerations around the Questionnaires*

Collection of data by means of the focussed group interview and the ten questionnaires was an opportunity for convenience sampling which arose during the scheduled Train-the-Trainer Generation Two of the PP facilitated for senior sea-going production management staff by Kevin. Logistically it was extremely difficult for all ten participants to be at the Train-the-Trainer, and therefore I took this opportunity to collect data from these men. An additional advantage was that it was Kevin, and not I, collecting the data, which provided some useful distance, and Kevin was able to ask questions about my performance as a facilitator and whether, for example, my gender mattered (as the only woman training several hundred men).

The men who filled in the questionnaire and/or were interviewed by Kevin were highly skilled production personnel used to being busy, on their feet and not desk-bound. English is not their first language and writing in English does not come easily. Despite this language challenge many preferred to use English for the Production Programme as it is the common language spoken on the vessels. The questionnaires and the focussed group interview were done in English at the end of the morning of Train-the-Trainer for the PP when the participants were tired and anxious to get back to work on their vessels or keen to go home. Half the sample filled in the first page which gives the participant's details and provides written permission. Everyone filled in the questionnaire. I asked Kevin why some participants had filled in the permission page, and others not. His impression from being in the room was that people wanted to contribute to the study but were tired of writing and prioritised filling in the questionnaire. Having spent many years training sea-going staff I found this plausible and decided to include the data of all ten questionnaires. Completing the questionnaire was taken as permission to include the data in the study whether or not the first page was completed. This decision was supported

¹¹³ Link to data record:

https://drive.google.com/drive/folders/1NBQfNUmyZ1CZL5sqqZq0KQb33S_zPB8e?usp=sharing

by a discussion with my colleagues on the point during one of the Environmental Learning and Research Centre Monday morning meetings.

I submit that, although the questionnaire was neither envisaged nor included in the Ethics Application, it is in keeping with the data collection ambitions of this research project. The reason for opting for the questionnaire was that in discussion with Kevin, we thought if all ten employees participated in the interview, it could become chaotic and unproductive. We also assumed people would be tired at this point and may not wish to participate in both the questionnaire and the interview. Participants self-selected whether they wished to do only the questionnaire or stay on for the interview as well.

5.3.2.3 Ethical Considerations of Anonymity, Confidentiality, and Identity

The following is quoted from my Approved Ethics Application:¹¹⁴

Notwithstanding the above, I acknowledge that confidentiality, privacy, and anonymity are difficult and limited in this project because the processes and programmes under investigation are already in the public domain, because maintaining confidentiality between coparticipants/trainees is impossible, and, because this research is reliant upon the opinions of employees who hold specific roles e.g. Marine Manager which makes people easily to identify. I am aware of these limitations and undertake to take precautions to 'do no harm'. (Ferguson, 2020)

In the 'working out' of the ethical principle of identity protection, one of the safety nets was a negotiated Code of Ethics between myself, as researcher, and I&J Limited, represented by senior managers. No participants in the research wished to remain anonymous, nevertheless, I took the precaution in Chapter 6 of applying generic terms like 'operational manager' to direct quotes which may have prejudiced any of the participants in their current positions (cf. Approved Ethics Application see link in footnote 114). Where possible the field notes or transcription were sent to the participants for comment and member checking. I received no comments or instructions to delete or withdraw any evidence. In addition to this, on several occasions I invited the Executive Senior Management Team to participate in the research which they did not take up. I was disappointed as I think the research product would have been the richer for their input. Although I was careful not to convey any I&J Limited intellectual property, I submitted a portfolio of evidence that could be considered as belonging to I&J Limited to the Human Resources management team for review. I was given no instruction to remove any pieces of evidence. I would like to suggest that there is a high level of trust between myself and the company as I have worked with their intellectual property for more than two decades without compromising this. I therefore made every effort to ensure precautions to 'do no harm'.

¹¹⁴ Full Ethics Application can be accessed here:
https://drive.google.com/drive/folders/1NBQfNUmyZ1CZL5sqqZq0KQb33S_zPB8e?usp=sharing

5.3.2.4 Ethical Considerations Concerning the Missing Voices of the In-coming Executive Team

The voices of the in-coming Executive are missing from this account. This is regarded as a limitation in this thesis as it is important to provide a rounded picture where all voices are represented. I provide an explanation of this lacuna and the steps I took to mitigate the absence of the in-coming Executives voices.

In explanation of this omission: In July 2020 there was a change of Executive at I&J Trawling. This was unfortunate timing for both the data gathering phase of this research and for the PP as this change caused a hiatus in both the research and the programme. The in-coming Executive were given written and verbal invitations to engage in this research project, however, the invitations were declined to either discuss this research and/or be formally interviewed. I surmise that the reason for their lack of participation was that the in-coming Executives were focussed on the pressing business priorities of taking over Cape Town Fishing. The practices of the out-going and in-coming Executive are elaborated in the analysis and synthesis of data (cf. Section 6.8).

In mitigation of this omission: The out-going executive Johann Botha, General Manager of Cape Town Fishing, was the person in charge for the majority of the roll-out of the Production Programme and he was instrumental in the development in Generation Three of the PP of the blended learning model (cf. 6.4.1 for a description of this model and Mr Botha's role therein). Despite no longer being an employee of I&J Limited, Mr Botha agreed to an in-depth individual semi-structured interview. Data has been drawn from this interview which gives voice to the out-going Executives opinions concerning four of the five years of the PP (2016-2020).

5.3.2.5 An Observation about Focussed Group Interview 1

The Focussed Group Interview 1 with Charlene and Kevin took on a life of its own. The one hour and 40-minute interview evolved into a *dialogic café* which is a type of free form dialogue directed by participants which can include posing questions, creating new ideas and even representing them graphically (Agger-Gupta & Harris, 2017 in Gibbs, 2020, p. 299). It was important for me to test my research 'thinkings' against others who were there too, and who can be frank and disagree with me. I wanted to make sure that 'I was not just drinking my own cool aid', which helped to mitigate the limitation of this case study that the "findings may be reliant on the researcher's perspective and depiction of the cases" (Gibbs, 2020, p. 305). In this interview we posed new questions, came up with ideas as if we were still on the job, and referenced figures of TPA to illustrate our points! A semi-structured interview turning into a dialogic café style interaction was delightfully unexpected and yielded richer data.

5.3.4 The Literature Review as a Method

To provide a) context for this thesis, b) a suitable theory and, c) research design and methods, I have reviewed a number of bodies of literature during the course of my studies. The role of literature in this thesis is twofold:-

- Firstly I used reviewed bodies of literature to provide a contextual background for the study which includes inter alia: Education for Sustainability; the theory and praxis of VET; the literature concerning I&J Limited and industry related topics; and lastly topics allied to my thesis. This literature was described in Chapter Two: Contextual Background (cf. 2.2, 2.3, 2.4 and 2.5). I return to this contextual literature in the concluding chapter to bring the opening context into conversation with the closing contribution of this work.

- Secondly, I use literature as a lens to analyse and synthesise to work reflectively with retrospective data. In this instance I explored a number of learning theories and then immersed myself in TPA once I had decided that this was a useful theoretical tool for my project (cf. 4.2.7 for an elaboration on the justification for TPA). TPA as a conceptual framework is described in Chapter 4. The heuristics of TPA informed the research design and methods, and particularly the synthesis of data and is described in this chapter (cf. 5.4). I return to the literature of TPA in Chapter 7 and Chapter 8 where I use the explanatory power of the theoretical and conceptual framework established to underpin the findings of this thesis.

Depending upon the topic, some of the literature reviews received a light touch whilst others were more of a deep dive. Initially I read broadly outside of my topic too, firstly, to determine where the boundaries of my study lay, and, secondly, to discover where the leading edge of my chosen topic was located. The latter required ongoing surveillance.

As the reviewing of literature is a substantial portion of this dissertation, and in the interests of quality assurance, I wish to make explicit the method I used to review literature. There are different types of literature review (Booth et al., 2012; Petticrew & Roberts, 2008). My approach would fall into the ‘traditional review’ (Petticrew & Roberts, 2008). My understanding of a literature review is “a written document that presents a logically argued case founded on a comprehensive understanding of the state of knowledge about a topic of study ... [and] ... establishes a convincing thesis to answer the study’s question” (Machi & McEvoy, 2012, p. 4). My literature reviews could not be regarded as meta-reviews, and were not exhaustive; however, I have tried to cover sufficient literature to meet the demands of this dissertation. I systematically followed the steps commonly proposed – scoping, searching, synthesising, analysing and disseminating (Booth et al. 2012; Machi & McEvoy, 2012; Mouton, 2001).

On reflection of the method and process I followed to review literature, I am aware that an unsystematic literature review can be written as easily as a systematic one (Hammersley, 2001). Booth et al. (2012, p. 17) proposed the following recipe “Take a simmering topic, extract the juice of an argument, add the

essence of one filing cabinet, sprinkle liberally with your own publications and sift out the work of known detractors or adversaries”. When considering validity in the literature review process both bias and the confounding of concepts/data are risks. The former can arise from publication and language bias (for example, I have read only English articles), selection and interpretation of particular texts, misunderstanding the source when relying on one author’s interpretation of another author’s work, or poorly synthesised concepts and data (Booth et al., 2012; Mouton, 2001). In addition, a literature review is a deeply personal process as one comes with one’s own biases, culture, and life-story, which may cause one to privilege some literature over others. I have attempted to increase the validity of the literature review and its replicability by being explicit about both, *what* literature was reviewed, and *how* (the method) I did this.

I attempted to avoid this “systematized knowledge and ignorance” (Peters & Wals, 2013) by returning to Heifetz’s principles of Adaptive Leadership i.e. ‘to question the things I was most sure of’ and to ‘actively seek out the *no* voices’ (Heifetz, 1994). I took the following actions: I included unpublished literature and grey literature and deliberately searched for Southern African and Global South authors. I attended lectures offered by the Centre for Post Graduate Studies at Rhodes, the Environmental Learning and Research Centre weekly seminars and PhD Weeks, the Environmental Education Association for Southern Africa 2021 Conference, the Centre for Researching Education and Labour (University of Witwatersrand) VET Lecture Series, and the international Kemmis and Schatzki reading groups. I was also fortunate to be invited to a number of the researchers’ meetings on the international research project, the VET Africa 4.0 Collective (VET4.0Collective, 2023, in press), which was run out of the University of Nottingham and which focussed on four African VET case studies. Most helpful in these groups was the privilege of listening to leading authors and other experts in the field answer questions (mine and others) directly, and to witness the debate amongst them. I remain deeply indebted for my inclusion in these seminars and groups and my exposure to state-of-the-art, generative discussions both on VET and TPA. This is where the Covid-19 pandemic expanded my research horizons as most of these events were online; and I had access to events I may not have had pre-Covid-19. These encounters made me question my own views as I was exposed to new ideas, opposing ideas and alternative ways of expressing research. Often I felt the tectonic plates of my ontology shift causing disruption in my research process, just ‘when I thought I knew what was going on’! A good example of this was the disruption of my binary conceptions around VET to the point of joining a much bigger conversation, and making a recommendation in Chapter 9 concerning the articulation of the different forms of VET.

The most challenging part of the literature review was reviewing the literature (published and unpublished) on the conceptual framework. My selection of TPA has been explained above, however, it was when I started delving into the TPA literature that a challenge and a risk arose. The *challenge*

was that I joined the TPA conversation as new developments in TPA were offered and robustly debated in the literature, for example:

- i. Kemmis (2021) engaging with Schatzki on the meaning of ‘learning’ in TPA
- ii. The concept of ‘the trellis’ of practices (Francisco, 2020)
- iii. The inclusion of the Theory of Education (Kemmis & Edwards-Groves, 2018)
- iv. Tables of Invention and other heuristic tools (Kemmis, 2022; Kemmis & Edwards-Groves, 2018)
- v. The growing interest in time and practice theory (Blue, 2019; Karger, 2021)
- vi. The ‘relational turn’ in TPA (Kaukko et al., 2021; Wilkinson & Kaukko, 2020)
- vii. The expansion of TPA towards transgressive learning (Hopwood, 2021; Hopwood et al. , 2021)

This found me constantly scrambling for the cutting edge of TPA. The *risk* I encountered was that most of the TPA literature I read over four years emanated from Australia, Sweden, Finland, Norway and South Africa and I wondered where the TPA work was from other parts of the world. My mitigation attempt was to actively search the Rhodes University databases using key words and Boolean techniques. I also used the snowball technique and mined the references lists of the authors I read.

I certainly have not picked up on all, or even most, of the TPA theorists around the world. I suggest that although this the literature review on TPA is neither complete, nor exhaustive, that the literature consulted is sufficient to provide a well theorised study of informal IVET4. The review of literature in this dissertation could not be regarded as strictly replicable as the literature review process for a PhD is as unique as its contribution, but I suggest that it can be considered as reliable and applicable. The method and explicit explanation thereof, also speaks to the steps taken to attain the quality characteristics of knowledge cited as critical in a PhD study (CHE, 2018) i.e.,

- Broad, well informed, and current knowledge of field or discipline and may include inter-, multi-, or trans-disciplinary topics. Literature may also be regarded as artefacts, visual and aural records, and others.
- Expert, specialised, and in-depth current knowledge of specific area of research.
- Insight into the interconnectedness of one’s topic of research with other cognate fields.

The literature review process has been deeply personal and challenging, complex, never-ending, and fraught with challenges and risks that could decrease the quality of my study. To this end then, I have included the Literature Review as a method in this chapter to be transparent not only about what has been done but how I have gone about it too. This explanation of the literature review process may also provide a starting point for further research particularly concerning TPA as the field is moving so fast.

5.4 Research Methods for Data Analysis and Synthesis

5.4.1 Process of Analysis and Synthesis

This section explains my intellectual progression through the PhD process in terms of *how* I decided to process the data; and then moves onto *what* steps I took to achieve the descriptive and analytical production of Chapter 6.

5.4.1.1 Phases towards Analysis and Synthesis of Data

Deciding how to analyse and synthesise the corpus of data which I had collected was an iterative process over four years. On reflection, I identified four phases as I figured out how to manage the data arising from the PP, bound as it was, in a particular project, time, space and place.

Phase 1: I left the imprint of my starting point in Chapter 3 where I attempted to categorise words or sentences as sayings/thinkings; doings or relatings (see footnotes in Chapter 3). This made me uncomfortable as I thought it was too subjective to be valid and I ultimately abandoned this approach. It did, however, offer me early experience of beginning to work with the TPA language of description.

Phase 2: Next I turned to TPA authors to explore how the data was analysed and synthesised in their studies. The theming of data arising in case studies was common in empirical studies with variations on how the trends were identified. This included, for example, conversations amongst co-authors (Sjøløe et al., 2020); or using video reflexive ethnography clustered around themes (Hopwood et al., 2021a); or a multi-stage retrospective data analysis across a number of studies followed by rounds of refining discussions amongst the authors and the identification of confounding or promoting practice architectures (Francisco et al., 2021); or videos of medical emergency simulations with de-briefing sessions used to detect neoteric themes which enabled the extension of TPA (Hopwood et al., 2021b). Non-empirical TPA qualitative meta-reviews of research emanating from PEP academy yielded cross-cutting themes which gave prominence to rich educational insights amongst the constant waves of research (Edwards-Groves et al., 2020; Kemmis et al., 2020). Based on the examples provided above, it appears that each TPA study requires a distinctive approach to theme the empirical evidence as each qualitative study is different.

My approach to discovering the themes in the corpus of data involved conducting a number of steps in an iterative manner with particular emphasis on Steps 4-8 described below. This reiterative process enabled the triangulation of data from the nine different sources.

Phase 3: During the course of 2021 I was introduced to the heuristics of TPA which reflected the qualitative philosophical-empirical approach of the research design (S. Kemmis, personal communication, July 31, 2021); and I was given access to the figures Kemmis had devised to depict various elements of TPA (Kemmis et al., 2020). At the same time I read Francisco's work on 'trellis of practices' (2020) and found her diagrammatic representations most helpful. These heuristics allowed

me to distance myself from the data and view it more objectively. In addition, analysis and synthesis of data was one of the topics of the 2021 Environmental Learning and Research Centre PhD Weeks where I was able to garner practical examples from the academy and fellow scholars, for example, the use of Analytic Memos (cf. Appendix 9) and the structuring of the Data Code Spreadsheet (cf. Appendix 7).

Phase 4: My supervisor, Distinguished Professor Lotz-Sisitka, led me through two substantive ‘intellectual jumps’. The first was to identify categories of IVET4 practices and practice arrangements from the mass of data before me. The second jump took place some time later after I had worked with the categories identified, where she led me to identify the cross-cutting themes or practice architectures which arose across all the practices. As I worked with the empirical evidence, both the practice categories and the cross-cutting dimensions were iteratively refined to reflect the detail of the data, elaborated from a broad view of the data, more accurately.

5.4.1.2 Practical Steps in the Analysis and Synthesis of Data

The four phases described above invigorated and settled the analysis-synthesis method I used for this PhD. Although I describe the steps below which I took to analyse and synthesise the data arising from nine sources, in reality this was an intra- and inter-step iterative process of reflection and rework right to the end. Because of the richness of the corpus of data, it would have been possible to answer questions in addition to the research questions. This required a discipline of focus to keep the scope of this PhD in mind as I worked through the data i.e., this PhD sits at the IVET4 programme level and looks into the engine room of these interventions to understand the intricate mechanics of the training process. I comment only by exception on each step as the analysis and synthesis of data is well explicated in Chapter 6.

Step 1 – Foreknowledge of the data: I was steeped in the sayings/thinkings, doings and relatings of my data as I had been working in it, with it, and on it for many years. Although, I was deeply aware of the risk of researcher bias which this presented, it also meant that I knew the data very, very well which was an advantage, but also required reflexivity and rigour of representation (cf. Ch 3) focussed by the phenomenon under study.

Step 2 – Collection of data: I collected data from the nine sources mentioned. I note here a few personal reflections on the impact on me, and my colleagues, of gathering data – revisiting documents, talking to I&J Limited staff, and reminiscing-remembering recent and deep times past ...

- Gathering data from participants was lively and fun and it was both rewarding and refreshing to bring their voices into the room. This was more than just a necessity to answer the research questions fully; there was a rightness about bringing these voices into the conversation as I never did this work alone – it has always been a team effort. I feel proud of the sea-going participants and how far they have come with the IVET4 opportunities afforded to them by I&J Limited since 1995. My impression is that they ‘turn over every IVET4 penny twice’ when

offered the opportunity to develop and grow. This has not been my experience when facilitating formal or informal VET with other groups e.g. college students at private tertiary education institutions or executives at a cosmetic manufacturer.

- It was a warming process (McGarry, 2022) which seemed to ‘round-off’ these large-scale, long-term training interventions in a profound, affirmative, and emotionally satisfying way for me, Kevin, Charlene, Rick and the participants as we have worked together for many years, and this was an end of an era for all of us. This was an unintended consequence. It bears testimony to the centrality of relationships in IVET4 interventions. In this instance a research process brought about the opportunity to bring previously unheard voices to the fore and provided us all with recognition and affirmation for work well done over a long time.

Step 3 – Curation of data: I made my selection of data based upon relevance to the research questions; ethical considerations; availability and access to people under Covid-19 restrictions; and the ‘information power’ principles (Malterud et al., 2016). I populated the Data Code Spreadsheet (cf. Appendix 7) under five headings: data fragment number, data index code, data code full name, data generation tool, and data source. Initially I had two other headings which helped me to keep track on: a) the work still required on a piece of data; and b) whether or not the required permissions had been attained. The detailed populating of this spreadsheet enabled me to see all the data at a glance which aided the process of data selection – what to keep, what to discard?

Step 4 – Translation of oral data to written data: I made three decisions regarding the written record of data arising from the interviews:

The first was to transcribe the focussed group interview with Charlene and Kevin. I did the transcription myself without the assistance of software. I did this for a number of reasons which are described in a reflective note I wrote in August 2021 on the experience of this transcription:

The data is precious to me, and I feel that this is a way of honouring it. Taking care, even if it is costly in time. I know the interviewees and have worked with them for years. I want to hear their voices, their laughter, and the subtle tones of speech. This seems to matter in picking up the subtleties of identifying practices, pre-figuring practices and noticing what is not said too. I am deeply touched by the data – like going through the years in slow motion or watching a video of a holiday – one can savour what actually happened. I found that I was ‘hearing myself from a distance’ and was surprised at my tone and some paternalistic inferences centring on the participants’ learning needs and the design of training content and delivery in the initial phases of courseware creation.

The second decision I made concerned the focussed group interview with the production management team and the three individual interviews. Here I decided to create field notes by listening carefully to the interviews and replaying portions, then writing down the gist of salient points or verbatim quotes.

The third decision was regarding the four WhatsApp videos and the WhatsApp voice note which all were very short. I set up the eight analytic memos and listened to the WhatsApp videos over again and

then dropped the relevant points or quotes into the appropriate analytic memos. The WhatsApp videos and Kevin's WhatsApp voice note¹¹⁵ are included so that the reader can gain a first-hand impression of the sea-going staff's oral input.

I acknowledge the body of literature generated over some time concerning the pitfall and limitations of oral evidence (Richie, 2015; Yow, 1994; Yin, 1981). I was inspired to treat evidence generated by the spoken word in various ways by the observations of Ramsarup's (2017) treatment of oral evidence: key interviews were transcribed whilst for other interviews she simply identified important issues and made notes. Her substantiation for doing this was that transcriptions change the discourse from an oral to a written format and may "de-temporalize and de-contextualise oral discourse" (Fusco, 2008 in Ramsarup, 2017, pp. 143–144). I resonated with this concern particularly as the oral data in my project was collected across gender, colour, culture, language, and education lines; and it was collected at sea and ashore and, in some instances, relied on memories. In addition, Covid masks were worn at times which hid facial expressions. My attempt to retain the nuances of these discourses is reflected in the diverse ways I handled the oral evidence. On completing the process of converting data from oral to written form, I found the data arising from the interviews and clips discussed above richer than I could have imagined and a source of learning and personal onto-epistemological insight.

Step 5 – Creation of eight analytic memos: As the data emerged from the collection, curation, and translation processes, I populated the analytic memos which I had set up for each practice. I took care to cross-reference the analytic memos with the 87 fragments of data listed on the Data Code Spreadsheet to enhance the accuracy of the description and analysis of evidence which follows in the next chapter. This often necessitated revisiting the original source of the data to double check on a detail or speaker's meaning etc. The creation and revision of the analytic memos (cf. Appendix 9 for examples) – the return to the original source – the cross-checking of the Data Code Table (cf. Appendix 7) was an iterative process which lasted about eight months.

Step 6 – Description of five practices: Substantiated by the analytic memos, I described the thinkings/sayings, doings and relatings for each practice (cf. Chapter 6).

Step 7 – Adoption of TPA heuristics: Tables of Invention are "a kind of tool to guide thinking and analysis" (Kemmis & Edwards-Groves, 2018, p. 136). Tables of Invention was a concept first mooted by Kemmis et al. (2014a, p. 39). There are a wide selection of TPA tools and tables available to the researcher and these instruments are represented in recent TPA literature (Kemmis, 2022; Kemmis & Edwards-Groves, 2018). These include differentiated Tables of Invention for fieldwork, analysing learning and critically analysing education; also available are a framework for exemplifying the

¹¹⁵ Find link at:

https://drive.google.com/drive/folders/1NBQfNUmyZ1CZL5sqqZq0KQb33S_zPB8e?usp=sharing

connections between practices and arrangements and a table for analysing co-production and the formation of ecologies of practices (Kemmis, 2022)

I used the Table of Invention which is suitable for fieldwork (Kemmis, 2022, p. 5) to summarise each of the five IVET4 practices which enabled me to track the practices as they moved through the intersubjective space to form cultural-discursive, material-economic, and social-political arrangements (cf. 6.2.2, 6.3.2, 6.4.2, 6.5.4, 6.6.4, 6.7 and 6.8.5). To compile these Tables of Invention, I chose the most representative sample of the particular practices and arrangements, for example, Practices of Assessment, as it was impossible to include all the examples in the data concerning assessments (cf. 6.6). This approach is supported by Kemmis (2022, p. 5). This level of abstraction enabled me to begin identifying the trends and cross-cutting dimensions across the five practices. I applied the same method of selecting the most representative examples for the compilation of the final synthesis of data (cf. 6.9). For the final synthesis of data (cf. 6.9), I used the Table of Invention for Analysing Learning provided by Kemmis (2022, p. 14) which tracks the changes in practices and arrangements over time. This was necessary to capture the progression of IVET4 practices through the three generations of the PP (cf. 3.13.1).

Following the first ‘intellectual jump’ referenced above, I identified 11 practices and 11 analytic memos. On completing Steps 5-7, the refinement led to consolidation around five practices and eight analytic memos. The eighth analytic memo is a synthesis of the proceeding seven memos which illustrates how the practices and practice arrangements moved over time through the Three Generations of the PP (T^1 – T^3). Although I came to this point by a different route, the steps of identifying practices, crafting a Table of Invention for each practice to describe and analyse the practice, and lastly providing a Table of Invention which synthesises the practices and practice arrangements over time, may also found in TPA research focussing upon ‘innovative learning environments’ (Charteris et al., 2021, p. 7).

Step 8 – Elucidation of the cross-cutting dimensions of IVET4: The description and analysis process described above and the second ‘intellectual jump’ allowed me to identify two cross-cutting themes of IVET4. Put another way I was able to grasp the overarching practice architectures which promoted or confounded the PP; how to improve on similar programmes; and where the inflection points lay for the transfer and scaling of such IVET4.

Step 9 – The final dialogue between (TPA) theory and (abstracted) data: Given all the research activities which had led to this point, I was able to dance with theory and data and articulate my contribution to new knowledge. This contribution is the lamination of two claims, one is practical, and the other is theoretical.

Step 10 – Ongoing inclusion of I&J Limited staff: I maintained a professional relationship with I&J Limited throughout this process by communicating my progress, inviting participation, and sharing the relevant data with the senior management for review, member checking and permission purposes. My

Approved Ethics Application¹¹⁶ and the acceptance thereof (cf. Appendices 12) provided guidance to me throughout the generation and analysis of data and particularly the sections pertaining to the research activities of the study and the steps taken to ‘do no harm’ (cf. Approved Ethics Application, p 4 onwards). As part of the ongoing negotiation with I&J Limited concerning gatekeeper permissions (access to staff and inclusion of evidence attained), I negotiated a Code of Ethics with the General Manager of the Cape Town Trawling Division at the time, Mr Johann Botha. This document, signed on 18 June 2020, facilitated the agreement between myself and the organisation on key ethical issues, as well as access to I&J Limited documentation, photographs, WhatsApp voice and video messages, mobisodes and artefacts. A signed copy of this negotiated Code of Ethics and the Letter of Ethical Clearance may be found in Appendix 10.

5.4.2 Issues of Logic

“Learning without thinking leads to confusion; thinking without learning leads to trouble.”
Confucius – *The Analects* 2.15

5.4.2.1 The Application of Deductive, Inductive and Abductive Forms of Inference in this Study

Logic is “... the act of advancing and clarifying arguments, reasons and evidence for reaching certain conclusions” (Mouton, 2001, p. 113). The nature of the empirical evidence presented in this thesis calls for an application of *deductive*, *inductive* and *abductive* logic to draw inferences to answer the descriptive and explorative research questions. A combination of deduction (at a broad level) with induction (to differentiate data) and abduction (to recontextualise data) was the mode of inference or logics of analysis applied in this study. The three reasons for this choice were as follows.

Firstly, deductive reasoning applies a *theoretical understanding to a real-life situation*. This type of logic was necessary to apply the theory of TPA to the empirical data presented which then enabled me to analyse and synthesise the data. This did not mean a correspondence analysis as both induction and abduction were needed to enrich and deepen interpretation of the practices using TPA, while also adding to this theoretical field from the data interpretations.

Secondly, induction involves “applying inferences from a specific observation (such as a sample of cases) to a theoretical population” (Mouton, 2001, p. 117). I used this form of reasoning to identify the five practices and the two cross-cutting dimensions or practice architectures of IVET4; and it allowed me to consider what the specific data of the PP could mean for IVET4 in general. Nevertheless, “induction gives no guidance as to how from something observable we can reach knowledge of

¹¹⁶ Full Ethics Application can be accessed here:
https://drive.google.com/drive/folders/1NBQfNUmyZ1CZL5sqqZq0KQb33S_zPB8e?usp=sharing

underlying structures and mechanisms, it is limited to conclusions of empirical generalisations and regularities” (Danermark et al. in Ramsarup, 2017, pp. 153–154).

Thirdly, this presented a problem as the questions of my research demanded that I uncovered the ‘invisible’ pedagogical mechanisms of the PP. I observed how Ramsarup drawing on Danermark et al (2017, p. 154) got around this obstacle by introducing *abductive* reasoning where,

abduction is a form of creative reasoning that enables a researcher to discern relations not obvious; to formulate new ideas about the interconnections; and to think about something in a different context and an ability to see something as something else.

This form of thinking was particularly useful as I analysed Generation Three of the PP where mediation was in-person and online; and the creation of courseware called for a ‘yet-to-be-discovered’ technical solution to get IVET4 to the sailors at sea. Generation Three represents the outermost boundary of my IVET4 practice-praxis and constantly pushed into new territory as the programme unfolded. Both as IVET4 educator of the Chief Engineers Programme and subsequent researcher of this PhD, I relied heavily on abductive reasoning to figure out ‘how to go on’.

Particularly as I searched iteratively for themes, as described above, the concept of “shadow organising as dwelling in the space of the ‘not yet [data]’” proved most helpful (Gherardi & Benozzo, 2021). The work of Gherardi and Benozzo (2021, p. 296) work looks at,

what we do to data and what data does to us ... [and invites] researchers and professionals to stay with the trouble/indeterminacy of data and to ‘slow down’ the quick framing of ‘data’ and the jump to evaluation and critique. Moreover, it argues against the seduction of evidence and it is an invitation to value the idea that things may always be otherwise and that there is space for shadow learning

As I attempted to uncover the practices and practice architectures of the PP, Gherardi and Benozzo’s (2021) three ideas around ‘not yet data’ were useful intellectual ‘arrestor beds’¹¹⁷ as I hurtled down the road towards drawing my inferences and conclusions. These are:

- A situation in which data are illegible: the researcher doesn’t know how to read the situation, or the data are invisible
- The process of actively ignoring what is known, what is not-yet manufactured as data
- The agency of the technological infrastructure in which the indeterminacy of the not-yet data is shaped by power dynamics.

Abductive reasoning supported this ‘slow-down’ process where I was looking to ‘to shine a light on the unspoken, unseen, unasked and intangible’ (Gherardi & Benozzo, 2021, p. 296) practices and practice architectures which constituted the IVET4 programmes under scrutiny in this work.

¹¹⁷ This is an offramp on a highway, made of special material, designed to stop a runaway truck especially on steep down hills.

The findings in this research could be described as both *descriptive* and *evaluative*, where the former is the presentation of “evidence of interesting and significant patterns in existing or new data”; and the latter is the provision of “evidence for the successful [or confounding] outcome, benefits or impact of certain interventions” (Mouton, 2001, p. 113). The corpus was sufficient to provide inferences on the explorative research questions concerning the scaling and transfer of IVET4 programmes as discussed in Chapters 6, 7 and 8 which follow.

5.4.2.2 Generalisation of Case Study Findings in this Study

Picking up on *generalisability* which has been noted as a limitation for a research design based on a case study, I endeavoured to ensure that the weight of evidence is sufficient to support any generalisations. To give substance to this caution, I wish to be explicit on principles I employed to make generalisations from the corpus of data:

Firstly, I took cognisance of two types of generalisation, internal and external. The former is “generalising *within* the setting, group, or institution studied to persons, events, and settings that were not directly observed or interviewed” (Maxwell, 2013, p. 142). External generalisation is the extension of inferences beyond the research setting. In the point below I have delineated the boundary I drew between internal and external generalisation:

I limited my generalisations to IVET4 in the I&J Limited workplace within the company’s South African commercial operations (*internal generalisation i.e., internal to this case study*). Although any form of inductive reasoning is regarded as *conjecture*, based on broader reading and conversations I have had within the academy (Kaukko et al., 2021; Wilkinson & Kaukko, 2020), I suspect that the conclusions which I draw could be taken up and partly recontextualised to other companies beyond the South African borders to the Southern African Development Community (SADC), to unemployed persons, to non-commercial operations and/or to refugees (*external generalisation*). Further empirical research would be required to validate any such claim.

Secondly, I drew on the conception of a ‘fuzzy prediction’ or ‘fuzzy generalisation’ put forward by Bassey (2001) who stated, “for the user of research, generalisation in the form of prediction is what is usually wanted” (2001, p. 12). Bassey posited that: “fuzzy prediction replaces the certainty of scientific generalisation (‘x in y circumstances results in z’) by the uncertainty, or fuzziness, of statements that contain qualifiers (‘x in y circumstances may result in z’)” (2001, p. 5). The latter invites replication that leads to support of the generalisations made or an amendment to same. Bassey suggested a method to estimate the trustworthiness of such a qualified generalisation (2001, pp. 9–10). Trustworthiness is based upon the quality of the research which underpins the fuzzy prediction. Bassey (2001, p. 19) challenged researchers to “put their heads above the parapet” and allocate a percentage range “of the likelihood of the statement being accurate” which is an “educated guess and not an empirical statement” – he called this the “best-estimate-of trustworthiness”.

Bassey acknowledged the work of Stake (and others) in his consideration of generalisation in the methodology literature concerning case studies (2001, p. 7). I have elected to include the Trumball and Stake (found in Melrose, 2009) contribution because it articulates an expansion on the “value of relatability” (Bassey, 2001, p. 5), and allocates a responsibility to both the author and readers for any generalisations derived from the research.

Thirdly, I include the concept of *naturalistic generalisation* proffered originally by Trumball & Stake which defines this concept as,

A process where readers gain insight by reflecting on the details and descriptions presented in the case studies. As readers recognise similarities in case study details and find descriptions that resonate with their own experiences, they consider whether their situations are similar enough to warrant generalisations. (in Melrose, 2009, p. 1)

Melrose (2009) made generalisations from a case study to an individual. I posit that naturalistic generalisations may also be extended from the case study to a group of people or a sector of the population. This would be in much the same way that we think about history when we ask: Is a past situation similar to a current one, and what can we learn so we don't repeat the mistakes of previous generations? By employing the concept of naturalistic generalisations both the researcher and the reader bear some responsibility towards inductive generalisation or transferability of the research findings.

There is a responsibility on the researcher to provide a thick description for the reader to identify with at a deep personal level or relatability (Bassey, 2001; Melrose, 2009).

Accounts need to be personal, describing the things of our sensory experiences, not failing to attend to the matters that personal curiosity dictates. A narrative account, a story, a chronological presentation, personalistic description, emphasis on time and place provide rich ingredients for vicarious experience. (Melrose, 2009, pp. 3–4)

Providing a thick description could include “*what is*, *what may be* and *what could be* [where] *what is* refers to studying the typical, the common and the ordinary ... Studying *what may be* refers to designing studies so that their fit with future trends and issues is maximised ... Studying *what could be* refers to locating situations that we know or expect to be ideal or exceptional on some *a priori* basis and studying them to see what is actually going on there.” (Schofield in Bassey, 2001, p. 8, italics in original)

This description then enables the reader to take up his/her responsibility to determine whether or not the case study described can be generalised or not; and the reader can consider matters of ‘transferability’ and ‘fittingness’ of the findings offered (Melrose, 2009, pp. 3–6). Following the principles of naturalistic generalisation neither the researcher nor the reader bear terminal responsibility for the generalisation, but rather it is a co-responsibility. In a sense, with this approach the reader is invited to be an ‘insider’ in the research rather than being ‘outsider’ who is presented with a prescribed conclusion.

“Fuzzy predictions with best-estimate-of-trustworthiness may provide a powerful tool for researchers to communicate with potential users of research and also to develop a cumulative approach to the

creation of education theory” (Bassey, 2001, p. 20). Considering the essence of TPA – the detailed descriptions of sayings/thinkings, doings and relating – and the nine forms of evidence offered, the thick description required for a fuzzy prediction or naturalistic generalisation has been provided. I suggest the weight of the evidence presented and the longitudinal nature of this PhD allow me to make a ‘best-estimate-of-trustworthiness’. Raising my ‘head above the parapet’, I propose that the *internal* generalisations which I make carry a ‘best-estimate-of-trustworthiness’ of 70-80%; while the *external* generalisations carry a ‘best-estimate-of-trustworthiness’ of 50-60%. The further away a new situation is from the original I&J Limited context, the more the ‘best-estimate-of-trustworthiness’ decreases.

5.5 Conclusion to Chapter 5

In this conclusion, as for all the proceeding chapters, I remark upon how the Quality Framework referenced in Chapter One has been applied to this chapter. Quality is integral in all aspects of this thesis. I suggest that the knowledge characteristic which is particularly pertinent to the research design and methods is *ethical awareness in research and professional conduct* (CHE, 2018). Direct reference to the quality characteristics of CHE (2018) have been made in the text; issues of ethical concern have been explicated in this chapter and are found in Appendices 7-9, and as such do not bear repeating here. However, I would like to highlight an example of an ethical praxis which runs through Chapter 5 – this is the conscious decision I took to make often *implicit* features of research, *explicit*. For example, I have provided unambiguous accounts of how I have managed noteworthy elements in the research design and methods (cf. 5.3.2), the description of the qualitative approach (cf. 5.2.1), the discussion on determining the quality and quantity of data (cf. 5.2.4), my approach to reviewing the bodies of literature relevant to this thesis (cf. 5.3.4), and how I have dealt with inductive generalisations (5.4.2.2).

The skill characteristics relevant to this chapter are: the evaluation, selection and application of the appropriate research approaches, methodologies, and processes in the pursuit of a research objective; and reflection and autonomy (CHE, 2018). The first mentioned is the subject matter of this chapter; and for the second, I have included a number of reflections in the body of the chapter which I will not repeat. In conclusion of this chapter I would like to point to three overarching traces of quality which are found in sayings/thinkings, doings and relating of how I embodied the research design and methods.

Firstly, I embraced the ‘methodology of chance’ (Yahalom, 2020) which calls for methodological agility to manage the obstacles one finds in the field and accommodate such contingencies, for example, the inclusion of the questionnaire and WhatsApp methods.

Secondly, I noticed that the quality of this work may have increased because I (and others) actively listened in the interviews, transcription and field notes process, and in the many, many training

facilitation sessions and quayside chats over the years. McGarry (2022) has described active listening as “to look and feel *what is not there*, what is spoken, *what remains unspoken* and what still needs to come ... [that] assists with thickly imagining and describing that which is not obvious at first sight”. Thirdly, we conducted ‘warmth work’ throughout the IVET4 Programmes (cf. Chapter 3) which McGarry (2022, p. 10) stated “is needed for the kind of social learning that expands towards collaborative and ontologically and epistemologically sensitive justice”. Without this ‘warmth work’ the methods described in this chapter would have been stone-walled and the data left unread. The ‘Brotherhood of Sailors’ is a closed group, and it is only by building relationships that one may be given access to this group ‘by invitation’.

As noted earlier, the concept of Information Power guided the principles for the research design and the methods used in this thesis to ensure that the generation, synthesis and analysis of evidence were sufficient to sustain the claims to new knowledge and the conclusion of this PhD. Chapter 6 which follows next takes up the process and devices referenced here to provide a description and analysis of the practices evidenced in the five themes or practice arrangements identified in the PP case study.

CHAPTER 6: DESCRIPTION OF FIVE IVET4 PRACTICES

6.1 Introduction to Chapter 6

The purpose of this chapter is to describe and analyse the corpus of empirical data amassed from the nine sources described in the preceding chapter. Chapter 6 may be read with reference to the Historical Reflective Narrative in Chapter 3 of the Production Programme (PP), the Chief Engineers Programme and the Skipper Development Programme. The descriptors provided in the conceptual chapter are employed here as I worked with Practice Architectures Theory (TPA) to analyse the data. The conceptual framework chosen for this research project provides an “analytic toolkit to investigate the social and material accomplishments and connections that form the basis for work and learning but have too often been treated as invisible or unimportant.” (Hopwood, 2014a, p. 349). TPA has made the invisible, visible – revealing the IVET4 practices or mechanisms of the PP; and in turn rendering the ‘cellophane’ Turners into the collective backbone of the freezer vessels.

The description and analysis leans into the Theory of Practice Architectures (see Figure 4.1 in Chapter 4) to describe the practices, arrangements and practice architectures which have emerged from the data. Five themes emerged namely, Practices of the Creation of Courseware for the PP; Practices of Teaching and Learning in PP; Practices of Assessment in the PP; Practices of Love in the PP and lastly, Practices of Management in the PP. Under each of the five practices nestles the embodiment of these practices as they showed up in the three generations of IVET4 identified in the PP. The structure of this chapter has given the corpus of data a clear and preeminent voice. It has also untethered me from the data which allowed me to analyse it and pick up the trends and patterns I would have otherwise missed. In Chapter 6, the description and analysis of each practice is done in two parts.

Firstly, a description of the practice is provided and substantiated with references to the relevant data. The first theme is Practices of the Creation of Courseware and this dominates the account of the data. I became conscious as I worked with the data that the Practices of Creation of Courseware was the cornerstone of the PP. This creative process of design provided a *range or field of practice* within which the practices of learning and teaching and assessment played out. The course design process also enabled the formation of relational capital; in retrospect the course design shaped the management practices – for good and bad.

Secondly, the practices are analysed using an heuristic device called a Table of Invention provided by Kemmis (2022, p. 5) to indicate how the practices of sayings/thinkings, doings, and relatings move through the intersubjective space and form cultural-discursive, material-economic and social-political arrangements and practice architectures. Kemmis warned us that it is impossible to capture all the detail of every practice but encouraged us to “establish what evidence is the most relevant in terms of the

research questions we aim to answer, and in terms of any themes and issues” (2022, p. 5). There is a caveat that the data selected, and its interpretation is subjective, revealing the researcher’s place in history, her culture and geography, research interests and biases, but, this is nonetheless “shared by all forms of science, in every discipline” (Kemmis, 2021, p. 5). To ameliorate this subjectivity, I triangulate the nine different forms of data which I have collected, and where possible, I provide a thick description which relays the voices of the research participants.

A description and a Table of Invention was developed for each of the generations of the Practice of the Creation of Courseware for the reasons mentioned above (Table of Invention 1-3). Next comes the Practice of Teaching and Learning (Table of Invention 4), then the Practice of Assessment (Table of Invention 5), followed by Practice of Love (Table of Invention 6), and finally the Practice of Management (Table of Invention 7). Lastly, Table of Invention 8 synthesises the five main practices and demonstrates how the practices and practice architectures of the three generations of the PP built upon one another and moved through time and space.

Seven analytic memos were produced, one to support each description and Table of Invention, to ensure a consistent and thorough analytical approach across all forms of data and all practices (Appendix 9). Data referenced in each practice description may be substantiated by referring to these memos; however, where there is a particular piece of evidence or a quote, a unique identity is provided which can be referenced on the Data Code Sheet (Appendix 7). An eighth analytical memo was created which substantiates the source of data with reference to where it is included in the other chapters in this thesis.

In conclusion, as for each chapter, I refer to the quality framework established in Chapter 1 and explicate how I have applied key characteristics in this particular chapter. The content of this chapter is confined to the description of the practices and a first level of analysis. The key dimensions of IVET4 identified in Chapter 6 are further illuminated in Chapters 7 and 8 under two overarching PAs namely, Practice Architectures (PA) of Methodology and Methods and the PA of Maturing Ecologies of Practices.

The evidence for this thesis is captured on the Data Code Table (cf. Appendix 7) and is available to the reader at the link below. This includes access to the interactive data of four WhatsApp videos, one WhatsApp podcast and two Mobisodes so readers can access the IVET4 programmes which occurred at sea and ashore. All clips are only a few minutes long and are illustrative rather than definitive of the empirical data.

https://drive.google.com/drive/folders/1NBQfNUmyZ1CZL5sqqZq0KQb33S_zPB8e?usp=sharing

6.2 The First Generation of the Production Project

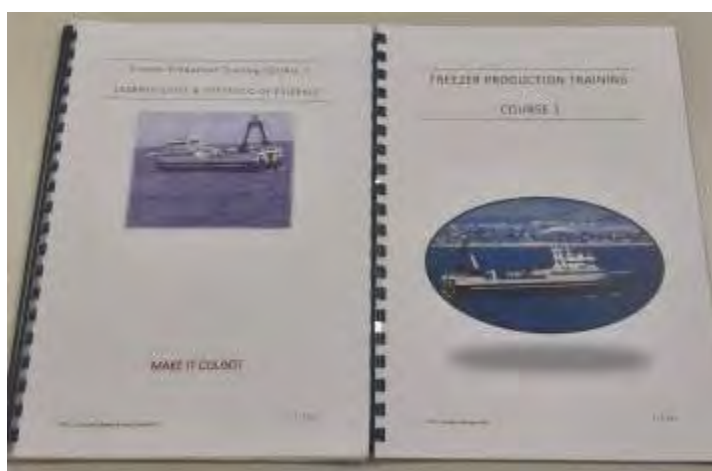
6.2.1 Description of the Practices of the Creation of Courseware for Generation One

Context of Generation One Courseware Creation

The data for this section is detailed in Analytic Memo 1 (cf. Appendix 9) and the Data Code Index (cf. Appendix 7). The First Generation of the Production Programme saw the creation of four courses namely, the Freezer Production Training Courses 1 and 2; a Wetfish Production Training Course; and lastly a Freezer Refresher. Courses 1 and 2 were supported by PowerPoint presentations. The courses were created in the order mentioned from 2016 to 2017. Charlene Coetzee, the Resources Manager, and I held the final responsibility for the creation of the courseware; and Kevin Gaynor, a facilitator of Future People, joined us for the completion of the wetfish manual and made his own additions to both the freezer manuals. At that time, the role of the Resources Manager was to manage both quality and production.

Development of these courses was unlike the formal VET (National Qualifications Framework-based) or the classic model used to develop IVET4 courses where there is a printed (or more recently an e-version) Facilitator's Guide, Learner Guide, Assessment Guide (cf. Appendix 5) and a Portfolio of Evidence. The courses were developed 'in flight' and as each module was finished, it was immediately put out into the field. At this point only one manual which contained the modules per course was created which was used by both the Turners and the VET educator. Every module was brought back to the 'workshop' for fixes and modifications as we learnt more and more about a) the freezer and wetfish production processes; and b) realised how the Turners learnt so we could fine-tune our pedagogical methods. These courses were iterative and grew in content and efficacy over the three years. They only reached about 90% completion at the end of the second generation as there is *always* more to know about the highly complex production process, and how to teach and learn from the Turners.

The logistics of Turners and the physical learning spaces had to be considered in the creation of courseware. The length and number of modules accommodated the turnaround schedule of the vessels and the shore-leave requirements of the Turners. The place of the training was considered by ensuring the pace of the material and the volume of work for each module took into account the time it took to



Photograph 6: Freezer Production Manuals 1 and 2

move a group of people from one place to another, for example, to the sites of the practicals which were both on and off site.

The medium of instruction was English and data from the questionnaires indicates that all ten of the senior production staff supported the choice of English. Heinz Blom, a Production Manager wrote [Q1]: “English is a plus because everyone understands it”; and the Training Officer (Generation Two) agreed [Q10]: “It was a plus as it could make it easier for all the learners to understand one universal language.” In reality English, Afrikaans, multiple African languages, French and Portuguese was spoken in the classroom. Semantics and word choices were very important and ‘mis-steps’ in the courseware creation had explosive impacts in the classroom. These are explored in the Practice of Teaching and Learning in Section 6.3. Both the support of English as the medium of instruction and the ill-fated use of particular words is echoed in the Skipper Development Course [II-1] for example, the word ‘development’ was perceived by the Skippers as exceptionally denigrating of their abilities as they associated the meaning of this word with Early Childhood Development. Their interpretation was ‘management think we are useless’. ‘Development’ was dropped in all subsequent courseware development.

The reason for this unusual practice of ‘building the courses in flight’ can be traced to the courses’ origins. There was a ‘push from above’ from the executive team to ensure that all production staff knew the rules, understood what was required and did their jobs consistently. The Trawler’s General Manager, Johann Botha, absorbed this pressure and initiated a production training course with Charlene. Charlene’s view was that, although the Executive had an unfairly negative view of the production staff, that the production training had merit and in her words:

We sent people to sea with little to no training and they learnt what they knew from people that had little to no training and if there were bad habits, the bad habits would pass on and if there were good habits, the good habits would pass on ... but we didn’t actually even know what those good or bad habits were. So the whole thing started with trying to just understand what was good and bad in production and then from there on to teach the crew [emphasis mine], what we want from them in the form of good habits, good production practices etc. and try and break down those bad habits that had been forming over many years. [FGI-1]

The production training was initiated at the beginning of 2016. It must be noted that it is always easier to see errors in hindsight; however, two assumptions by the Human Resources professionals are evident in: a) a presentation to management, and; b) a proposed outline of such a course [D2 & D3] provided at this time. The first assumption was that the training was straightforward and could be completed in less than a year; and the second was that much of the at-sea production content was already known or it was the same as the land-based production operations, and thus a single training course could be pulled together fairly easily. Both the Skipper Development Programme and the Chief Engineers Programme had similar origins – an Executive instruction to create and run the courses, unrealistic

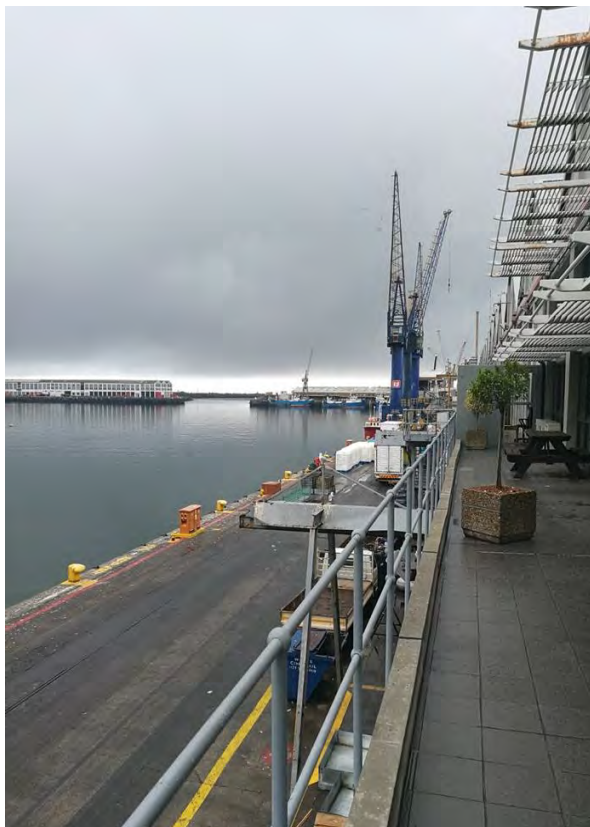
timeframes and a negative impression of the skippers and chiefs respectively [II-2; II-3]. The impact of these bumpy beginnings is explored in the Practices of Management in Section 6.8.

However, Charlene, as a middle manager holding the resource portfolio, worked closely with production staff on all the vessels and had well established professional relationships with the Vessel Production Management Teams. As is evident in the quote above, she recognised that very little was known about the good or bad practices of production and gaining this factory-floor knowledge was where we needed to begin.

In the first half of 2016, the Training and Development Team had put together the first version of the production training course. This proved to be a false start as Charlene explained:

... we had been trying to pull something together and what we had been doing up till then ... Mr A (Group Training Manager) was assisting them, and it was very quality and HACCP (Hazard Analysis Control Point) to that side as opposed to production ... [FGI-1]

The Executive and senior management were growing restless as little progress was being made. It was at this point in late June 2016 that I was invited to develop and deliver the production training together with Charlene and thus, the creation of Freezer Production Training Course One got underway. I ran the first iteration of this course on 7-8 July 2016 [D1] so it really was a case of creating course material and delivering it almost immediately.



Photograph 7: Calm harbour

Charlene and I had worked together in the past, we are both creative and slotted into working as a give-and-take tag-team easily. Failures were acknowledged and successes celebrated with equal grace and good humour. Because the on-the-ground training started so fast, the Executive's frustrations were eased, and Charlene and I were given head space and time to figure out this 'build in flight' model. This photograph is of a calm, empty quayside and represents how we felt as we began – it was an open palette, we could do anything we wanted with the knowledge that this was the first time that it was being done in the company or in the industry. We were pioneers.

Thinkings/Sayings, Doings and Relatings of Creating Generation Two Courseware

The first step in the creation of the courseware for Freezer Production Course One was to understand and map the production flow on a freezer vessel. Each freezer vessel is differently configured and therefore the process and procedures vary, so we took a generic approach to the process. The variations between freezer vessels were picked up in Generation Two. We did this mapping by going aboard the vessels and walking through the process from one workstation to the next taking photographs and making notes. We also spoke to the production managers and operators who had many years of knowledge and lived production experience to share with us. Charlene found the marine architectural drawings of the factories which were also helpful, especially when mapping factory workers to particular workstations. We ‘translated’ the drawings into the lived experience of what each person actually did and how he went about it.

The second step following the mapping of ‘lived’ production process, was to prioritise two key procedures for the focus of the first course namely, trimming and packing. Trimming happens about halfway through the production process where the trimmers remove defects from the fillets in 3-5 seconds using sharp knives. If too much of the good fish is cut away, this is a waste and if the defects are not removed, it becomes a quality issue, so the work requires dexterity and fast decision making. This was portrayed in the courseware using the concept of triage to explain the concept of prioritising decisions. The packing of fillets happens near the end of the process before the finished product is frozen. We also included key production principles e.g. the concept of just-in-time, drip loss of fillets, bottlenecks and more. The course could not be included in this thesis as it contains I&J Limited Intellectual Property, however, the contents page, which provides a good outline of what is covered, may be found in D6.

The third step in the creation of the courseware was to include a practical for trimming and packing. This took place at the Woodstock Factory. Dedicated lines were set up for training purposes and delegates were taught the ‘good habits’ of trimming and packing. These processes were measured, and this was the basis of the assessment practice for this course. The practice of assessment in IVET4 is elaborated in Section 6.6.

I facilitated Freezer One, which was two days in duration, with the assistance of a retired Production Manager called Jap. It was not long before the course went back to the ‘workshop’ to include material and exercises to build relationships between the delegates and each other, and between the delegates and myself. The importance of building a relational bridge before attempting to teach complex information emerged as being mandatory to successful learning. This practice is explored in Section 6.7 on love, trust, and confidence. Following this modification to the course, the training of Freezer One ramped up considerably.

The next stage in the re-creation of material was the realisation that the Turners were struggling to grasp certain concepts e.g. the calculation of ratios to figure out trimming wastage, and spatial concepts, i.e. where an object is in space – is it above or below or at the top or bottom? The reason for these struggles is found in the educational profiles of the Turners described in Chapter 1 (cf. 1.2.5). The courseware creation process at this point was nicknamed the ‘gin moments’ and is well described by Charlene:

It is those last few minutes before I left work on a Friday that I would have these brilliant moments of how to get certain difficult messages across ... and it was named Gin-Fridays because I was clearly having a clarity because I knew I was about to go and pour a gin and start my weekend ... so um ja I think ... so for me a positive memory would definitely be Gin-Friday. The other thing on a more serious note was the challenges of trying to find simple ... um ... applicable ways to get complex messages across. It was just trying to find these because you couldn't use words because of the literacy issues ... [FGI-1]

It was here that we introduced the use of practicals, artefacts, and simulation and metaphors into the training material. Examining the questionnaires showed me that 8/10 enjoyed and found the inclusion of these additions in the courseware helpful.

The creation of the Freezer Production Course Two and the Wetfish Courses followed the same iterative process of development as the detailed description above for Course One; and occurred concurrently with the roll-out of the courses. The course outlines may be found in D7 and D8. To create the courseware for the one-day Freezer Refresher, we took salient points from each course.

In concluding this description of the creation of courseware for Generation One, I share the reflections amongst Charlene, Kevin, and myself on the *practice* of creating this programme. This conversation reflects the sayings/thinkings, doings and relatings that reveal *how* this development work occurred in the daily grind. There is a stark contrast in the process of the creation of courseware between Generation One and Generation Two, which is elaborated in Section 6.3 below. The quote which follows illustrates the creativity and conviviality amongst us as we developed the courseware for Generation One.

RAF: If we take a big, giant step back and say what we were thinking, where did language come in? We will just take each one of those ... well I mean your gin moments are ...

KG: This is higher grade stuff ... laughing [Kevin is referencing the TPA diagram which I introduced into the talk]

CC: I wasn't thinking much to be honest, I was doing ... [laughing]

KG: And experimenting ...

RAF: I think it is brilliant. It was experimenting. It was a very creative process.

CC: It had to be because it was new and hadn't been done before. [emphasis mine]

KG: Never been done.

CC: So it wasn't just taking something that was there and dusting it off and improving it with a little bit of creativity...we had to be creative all through ...

KG: And brainstorming ... I think there was a lot of brainstorming.

CC: There had to be a lot of brainstorming ... [emphasis mine]

KG: Even though CC has been here for – how long have you been here?

CC: 18 years

KG: [laughing] ... nearly 20 years! That's huge, that's huge. So your experience of hands-on understanding of the business and our influence from training, practical things, and exercises. I think it was a good team to develop and brainstorm and figure out what would work or what didn't work. [emphasis mine]

CC: It didn't have to be done alone. [emphasis mine]

KG: It was a big shock for them to realise the gap in many instances, it still is surprising in so many ways in the training like percentages or grams to kilograms ... but to put it into a model [TPA] something like this is fascinating and then it actually makes sense of what happened.

RAF: Why do you think the brainstorming, the creativity worked well between the three of us? What made that happen well?

KG: For me, we challenged each other. It's like we came up with a concept and I know we were talking about apples and there was talk about bananas at one stage ... [lots of laughing] ... or oranges

CC: Sponges ..

KG: And then we would land on something. And then we would try something, and it didn't work [emphasis mine] ... whatever go to CC and say what about this? And she would say no but that applies to ... if it was packing wet fish that applies to the yellow bins not the white bins ... oh shucks we got to do it also for the yellow bins and ... it was just a mix of practical, experience, ideas and theoretical and models. [emphasis mine] Just putting it down ... your PowerPoints. When I came in there was a lot of ... the skeleton was there but we had to flesh it out and find ways to ... I think for me to make it exciting and engaging and obviously learning for the guys...

CC: One of the bigger things was there like-mindedness in the sense of we all wanted something better. [emphasis mine] [FGI-1]

6.2.2 Table of Invention 1: Summary of the Practices and Practice Architectures of the Creation of Courseware for Generation One of the Production Programme

<i>Examples of sayings</i>	<i>Cultural-discursive arrangements</i>
<i>Sayings:</i> - Management discourse of instruction, course expectations and timeframe - Use of English as the medium of training <i>Thinkings:</i> - Management's negative view of sea-going staff Developers to understand learning content, to make complex concepts understandable and to re-think 'the concepts we were most sure of'	<i>Sayings:</i> - Top-down management culture in I&J Limited and modelled in the holding company, Anglovaal Industries Ltd - International marine language is English. <i>Thinkings:</i> - Systemic disconnect between the Executive and middle management due to habitus, time, and listed company profit expectations. General Manager of Trawlers understood the value of the work. Little was known of the production process and the information needed to be documented before the course creation could commence.
<i>Examples of relatings</i>	<i>Social-political arrangements</i>
<i>Positive:</i> - Positive working relationship with General Manager - Developers' creative, collegiate, and happy working relationship - Resource Manager's positive professional relationships with the production staff and her peers. <i>Negative:</i> - Little appreciation for the value of the knowledge curated or converted into understandable courseware	<i>Positive:</i> - General Manager of Trawlers protected developers from Executive so that the course development could be a creative and iterative process. - Relationship benefitted from 'deep time' and had been built up over 14+ years. <i>Negative:</i> - Distrust and communication disconnect between Executive and the General Manager and developers
<i>Project/s</i>	<i>Practice tradition</i>
The project was to create IVET4 courseware for freezer and wetfish vessels that would 'stir' production workers and managers into good production habits and engender personal growth. It was also to create scaffolding to 'pick up' learners and create a happy, confident curious relationship between the learner and knowledge.	The practice tradition of training workers using the 'chalk and talk' of classroom teaching and learning dominated. Nevertheless, the definition of classroom changed to 'speak to' the content and included not only the training room but also Woodstock Factory production lines, the wetfish discharge area to practice fish sorting and the Quality Control laboratory for the dissection of a fish.
<i>Situated knowing, dispositions (habitus)</i>	<i>Practice landscape</i>
<i>For the courseware developers:</i> Knowledge, skills and values which promote working in a team in a collaborative, iterative and creative manner to pioneer four at-sea production courses <i>For the Turners:</i> Knowledge, skills and values which enable the learner to take responsibility for his own learning and to share his knowledge; plus an eagerness to learn, participate and ask questions	The practice landscape is representative of the dynamic and iterative nature of the courseware creation process. The creation of courseware took place at the desk of the Resources Manager in an open plan office; on the freezer vessels in the factory; in the fish discharge area at the Woodstock Factory; and in the training centre. Development also occurred during WhatsApp calls and the sending of images. It was characterised by fun and laughing.

Table of Invention 1 is based upon Kemmis (2022).

6.3 Second Generation of the Production Project

6.3.1 Description of the Practices of the Creation of Courseware for Generation Two

Context of Generation Two Courseware Creation

The data for this section is detailed in Analytic Memo 2 (cf. Appendix 9) and the Data Code Index (cf. Appendix 7). The second generation of the creation of courseware for the Production Programme focussed only on the freezer vessels. It commenced in May 2019 and was completed in May 2021 although the ideation of this phase started two years before. Charlene and I created a spreadsheet in 2017 called ‘the balloons’ [D10] where we mapped out all the production processes which we had discovered on the wetfish and freezer vessels. We included wetfish processes as many of these occur on the freezers too. This exercise showed us that we had covered less than 20% of the processes. We also added to the balloons the underpinning skills which were required for the various processes e.g. the ‘Scaler’ (scale operator) must be numerate and able to convert grams to kilograms; the ‘Boxa Master’ ought not to be colour blind and must be literate and numerate as the box labels are colour-, product- and date-coded.

The production training continued intermittently from the time the first courses began, however, the creation of new courseware stopped. The reason for this is that the Executive management’s attention turned to other pressures in the business, and I was commissioned to create and deliver the Skipper Development Programme [N13] and shortly afterwards, and concurrently with the Skipper Development Programme, I was co-opted onto the Engineering Modifier Project [N14] and then the Chief Engineers Programme [N15].

Nevertheless the wheel turned, and the gaze reverted back to production because the efficiency of the conversion process on the freezer vessels from ‘resource’ (hake and by-catch) to ‘finished product’ (first and second grade fillets, frozen blocks, and fishmeal) had become critical. This pressure arose from shareholder growth expectations, return on investment of expensive equipment fitted onto the freezer vessels, and as the Marine Manager explained, the fish were simply harder to catch:

It is becoming more difficult to fish, you need to work very hard at it. In the early ’70s there was unrestricted fishing all over the world. That is very well controlled now. But fish is not as abundant as it was 30-40 years ago. Bearing in mind it was a balance because the technology they had then was not as good as it is now...it would be ideal for you to sit with the resource as it was in the ’70s and the technology we have now ... we would be A-for-away [II-1]

This meant that every freezer production worker needed to know why-how-what to do at his work station. There was also a top-down push to measure each man’s performance every shift qualitatively and quantitatively. This expectation was borne from the practice at the land-based Cape Town Processing (CPT) or Woodstock plant where production staff were inexorably measured every few hours. This presented a challenge as the processing conditions at Woodstock are substantially different

to processing fish at sea. Charlene was no longer Resource Manager as her whole focus had become quality. I was commissioned by the General Manager, Johann, to ideate a performative-assessment driven Generation Two of the Production Programme to meet the business imperatives described above; and to hold terminal responsibility for the completion of this project. My brief involved conceptual work, quality assurance and management of:

- Creation of courseware – the Production Manual [D9] and all related documents,
- Delivery of the PP Generation Two training to all freezer staff (about 200 learners) ashore and at sea,
- Completion of assessments and accreditation for all freezer staff ashore and at sea, and
- Delivery of train-the-trainer course.

Kevin was brought on board to shoulder the bulk of facilitating the training and conducting the research required to develop the courseware. He also did most of the writing. We worked alongside a technical expert who was employed to manage and boost production.

For organisational management reasons, which will be discussed in Section 6.8 below, the Turners were disillusioned, demotivated, and sceptical about any form of training. This is evident in the words of the two Production Managers, who are the most senior production personnel on the vessel: Heinz wrote: “I felt like the course won’t help at first but in the end I could see and relate as to where I can apply knowledge” [Q1]; and Jini wrote: “At first I felt it was just a waste of time. But as it progress after that I gained more. It was self-improvement.” [Q2] . This negativity is exacerbated by the material-economic arrangement of training seafarers anywhere. Shore-leave is so short and precious with many personal and family obligations, so the *last* place a mariner wishes to be when he is ashore is in a training room at a desk! As a creator of courseware and a facilitator of training, one is therefore starting in negative territory. We were not developing courseware for a ‘neutral’ audience, and thus, took cognisance of the negative mindset of the Turners in our creation of the material.

Thinkings/Sayings, Doings and Relatings of Creating Generation Two Courseware:

Generation Two and Generation Three ran concurrently as there was a long-term mandate to digitise the production training and move it out of the shore-based classroom onto the vessels and into the hands of the Production Management teams. Although this section deals with the creation of Generation Two courseware, as with Generation One, training started as soon as content was ready to go. The courseware documents which were created for Generation Two of the PP training were:

- i. Production Manual [D9]
- ii. Standard Operating Procedures for all stations [D9]
- iii. Theoretical Assessments for each workstation [D9]
- iv. Practical Assessments for each workstation [D9]

- v. Model answers for many of the theoretical and practical assessments were also developed (but are not included in the dataset due to intellectual property constraints)
- vi. Balloon diagram – Conceptualising the future [D10]
- vii. Refresher Course Outline and Content Summary [D11]
- viii. Refresher Worksheet [D12]
- ix. Augmented PowerPoint [D13]
- x. Production Training Ecosystem [D14]
- xi. Rudimentary Assessment Matrix [D15]

As intimated above (cf. 6.2.1), the process of the creation of courseware for Generation Two of the PP training was entirely different to Generation One. Whether this was good or bad is illuminated in Chapter 7. The sayings/thinkings, doings and relatings are embedded in the Production Training Ecosystem [D14] which provided the conceptual scaffolding for Generation Two. An explanation of this figure is given in Chapter 3 in the description of the Production Project (cf. 3.13.1). The core purpose of Generation Two of the PP training was to improve production efficiencies related to the first-grade fillets in particular as these are the high value products. This performative ethos drove the development of the courseware rendering it a fact-bound mechanical process.

In the design of courseware I had departed from the conventional training manual with text, illustrations, and section recaps etc. and pared down the content to the essential knowledge and skills which must be taught for the application of all the Standard Operating Procedures. This meant that the bulk of the Production manual (about 500 pages) consisted of Standard Operating Procedures. The first step was to produce Standard Operating Procedures for each of the 28-production processes on a freezer vessel. This was achieved by agreeing upon the actual number of processes which involved ongoing deliberation throughout the development of material because the deeper we dug into the details of the processes, the more activities came to light. Next I developed a more detailed Standard Operating Procedure template based on the Woodstock Factory template provided by the Technical Expert. Each Standard Operating Procedure was designed to: a) standardise Standard Operating Procedures for the freezers and meet the legal requirements for safety and process specifications; and b) and to ensure that the Standard Operating Procedures were detailed enough as stand-alone training material. As an example of a Standard Operating Procedure, the contents page and the final packaging of the product is shown in Figure 6.1 below [D22]. All 28 Standard Operating Procedures were formatted in exactly the same way. These processes (Standard Operating Procedures) had never been written down before, neither had the qualitative, nor quantitative measures been established. All this content required research, testing and ultimately sign-off by the production experts. Kevin did most of this work.

CHAPTER 31: Production Process 25 - Master Cartoning	1	
31.1 Purpose of Master Cartoning	2	Points 1-4 provide context
31.2 Importance of Master Cartoning	2	
31.3 Consequence of Error	3	
31.4 Roles and Responsibilities which Affects Master Cartoning	4	
31.5 Equipment	4	
31.6 Related Documentation	5	Point 5-10 cover key legal, safety and production specifications and required equipment
31.7 Safety	5	
31.8 Specifications	6	
31.9 Controls	10	
31.10 Communication	11	Point 11 covers the complexity of the process
31.11 Procedure	12	
31.11.1 Master Carton for Shatterpaks	12	
31.11.2 Blocks in liners (7,5kg) - Plate Frozen (fixed weight)	13	Point 12 & 13 cover the capabilities, assessment, and accreditation of the operator
31.11.3 Lid & Tray Masters	14	
31.12 Capabilities of a Master Cartoner (Box Master)	15	
31.12.1 Knowledge:	15	
31.12.2 Skills:	15	
31.13 Assessment and Accreditation of the Master Cartoner	15	
31.13.1 Assessment for Knowledge:	15	
31.13.2 Assessment for Skill:	15	
Appendix 1: Master Cartoning Assessment	17	The Appendix is the document which is be copied for each person to constitute his Portfolio of Evidence

Figure 6.1: Example of Contents Page of Standard Operating Procedure for Master Cartoning

Note: Page numbers in this contents page are left, to show the size of each Standard Operating Procedure with the written text and illustrative photographs.

Step two involved the task of populating these Standard Operating Procedures. The creation of the Standard Operating Procedures fell to both the technical expert and Kevin. As mentioned, developing these documents involved many trips to sea, accessing marine drawings, talking to experts at Woodstock, and of course engaging with the Production Management teams and the operators who made a significant contribution to the process by asking questions, disagreeing, and developing new ideas. Some of these ideas were the revival of decades-old methods which had been lost along the way. This was an ongoing and iterative process which took about a year and was severely hampered (but not stopped!) by Covid-19. These Standard Operating Procedures had never been developed so it was a ground-up exercise once again.

In the creation of the material for Generation One we had a great deal of fun. The word fun is mentioned 12 times in the transcript of the conversation amongst Charlene, Kevin and me and we burst into laughter 39 times during the discussion! The quote below is a small example which reveals the changing tone experienced in the development of Generation Two courseware. Here we were talking about why the creation of Generation One courseware worked well amongst us [FGI-1]:

RAF: I would add another reason why it worked well with the three of us is that we had a lot of fun, lots of laughing ... lots of laughing ...

CC: To be honest that is something that is seriously lacking in I&J Limited, is the having fun and that is what I came into this company – a company that had a lot of fun. It worked well because we bought the fun back into it.

The energising fun of Generation One evaporated, and the exercise of putting the manual together for Generation Two of the PP training, became gruelling. As the lead consultant I experienced intense frustration which hitherto had been unknown to me in my work with the company. The conflict arose between the technical expert and me over the quality of the Standard Operating Procedures which he produced. He insisted that the Standard Operating Procedures met the brief and I argued that they were not good enough. Working from home due to Covid also hampered the communication between us. Sitting around the same table would have helped with resolving the irritation. In reflection the reason for the frustration was that technical expert was looking at the Standard Operating Procedures from a production perspective, whereas mine was more of a pedagogical gaze. Based on past experience of teaching the Turners I knew that the Standard Operating Procedures needed to be simple, complete and ‘deadly accurate’. If there were absences or inaccuracies in the Standard Operating Procedures these would be entombed in the training and amplified many times over in the production process. I found myself *leading from the middle* (Edwards-Groves et al., 2020) to reach the quality standard of the Standard Operating Procedures that was sufficient for use as teaching material. I was driving the development process by conveying to the technical expert on many occasions the quality standards required; directing Kevin’s shore-based and sea-based work on the Standard Operating Procedures [D24]; and working with Johann, the General Manager, to ensure we would meet his own, and the Executives expectations of the Production Manual. What transpired over the months was that, based

upon the information at hand and Kevin's research, the technical expert produced a first draft of most of the Standard Operating Procedures; and Kevin revised these to produce a second draft; and I did the final edit and collation. One of the reasons which made the job so difficult for Kevin, the Technical expert and me was the sheer volume of research required; and that we were pioneering new ground as Standard Operating Procedures for every sea-going production process had never been done. Johann's unwavering and patient support of the development of this material sustained a fraught courseware creation process and underwrote the quality of the final product. The manual was book-ended with chapters augmented from Generation One on the production principles, teamwork, the I&J Limited value chain, the biology of a fish and so on.

Heinz Blom, a rising star Production Manager, gave an indication of how this courseware landed on the vessels:

The fillet training, the production training was actually good. It shows them something else, more than what they actually know. They know their working conditions and how they work but just to give them a broader idea of how to apply the balancing of the line and what to look out for. They work but don't actually think about what they are doing. [WA4]

In addition to the Production Manual, Kevin created a one-day refresher course [D11] based on the Generation One Refresher Course with a short worksheet [D12] and model answers which tested what had been learnt on Freezer One and Two courses. He dusted off the Generation One PowerPoint presentation for the Refresher PowerPoint [D13] as it was a recap of the same material. I created a rudimentary Assessment Matrix [D15]. All assessment related documentation is explicated in Section 6.6 below. There was no need to create special courseware for the Train-the-Trainers as Kevin used the Production Manual as the text for this training. On 31 May 2021 Future People (Pty) Limited handed over all Generation One and Two courseware to the I&J Limited Training and Development Department.

In the instances of the Practices of Creation of Courseware, Practices of Teaching and Learning and the Practices of Assessment, there was a range of teaching and learning methods used in the field which have been identified as 'tools' through the analysis and synthesis of the data in this chapter. A discussion of these 'tools', or more accurately speaking, 'range of tools' is opened up in Chapter 7 under the Practice Architecture of Range for IVET4 which is one of the constitutive PAs which falls under the PA of Methodology and Methods.

6.3.2 Table of Invention 2: Summary of the Practices and Practice Architectures of the Creation of Courseware for Generation Two of the Production Programme

<i>Examples of sayings/thinkings</i>	<i>Cultural-discursive arrangements</i>
<i>Sayings</i> - Top-down instructive discourse to initiate course - Language was formal and standardised <i>Thinkings</i> - Turners' disillusionment of IVET4 continuity - Mandate to create a manual with Standard Operating Procedures - Deep frustration on quality standard of Standard Operating Procedures	<i>Sayings</i> - Business imperative to improve production efficiencies. Neo-liberal shareholder pressure for growth despite decreasing fish stocks - Creation of the Standard Operating Procedure template <i>Thinkings</i> - Executive and senior management 'start-stop-start again' approach to informal VET - Belief that this would lead to improved production efficiencies - Design of courseware put Standard Operating Procedures as the centrepiece of the courseware
<i>Examples of doings</i>	<i>Material-economic arrangements</i>
<i>Space:</i> - Standard Operating Procedure research and training at sea - Training and assessment ashore at Woodstock <i>Time:</i> - Turner availability to do training restricted to short periods ashore <i>Assessment:</i> - Intense, individual assessments conducted	<i>Space:</i> - Production process occurs on three freezer vessels at sea which have different configurations. - Woodstock Factory constraints and logistics to get Turners to the site <i>Time:</i> - Shipping schedules and logistics, unionised shore leave requirements and working with an unpredictable living resource <i>Assessment:</i> - Imperative from Executive for significantly more production measures and statistics

<i>Examples of relatings</i>	<i>Social-political arrangements</i>
<i>Positive:</i> ▪ Support of the project by the General Manager ▪ Collegiate relationship built up between Kevin and the sea-going production staff <i>Negative:</i> ▪ Turners' distrust of management's intentions re IVET4 ▪ Professional conflict amongst course developers	<i>Positive:</i> ▪ Self-motivation and external pressure to get the job done to a high standard. ▪ Kevin's habitus and the requirement to work on the vessels <i>Negative:</i> ▪ Executives' negative opinion of Factory staff and lack of recognition of the value of the training ▪ Different expectations by the different parties i.e. what was acceptable in one situation was not acceptable in another
<i>Project/s</i>	<i>Practice tradition</i>
The project was to: ▪ Create a comprehensive Production Manual which contained Standard Operating Procedures for every production process on a freezer vessel ▪ Provide formal assessment tools ▪ Train-the-Trainers – shore-based and sea-going ▪ Hand over all courseware to I&J Limited	The practice tradition of training workers using the 'chalk and talk' of classroom teaching and learning diminished, and the site of training and assessment migrated to the Woodstock Factory and the vessels.
<i>Situated knowing, dispositions (habitus)</i>	<i>Practice landscape</i>
<i>For the courseware developers:</i> The knowledge, skills and values required to work in a professional, procedural manner to create detailed material. The capacities of perseverance, communication and the management of expectations allowed the developer to complete his/her part of the tasks. <i>For the Turners:</i> The knowledge, skills and values which allow the Turner to learn the theory and the practical to become accredited on their particular production standard operating procedure/s.	The creation of courseware was mostly online with some face-to-face interaction at Trawlers towards the end of the project. This was due to Covid-19 restrictions. The research and testing of the courseware took place on the vessels.

Table of Invention 2 is based upon Kemmis (2022)

6.4 Third Generation of the Production Project

6.4.1 Description of the Practices of the Creation of Blended Learning Courseware

The data for this section is detailed in Analytic Memo 3 (cf. Appendix 9) and the Data Code Index (cf. Appendix 7). Generation Three was premised upon an evolved version of the Production Training Ecosystem (cf. Figure 3.1 and 3.13.1) which I designed to accommodate an expanded IVET4 agenda. The Emergent IVET4 Model (cf. 3.2 and 3.16.1) extended beyond production to engineering and marine interventions. I reference the different elements of the Emergent IVET4 Model throughout the description of practices to follow.

Context of Generation Three of the Production Programme Courseware Creation

The creation of courseware for this generation of the PP training was premised on the conceptual scaffolding of Figure 3.2 (Emergent IVET4 Model) which is explicated in Chapter 3 under the Chief Engineers Programme. Since the inception of the Production Programme, I had tried to figure out how to get IVET4 onto the vessels. The first obstacle I faced was low or no connectivity on the vessels when they were at sea. Fishing, marine and engineering daily communications were prioritised on the limited bandwidth. At times the ship would be back in port before messages arrived. The second obstacle I faced was the low level of the literacy of the Turners in general, and their digital literacy, in particular. Taken together these challenges put the ubiquitous model of online education – an option for reliably connected ‘digital natives’, who could afford expensive data – out of reach for us. This was especially if the online or blended learning was based on commonly used varieties of Learning Management Systems.

The initiation of Generation Three was entirely my own; in this instance, it was not a ‘push from above’ but rather a ‘push from outside’. This origination was a move towards transgressive IVET4 because the goal was to make it *inclusive* and *learner-driven* to the hundreds of Turners in their *workplace* at sea. In common with the preceding generations, this project was a first in the industry. From 2016-2018 I worked alone on this project, however, with the first potentially viable solution, called I&J TV, Johann gave the project his full support.

The original purpose of an Internet Computer Technology mediated learning was to create a ‘Production Academy’ made up of many short educational videos or mobisodes (3-5 minutes long) based on the Production Manual. The Production Academy would serve two purposes, firstly as an ongoing refresher to current staff; and secondly, as a learner-driven production course for ‘first trippers’. The Production Academy would have meant that the production training had migrated entirely from facilitated shore-based to learner-driven sea-going IVET4 under the auspices of the vessel’s production manager.

The senior engineering staff were also supportive, and consequently, the Chief Engineers Programme [N15] was based on a blended learning model. Johann's reasons for his backing and financial support of the project were, in his own words:

To reach more people in less time and to add value efficiently all the time ... time off is sacred ... certification [industry marine and engineering tickets] has been done at an institution, therefore, do the developmental training at work to maximise time at work. I&J TV was the perfect vehicle for that. [II-2]

The rationale and conceptual framing for this project is explicated in a proposal which I submitted to Trawlers management to inspire them to take VET 4.0 to the next level. I named the concept the 'Earning and Learning Model'. The Earning and Learning Model was based upon the Emergent IVET4 Model with the added component of online-mediated, self-driven learning. I quote the opening paragraph:

One of the enablers for the achievement of Trawlers 2021 goals is the continuous upskilling, training, and assessing of sea-going staff. [Informal] VET at Trawlers needs to move to the next level so that the following can be achieved:

- Decrease cost of VET;
- Deliver VET in the workplace at sea;
- Continuous assessment of individuals; and
- Measure VET outcomes to ensure that the VET supports the key financial indicators of catch rate, vessel utilisation and cost containment

A disruptive methodology for [Informal] VET, dubbed the 'Earning & Learning' Model, is proposed to achieve the above deliverables. VET is moved out of the shore-based classroom and onto the vessel, and learning moves from facilitator-led to learner-led. Assessment is no longer achieved using simulated exercises but is done on the line by an assessor who is a subject matter expert e.g. Production Manager. Material is presented in short, manageable chunks called mobisodes and continuous learning becomes part of the working day and training courses ashore are obsolete. The 'Earning & Learning' Model is an agile and responsive method of training which means that new content can be added easily to meet a business requirement e.g. introducing a new cutting pattern for fillets. Advances in both the VET field and technology enable the emergence of a 'disruptive' and innovative way of reaching sea-going staff which has not been possible before. [D23, p. 1]

In terms of the Turners' mindsets towards training as discussed above, the blended learning model was a good potential alternative. The move from facilitated training ashore to self-driven learning at sea mediated through technology felt like the 'great escape' for the Turners and I. After years of starting training sessions on the backfoot and facing the challenge of reigniting the love and dignity of learning, the blended model instantly grabbed the imagination of the Turners. Many sessions started with joyful laughter simply because we were connecting shore-to-ship on Zoom or by WhatsApp. The energy and involvement of the Turners was immediate. One of the unintended consequences of this excitement was, for example, in the Chief Engineers Programme, which specifically catered for the 17 official

Chief Engineers, uninvited Second and Third Engineers and some Greasers just pitched up at the shore-based face-to-face sessions asking to join in. We never had the heart to say ‘no’ so our cohort almost tripled in size. In all my years at I&J, the participants had been unwilling to attend training courses initially, and in the Chief Engineers Programme case, the junior engineers were forcefully seizing the opportunity.

Thinkings/Sayings, Doings and Relatings of Creating Generation Three Production Programme Courseware

Technical creation:

As part of the Earning and Learning model, as described above, the first objective of Generation Three was not the generation of content, but rather creation of a viable online learning platform for use on board the vessels. Two potential technical solutions were created: the first was in late 2018 and it was called I&J TV; and the second was created in 2020 by myself and was an innovation using an alchemy of widely used apps and is referenced as the Future People Online-In-person Learning Platform (FOIL).¹¹⁸ A third technical solution was attempted using ‘what we had’ on the vessels i.e., memory sticks, laptops, smart televisions, and hard copy attendance forms. The third solution dropped out at the concept phase due to the logistical complexities involved. One could say that Future People Online-In-Person Learning Platform was developed as a Plan B or poor cousin to I&J TV; however, it was the solution that came to dominate the creation of courseware.

I&J TV is an application of Computer Internet Technology called the Micro-Enterprise Media Engine. This was the brainchild and product of the Merika Institute of the Council for Scientific and Industrial Research which “focuses on shaping South Africa’s digital future and is known for the research, development and innovation in the information and communication technology sector”.¹¹⁹ Dr Keith Ferguson led his team to create the Micro-Enterprise Media Engine which allows for a low bandwidth internet-based community TV station option. Keith is my cousin, and at a family gathering, as he was telling me about the Micro-Enterprise Media Engine, I realised that for the first time I may have found a solution to providing IVET4 to sea-going staff. The Council for Scientific and Industrial Research had never envisioned that the Micro-Enterprise Media Engine could have a commercial VET application so it was exciting for all of us to see where this technology would take us. Johann, the General Manager of Trawlers, was convinced by the demonstration of the Micro-Enterprise Media Engine at the Council for Scientific and Industrial Research Offices and encouraged me to continue with the option of I&J TV, as a commercial application of the Micro-Enterprise Media Engine. The technical and learning affordances of both I&J TV and Future People Online-In-Person Learning

¹¹⁸ The name FOIL was inspired by the foils used on sailing yachts to reduce resistance which enables the yacht to ‘soar’ by creating its’ own lift like an aeroplane.

¹¹⁹ Available at: <https://www.sadilar.org/index.php/en/10-news/44-csir-meraka> [Accessed 23 December 2021]

Platform are tabulated below (cf. Table 6.3. and Table 6.4). We were working towards firstly, creating a minimum viable product; and secondly, trialling I&J TV at sea. Thus began a close cooperation between me, who was responsible for content, and the Anglovaal Industries Ltd Head Office Internet Computer Technology Team, including a director, and Dr Ferguson and his team.

The technical components were servers to host data and a ‘skin’ or app to interface between the Micro-Enterprise Media Engine and I&J Limited to create the I&J TV look and feel. The technical team worked through the constraints of the Anglovaal Industries Ltd cyber-safety protocol, limited bandwidth on the vessels, the location of a main server ashore and slave servers on the vessels to make content available on the vessels, and the trickle feed of user stats ship to shore. Part of the technical journey was to build I&J TV for android smart phones which were common amongst the crew. The Internet Computer Technology Team created a minimal viable product. All this came before the creation of content.

Five types of content were created i.e. workbooks, videos, PowerPoints, assessments, and a learning journey ‘map’ (aka Blokkies).

Videos: one of the most prohibitive costs of online education is the cost of the production of 30-minute high-end instructional videos. Some years before I had been responsible for the creation of a 60-video academy created using the classic bespoke video creation methodology. These videos were excellent learning tools with back-end user statistics; however, the videos were neither agile nor responsive to business needs. For the 60-video academy neither of these drawbacks were material due to the aim of the academy. Nevertheless coupled with the cost of producing high-end videos and the video-creation cycle, video production in this manner was too expensive for an I&J Limited Sea-going Production Learning Academy. So I went back to the drawing board and made the following decisions on the creation of videos: a) we would shoot them ourselves experimenting with using a camera, a smart phone, go-pro cameras, or the video recorded during a video conferencing call; b) the videos would be short (5-15 minutes); c) the ‘actors’ in the videos were me, as a facilitator, and I&J Limited staff as subject matter experts. Following this experimentation around the creation of videos, the smart phone was the best recording device; shorter videos were better; and staff enjoyed the I&J Limited actors as they could relate to them. The latter had the spinoff of sea-going staff getting to ‘know’ shore-based staff. These videos were suitable for either technical solution for online training at sea, I&J TV and the Future People Online-In-Person Learning Platform using mobisodes (cf. Table 6.3 for technical and learning affordances).

Workbooks, assessments and PowerPoints: These were created using the same methodology as we had used for Generation One and Two. Content was generated for both the Production Programme and the Chief Engineers Programme.

Blokkies: This is a colloquial word for ‘little blocks’. This spreadsheet was created so that the Turner could chart his progress. Each module was broken down into 30-minute ‘chunks’ of work and mapped out on this spreadsheet. The formulas built into the spreadsheet gave a running score of how much the Turner had done. Blokkies also indicated three periods of formative assessment and one summative assessment. For example, for the Chief Engineers Programme a Turner had 18 months to complete a 12-month course which took into consideration his shore-leave and that he was fitting in this learning with a most demanding job at sea.

With the technical work done and the content created we were ready to run a pilot of I&J TV at sea. Much of this work was done under the protection of ‘Saturday work’ which is explicated further in the discussion on Management Practices (cf. 6.8.2). The pilot ran mid-year in 2019 and was so successful that the Anglovaal Industries Ltd Board approved a Capital Expenditure Request to take I&J TV to scale in early 2020 before Covid-19 struck. The Purchase Order was in the works when there was a change of senior management, and the Executive team reversed their decision and abandoned I&J TV altogether. The disappointment was palpable, but my mission remained to get online VET 4.0 out to sea.

To create a ‘work-around’ technical solution I worked alone as the AVI team had been taken off the project. The Covid-19 pandemic in April 2020 and was the impetus I needed to develop online-blended education at sea. It was clear to all that if any informal VET was to continue it had to be online. During this time I also worked closely with the senior managers at Trawlers and Rick Achmat who ‘attached’ himself to the project. Rick, known informally as an Angel, and formally as a Leverage Professional (Jenkin, 2020), is discussed under relational practices below. I also created Chief Engineers Programme content and re-worked some of the manuals to accommodate the Covid-19 conditions [D24]. Serendipitously, the connectivity on the vessels was upgraded to the point where all staff could receive low data WhatsApp messages most of the time; and the Chief Engineers were issued with laptops.

The challenge I faced was creating a technical option without a budget and using only what was available to me. In my work with Dr Luke Metelerkamp (Metelerkamp & Ferguson, 2021) I realised how powerful WhatsApp could be for teaching so that was my starting point. Through trial and error, failure, frustration I worked out a method using readily available apps to create ‘mobisodes’ that were extremely light on data and could be sent using WhatsApp to each Turner. These mobisodes were 3-5 minutes long and presented themselves as a PowerPoint with an instructional video e.g. live trimming of a fillet, key written points and a ‘talking head’ either me or a subject matter expert. Tabulated below is a comparison of the technical and learning affordances of both viable options. Thus the Future People Online-In-Person Learning Platform came into being which mediated the Earning and Learning model. And for the first time we had the technical and pedagogical capacity to deliver learner-led IVET 4.0 to include all sea-going staff at sea in real-time!

Table 6.1: Comparison of Technical Affordances of I&J TV and Future People Online-In-Person Learning Platform with Costs

I&J TV	Future People Online-In-Person Learning Platform
Video of any length, podcasts, and radio on demand	3–5-minute mobisodes with video and or voice
A live twitter feedback loop during a broadcast	Individual response on group WhatsApp or a private message
Internet based thus had a national/international reach	Based upon an alchemy of apps but ‘sent’ on WhatsApp
No learner management system required; possible to build a ground-up curriculum	No learner management system required; possible to build a ground-up curriculum
Three different quality levels available to suit bandwidth availability	Quality high, only one option
Once an item was broadcast it was cached and could be accessed anytime	Individual could access the mobisodes on his device whenever he wanted to; or he could save the mobisode to a laptop (if he had one)
Many learners can be reached in one broadcast	Can send mobisode to a WhatsApp Group which must be created first
There is minimal social scaffolding required around the technology as most sailors have a smart phone and use many different apps in their daily lives	There is high social scaffolding required to ‘stitch each Turner’ into the quilt of Future People Online-In-Person Learning Platform
Detailed back-end statistics per user per broadcast	WhatsApp does have a function for gathering statistics but we did not get that far. We used the ✓ which indicates that the message has been received and read.
Cost: Initial outlay of R 500 000 for hardware and app development; monthly subscription fee to Council for Scientific and Industrial Research. I&J TV dropped the daily cost of the delivery of production training per person from R 2300 per day to R 12. [D25 & II-2]	No cost except the time to create the mobisodes which is costed as part of the development of courseware and is a once-off cost. Future People Online-In-Person Learning Platform dropped the cost to zero because it was based on the Earning and Learning model which cut out the costly training allowance paid to each delegate and the cost of complex technology. Facilitation fees were also markedly reduced due to less face-to-face hours required. [D25]

Table 6.2: Comparison of Learning Affordances of I&J TV and Future People Online-In-Person Learning Platform

I&J TV	Future People Online-In-Person Learning Platform
Instructional videos	Instructional mobisodes
Weekly management broadcasts	Weekly management broadcasts possible to WhatsApp groups
Broadcasts by sea-going staff which represented the first ‘talk back’ participative VET practice	Turners could make videos, or podcasts and I converted them to mobisodes for distribution
Inclusion of family members enabled to access IJ TV	Turners could send to friends or family
Offered I&J Limited a means for amplifying their Corporate Social Responsibility efforts	Possible as an insert into other marketing material

Procedure 16: Trimming



Excessive Trimming

1. What did the Trimmer do right?
2. What did he do wrong?

Figure 6.2 Screenshot of Mobisode 1: Excessive Trimming – example of ‘talking head’

Note: Mobisodes available for viewing by following the link:

https://drive.google.com/drive/folders/1NBQfNUmyZ1CZL5sqqZq0KQb33S_zPB8e?usp=sharing

Excessive Trimming



Figure 6.3: Mobisode 1: Excessive Trimming – example of a video embedded in a mobisode

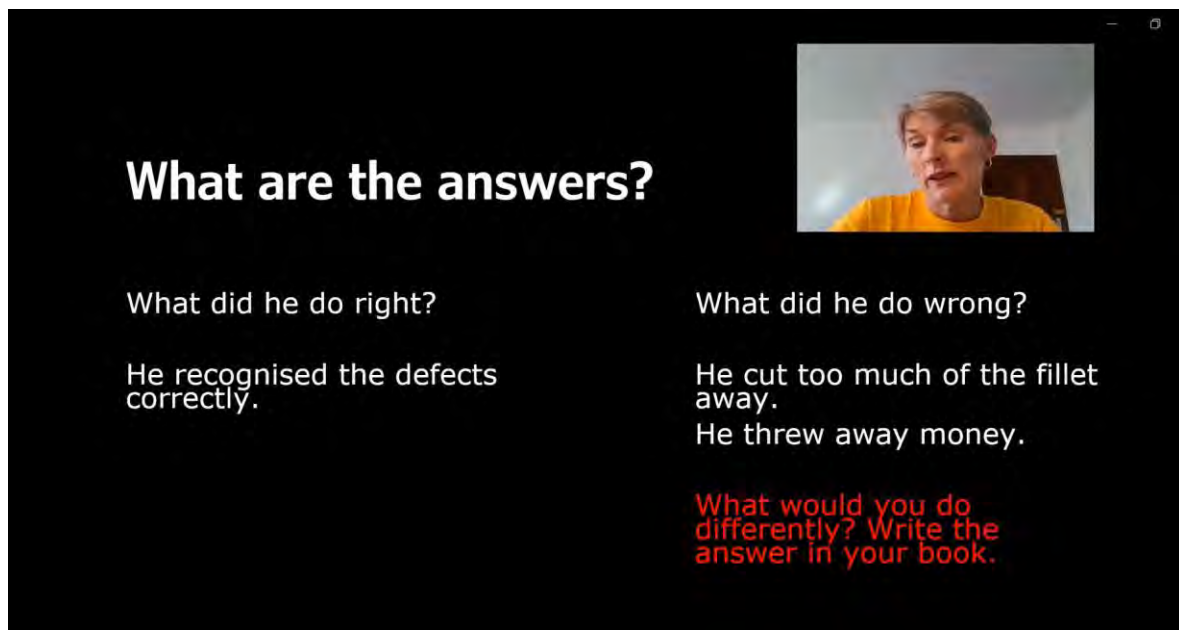


Figure 6.4: Excessive Trimming - example of questions embedded in a mobisode

In addition to the mobisodes I also combined the use of emails, Zoom and WhatsApp calls in the creation of the Future People Online-In-Person Learning Platform. I have provided three screenshots from a mobisode (cf. Appendix 7. Item M1) which was created to deal with the topic of excess trimming, as an example. This mobisode was three minutes long. Figure 6.2 shows a ‘talking head’ which is an embedded video of the presenter (myself) explaining the words on the screen. Figure 6.3 illustrates a video embedded into the mobisode which demonstrates excessive trimming which was shot at sea. Figure 6.4 shows how questions were posed to learners which were intended to link the mobisode (online source) with the learners’ workbooks (physical learning tool). There was an 18-month plan to:

- Roll out the Chief Engineers Programme using Future People Online-In-Person Learning Platform - Module One was completed; the Turners had got the hang of the Future People Online-In-Person Learning Platform technology and were delighted with the development of blended learning at sea; Module Two had almost reached completion and the Chief Engineers Programme Turners were preparing for their first formative assessments;
- Create a Production Academy of mobisodes and a workbook so that continuous production training could take place at sea.

There was again a change of senior managers at Trawlers halfway through the 18-month programme and the incoming team, with the support of the Executive, put a sudden stop to the Learning and Earning model. The decision seemed to be out of sync with the industry players where, nationally the South African Maritime Safety Association had indicated to me that they were interested in the Future People Online-In-Person Learning Platform, while internationally, African Marine Solutions was providing remote learning for officers all over Africa e.g. Skippers, Able Seaman, Greasers etc.

6.4.2 Table of Invention 3: Summary of the Practices and Practice Architectures of the Creation of Courseware for Generation Three of the Production Programme

<i>Examples of sayings</i>	<i>Cultural-discursive arrangements</i>
<i>Sayings:</i> ▪ Robin's ability to transfer the idea to I&J TV and subsequently Future People Online-In-Person Learning Platform to Trawlers Management ▪ 'Translation' of VET 'speak' into technical 'speak' and vice versa <i>Thinkings:</i> ▪ Consultant's vision of an online-blended solution for sea-going staff ▪ Technical and content teams created solutions ▪ Robin creating alone to figure out Future People Online-In-Person Learning Platform	<i>Sayings:</i> ▪ Trawlers management team's growing awareness of technical possibilities to enhance sea-going training. International marine. ▪ Business analyst skills in the technical team. <i>Thinkings:</i> ▪ General Manager of Trawlers caught the vision and enabled inter-teamwork. ▪ External leadership from me and internal leadership from the IT Anglovaal Industries Ltd Director both aiming for a Capital Expenditure application to the Board for I&J TV ▪ Management awareness that VET must continue without I&J TV
<i>Examples of doings</i>	<i>Material-economic arrangements</i>
▪ Fabricating, through trial and error, the constituent technical and learning elements to enable I&J TV ▪ Fabricating the technical capacity of Future People Online-In-Person Learning Platform through experimentation ▪ Conducting pilots of I&J TV and Future People Online-In-Person Learning Platform	▪ Constraints of I&J TV software, requirements of Anglovaal Industries Ltd cyber-security protocol and the Turners' learning requirements ▪ Limitations of bandwidth and the functionality of the apps I used ▪ The Internet Computer Technology capacity and constraints of the vessels

<i>Examples of relatings</i>	<i>Social-political arrangements</i>
<i>Positive:</i> ▪ Positive working relationship with General Manager ▪ Strong, positive collegiate relationships in the development team ▪ Both I&J TV and Future People Online-In-Person Learning Platform well received by sea-going staff. Halo effect. ▪ Resource Manager's positive professional relationships with the production staff and her peers <i>Negative:</i> ▪ Being advised without warning nor apparently rational explanation of the discontinuation of I&J TV and Future People Online-In-Person Learning Platform ▪ Disappointment and disillusionment of Turners	<i>Positive:</i> ▪ General Manager of Trawlers protected developers from Executive so that developing the online platform for sea-going staff could be built ▪ Internal (Director) and External (Robin) project leaders' leadership capabilities ▪ Mariners could see that "They Mattered" ▪ Executive and senior management recognised the need to increase pure engineering skills and put plans in place to achieve this <i>Negative:</i> ▪ Resistance to change from classroom based to online VET at sea ▪ For reasons which were unclear the Executive Team returned to a more expensive, less effective IVET4 model and halted all auxiliary engineering skill development ▪ Executive and senior management 'start-stop-start again' approach to informal VET
<i>Project/s</i>	<i>Practice tradition</i>
The project was to create an online-blended solution to deliver IVET4 at sea. The project lacked content as the focus was on finding a viable technical platform to deliver any subject of informal VET	The practice tradition was a move towards transgressive IVET4 which was capable of increasing inclusivity in this education by taking the training to the living-working-learning site on board.
<i>Situated knowing, dispositions (habitus)</i>	<i>Practice landscape</i>
<i>For the courseware developers:</i> Knowledge, skills and values to work in a collaborative, iterative and creative manner to create and test an online platform. This required patience; skilled communication between me and the Internet Computer Team; and perseverance. <i>For the Turners:</i> Knowledge, skills and values to convert to blended-online, self-directed learning at sea for the first time	The practice landscape is representative of a technical project to create a Minimum Viable Product from scratch. The team consisted of an innovator, Anglovaal Industries Ltd Internet Computer Technology staff including the hands-on involvement of an Anglovaal Industries Ltd Director, subject matter experts (shore-based staff), and sea-going staff who managed the pilots. It was characterised by intense innovation. The site of the creation of this courseware or platform was the Council for Scientific and Industrial Research in Pretoria, the Trawlers Offices, Anglovaal Industries Ltd Head Office in Gauteng and the vessels. Much of the work was also done online during Covid-19 lockdown periods.

Table of Invention 3 is based upon Kemmis (2022).

6.5. Practices of Teaching and Learning of the Production Project

The data for this section is detailed in Analytic Memo 4 (cf. Appendix 9) and the Data Code Index (cf. Appendix 7). The Practices of Teaching and Learning are described as they occurred in the three generations of the PP. The tangled ebb and flow of teaching and learning practices are presented under three headings in each generation, namely: Mutual Professional Learning Practices; Sites of Practice; and Doings and Objects.

Teaching and learning was a dance, a craft, hard work and reciprocal. We learnt as much as we taught. Drawing on the Skipper Development Programme, Gerard, the Marine Manager explained this point well:

They [skippers] changed as well. I think we all did. Not in terms of maturity necessarily, but with the interaction, the thinking, and understanding where you fit in to the organisation, and the important role that they have to play. Umm...And it was not a Damascus moment it is a gradual process and I think it is still ongoing. [FN1]

The PP was ‘built in flight’ because of the ‘push from above’ of the Executive imperative to deliver the PP. Nevertheless, this echoed how 13 years earlier the Mentorship Programme had began in 2003 and was one of the reasons why the super-sized mentorship programme went on to be successful. My reflections concerning the mentorship programme above (cf. 3.7) follow:

In reflection, I think this was achieved by ‘just starting’ rather than waiting for everything to be ‘just right’. In the doing, the mentorship programme was established and through the measurable successes on the vessels, the programme gained momentum. [N6]

As another pioneer project, the PP, experienced the same benefits of ‘just starting’.

The PP was a long and complex project so representative samples of how the methods or tools were used in each generation are provided below, rather than including every example..

Teaching and learning flowed both ways. The sea-going production managers described their experiences of learning:

We are not so educated that I can put ... we are not so educated so getting someone like Robin to come and tell us in a ... if I can put it in a paper kind of things like something that maybe policy wise if I can put it like that so that we will know ‘after this is that’, ‘after this is that’, ‘after this is that’. Because we are not educated we just work from experience if I can put it like that. So for her to come and teach us some of the things that we need to put to accompany this experience we have it’s a good thing that she came here. [FGI-2]

...times when Robin was there and the things that was coming out there and what Robin was explaining. I mean she gives us a better picture to understand actually even when she was taking production stuff and stuff like that ... a bigger picture it was very learning. [FGI-2]

6.5.1 Generation One: Practices of Teaching and Learning of the Production

Programme

I facilitated the Freezer One and Freezer Two Courses for the best part of a year until Kevin joined me in 2017 to share the load. We kicked off the Wetfish Production Course at this point too. Jap, a retired Production Manager, assisted us in the facilitation of these courses.

6.5.1.1 Mutual Professional Learning Practices in Generation One of Production Project

I commenced the Freezer One Training Course in the traditional style with a classroom of learners (16-20 learners), workbooks, name tags, a flipchart, and a PowerPoint presentation. The ethos of respect of the learners and the approach was similar to Programme One: Labour Relations Act for Sea-going Staff in 1995, except without the PowerPoint, as these had not yet been invented. I was anticipating similar success; however, I hit a brick wall and blank faces as I tried to make my way through the content. There was little delight in either teaching or learning. After running a few Freezer One Courses in this manner, and all with the same uncomprehending and impassive response, I changed tack and started by simply opening up conversation with the participants on the first morning of the course. These conversations lasted till lunchtime and ‘felt like a waste of teaching time’. Nevertheless, these dialogues which reached across the divides of language, culture, age, literacy levels and working experience had a startling, unintended consequence of building a bridge between the learner and knowledge. Once this bridge had been built, and the trust and confidence established amongst us, teaching content was easy as delegates were hungry to learn, and to teach me something new about production as it happens in real-life on the ships. This is where learners became Turners and a mutual, co-created journey of learning about sea-going production began. My biggest lesson in the PP was learnt here: relationship comes before content. In IVET4 learning is built on the foundation of relationship. After many years of working with sea-going staff, Rick, the Leverage Professional (aka Angel)¹²⁰ noted:

You cannot put people without any formal training into a classroom environment. You need to give them somebody that they trust, and if they were comfortable with somebody they would basically go out of their way and they would suck up whatever you are about to tell them, they’d suck up. [II-3]

The gender split in the classroom of all men and me as the only woman didn’t seem to make a difference to the Turners. They expressed interest in the content being taught, and I had earned ‘street-cred’ by doing a trip on two different trawlers and a ship-to-ship transfer [FGI-2].

Another lesson learnt from the Turners was the importance of words, especially when working in a multi-cultural, multi-lingual environment. Even using the correct technical term may be all wrong. I cite two examples here:

¹²⁰ A Leverage Professional is someone who simply draws alongside the learner to help them because they want to. This activity often occurs outside of normal hours. This concept is explicated in Chapter 7.

- One of the defects on a fillet is called black belly or black membrane where dark skin is not trimmed off the fillet. On one occasion the class consisted mostly of men from central and southern Africa. From the start the atmosphere was tense and the Turners were belligerent and aggressive towards me. I was confused and couldn't break through this barrier until we got to talking about trimming defects. One man spat out a question to me in reference to the black membrane and asked: "Why is this called 'black man's brains' – something you just want to throw away?" I felt like I had caught a spark that would have begun an inferno. I realised that in the noise of factory, and the in the difficulty of understanding English, these gentlemen had heard 'black man's brains' instead of 'black membrane'. Understandably, they were deeply offended and angry. Once this misunderstanding had been cleared up, the course continued normally, and the words 'black membrane' were eradicated from all courseware.
- English is a tricky language if it is not your mother tongue because one word, spelt in the same way, can have more than one meaning. Terrible confusion arose over the word 'yield' because at once it is the conversion ratio of fish to fillet; but the more common understanding amongst Turners was that 'yield' was a road sign. Added to this was the immense difficulty the Turners had in understanding and calculating percentages and ratios. But we got there in the end with the 'apple experiment' which is described below.
- Introduction of words like 'bottleneck' to indicate a hold-up on the production line have been absorbed into the parlance of the production teams and when a factory hand shouts 'bottleneck', it means the manager must come and sort out the stoppage [FGI-2].

From these examples of mutual professional learning, three Learning Tools surfaced.

6.5.1.2 Sites of Practice in Generation One of Production Project

In Generation One a number of teaching sites were used, each with their own learning affordances. Firstly, there was the classroom in the Training Centre. At the time, this section of the I&J Limited building was neglected, dirty and penetrated by a miasma built up over years of stray cats, diesel, deteriorating fishing gear and rotten fish. Not ideal, however, because few people ventured into this side of the building, we were free to make as much noise as we wanted to. This turned out to be a huge advantage as we developed more simulations and fun, noisy games. If the PP training had taken place 'on the better side of town', the learning experiences would have been muted, curtailed and not nearly as much fun. We learnt to embrace the dirt and miasma as enablers! Secondly, there was the fish and product discharge area which we used for a simulated exercise to teach and assess the Turners on the sorting of fish into species and size categories. This exercise was logistically demanding as thousands of frozen fish were required for this exercise, and as a 24/7 working area on the quayside both safety and hygiene protocols were paramount. Thirdly, in the Quality Control Laboratory the Turners were taught about fillet defects and quality control tolerances, for example, on the heading and tailing fish. As part of the module on 'What is a Fish?', Jap would dissect a hake and teach about the different parts

of a fish. Fourthly, the Turners were transported from the Cape Town Docks to the Woodstock Factory to learn about and be assessed on knife skills, trimming and packing. This snippet of conversation gives an indication of the benefit of the time spent at Woodstock by the sea-going men. It also references the advent of a team of Woodstock women doing a trip on a freezer as a stopgap during a sea-going strike.

RAF: I think it perhaps also gave the women at Woodstock an appreciation of what happened at sea.

CC: Oh for sure, ja ...

KG: Absolutely, but also vice versa so when the guys' practicals went to Woodstock, I think they understood a lot more. I mean a lot of them had never been to Woodstock before. And it showed them, I would like to say the 'scientificness' of Woodstock, and what we can bring or take from Woodstock to the boat in terms of professionalism and scientific procedures and measures and standards, quality...

CC: Don't waste.

KG: And don't waste. I think just the whole environment there they realised that they had to up their game I think on the boat because there was a big difference.

RAF: I remember the issue about waste. They don't throw anything away. [FGI-1]

Teaching in four different sites in two days required significant planning and co-operation from other departments, but proved very worthwhile.

6.5.1.3 Doings and Objects in Generation One of the Production Programme

Nine Teaching or Mediation Tools were identified from the data and are further explicated in Chapter 7. Relevant to Generation One of the PP were workbooks; PowerPoint; group work; flip chart use by facilitator and Turners; drawings; fun games and competitions; practical exercises; and simulations. These activities grew and were embellished as the Turners contributed to knowledge, as our own knowledge grew, and as Kevin, Charlene and I understood more and more how to 'teach the Turners so that learning would happen'. I provide evidence below on how commonly used mediation tools, which appear in most educational set-ups, were used in IVET4; and then provide more detailed data on the games and simulations.

PowerPoint slides were a useful starting point but soon lost significance; and workbooks only played a small role in the classroom but provided reference material for the Turners when they were at sea. The use of the flipchart increased as the confidence of the Turners grew. It was challenging to write in English in front of everyone. There was a rule that spelling didn't matter; it was the content that counted. Flipcharts were most often created in group exercises to encourage self-confidence. As referenced earlier, 80% of the respondents to the questionnaires enjoyed the games and simulations and I provide a few highlights of these games here:

- The 'apple experiment': This arose from one of Charlene's 'gin moments' and became one of the most effective mediation tools. We used the activities of peeling and slicing an apple, and then weighing the apple and the peelings. In the words of a Turner "how to cut apples and ...

like cutting a fillet” [WA1] – this exercise taught the concept of filleting a fish, the use of a scale and the complexities of calculating yield. We also used hundreds of fabric fish to improve the accuracy of weight and size sorting as all this is done ‘by feel’ at sea. We taught the concept of drip-loss¹²¹ by using water-soaked sponges dripping away in an ice-cream tub during the lesson. We agreed that these exercises or simple simulations were a way to get

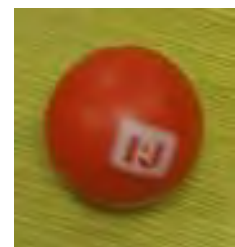


Photograph 8: Fabric fish

...complex messages across so for example your drip-loss or the apple work where we were trying to show the defects, the skinning, and the yields and the de-boned and that. It was just trying to find because you couldn't use words because of the literacy issues ... So we had to use practical ... and it was coming up with those practical, simple methods of getting these complex messages across. [Charlene, FGI-1. Emphasis mine]

- Here is an example of how we embellished an exercise over time. We would ensure that the cutting of the apples happened just before tea. When the delegates left the room, we would increase the temperature of the air conditioning so that after tea the apples had turned brown. This taught the Turners about the quality consequences of ‘fish standing around’¹²² after filleting. Another embellishment was putting the dustbin in an awkward place and asking the Turners to throw away their peels before leaving the room which caused great annoyance! This add-on emphasised the lessons around bottlenecks!
- Kevin is a sportsman and he played different games with the Turners using the red I&J Limited branded balls to get the idea across of passing on a good ball vs a bad ball.
- One of the hardest concepts to get across was that a flowing factory was better than one team working very fast and causing problems for the next team. This was difficult because since I&J Limited began producing products at sea, speed through the factory was all that mattered. However, with the fitting of expensive icing facilities, speed was no longer the only factor to consider in production. Here is an example of how Kevin taught the ‘just in time’ concept in the classroom:

And it links back to the principle again of good ball, bad ball that if they are going too fast they are actually passing on ... well actually they are making more mistakes which is causing bottlenecks, blockages and maybe even breakages of machinery down the line. So it is good ball, bad ball and a ball that is too fast is a bad ball cos ... so again it is thinking smart, not just working hard that actually by going slower here, like you say, and I talk about driving a car ... and I would walk around the room – first gear, second gear, third gear umm and then slow down and the corners ... and it comes back to flow so.” [FGI-1].



Photograph 9: Red I&J branded ball

¹²¹ This is the loss of protein water from fillets after cutting = lost weight = lost value.

¹²² Fish ‘standing around’ means fillets piling up in crates awaiting the next processing step.

It was rewarding to hear from one of the production management team:

And, besides that what actually stands out for me is what ... faster is not always better but rather work smarter ... now we start at a step, and we go through the whole procedures and at the end of the day we are getting the best results. [FGI-2]

The many Teaching and Learning Tools, which were honed along the way, got the job done and the impact of the different forms of mediation is evident in the foundation which was laid for Generation Two.

6.5.2 Generation Two: Practices of Teaching and Learning

As has been indicated above, Kevin designed and delivered a Refresher Course [D11 & D12] to the Turners on the freezers (220 learners). There was no longer a focus on the Wetfish Production Course nor on the wetfish crew as the Executive imperative directed the concentration of effort on the freezers as this is where the most product value lies. Jap continued to help Kevin and my role was as an external project manager. I was also absorbed in the Generation Three creation, testing and delivery.

6.5.2.1 Mutual Professional Learning Practices in Generation Two of the Production Programme

Based upon the description above of the creation of the courseware for Generation Two, and particularly with regard to populating the 28-Standard Operating Procedures, there was a tremendous amount of learning and the cross-pollination of ideas between primarily Kevin and the Turners. This mutual learning continued as Kevin delivered the training on the Production Manual. Continuous refinements were made to each Standard Operating Procedure particularly with regard to the procedures and the qualitative and quantitative assessment criteria. These changes were made based upon Kevin's experience of applying the Standard Operating Procedures on the production line during a production run and getting active feedback from the Turners (also known as Factory Hands).

Part of the imperative for Generation Two was the handover of the Production Programme to the I&J Limited Training and development Department. This meant training a shore-based trainer, Martin, to train Freezer Course One and Two and the Refresher Course. Facilitator Guides were provided although not included in the corpus of evidence as these documents are the intellectual property of I&J Limited. Martin absorbed both the ethos of the training as well as the content. He went on to develop the course a little further by building upon Kevin's sport-related games and exercises to include PowerPoint slides which illustrated the scoring of recent popular soccer teams. He related this to the qualitative and quantitative 'score' of a production run. It was exciting to witness this continued development of the course. The sea-going production management teams had a half day train-the-trainer with Kevin to recap the theoretical aspects of the production efficiencies and the Standard Operating Procedures, as well as many hours with Kevin at sea applying this knowledge. They become capable of assessing their own staff for the accreditation required to fulfil particular roles on the production line and to report the daily production statistics. Kevin recorded his thoughts and feelings about his involvement in the PP in

a podcast (10.5 minutes) after he completed the final half day train-the-trainer course with the key men on the boats.

This podcast is available at:

https://drive.google.com/drive/folders/1NBQfNUmyZ1CZL5sqqZq0KQb33S_zPB8e?usp=sharing

6.5.2.2 Sites of Practice in Generation Two of the Production Programme

The teaching and learning of the second generation of the PP took place primarily on the freezer vessels; as well as ashore in the Training Centre classroom and at Woodstock. On the vessels Kevin did theoretical training in the ship's messroom using the Refresher Course with the worksheet and the Standard Operating Procedures from the Production Manual. Each Turner would be given the Standard Operating Procedure relevant to his job on the production line e.g. the Master Carton (as per example in 2.2.1), or Sorter etc. If someone did more than one job, which is common, he would do the theoretical work and assessments for all the functions which he performed. In rough seas Kevin or the Turners would be standing at 45-degrees to use the flipchart. Kevin suffered from sea sickness every trip which added to the challenges of facilitation at sea. The classroom ashore was used to teach the Refresher Course if the shipping schedule allowed for this, otherwise it was taught at sea as described. The knowledge and experience gained by the Turners from the Freezer One and Two Courses became evident in the Refresher Course and in Kevin's words:

And I would say 90%, a good 90% did modules [courses] one and two. So when we talk about it the lights go on even though they might not have remembered those specific things in the test. So it is then much easier to talk about ... I think they have understood, with that as a background I think they have understood that each position there is a whole lot of knowledge and understanding that needs to happen per position and then the practical assessment of that. [FGI-1].

The Turners also returned to Woodstock Factory to improve their trimming and packing speeds. It is evident in all four of the WhatsApp videos that the sea-going training was helpful. The respondents indicated that they understood the bigger picture and why particular practices needed to be done in the prescribed manner [WA1-4].



Photograph 10: Training in the mess room in bad weather

6.5.2.3 Doings and Objects in Generation Two of the Production Programme

The teaching and learning tools used for Generation Two were the Production Manual, PowerPoint presentations, Refresher Worksheet and the flip chart. References were made to games, practical exercises, and simulations but these teaching tools were not required. The focal ‘doings’ were one-to-one teaching and assessment between Kevin and the Turner of the Standard Operating Procedure or more than one Standard Operating Procedures relevant to that Turner. This was done in real-time on the production line during a ‘drag’.¹²³ The conditions of the site brought to the teaching a loud, wet, cold, moving, and dangerous ‘classroom’. Albeit in a range of circumstances, both Kevin and I had multiple experiences of trying to get a point across to someone who was legitimately wearing industrial earplugs! Photograph 10 shows a messroom on one of the Freezer Vessels, where Kevin was conducting PP training, listing to 45 degrees due to the winter sea swells. One can observe one of the learners trying to make coffee and others holding onto their desks to remain seated during the lesson.

¹²³ ‘Drag’ is the term used for the production of product from one ‘bag’ of fish which was typically 10-15 tons of fish.

It became clear to us in Generation Two that the simulations, practicals, and fun exercises provided the foundation for taking the PP, firstly to the factory at sea; and secondly, down to individual assessments. This is illustrated in an interchange between me and Charlene:

RAF: It has taken five years to get to that ... I suppose it is almost like a level of confidence that the guys have got. So would you say that the simulations are as important as the real thing, or do you think that the simulations are a poor cousin? for teaching?

CC: I think that they are important because they were needed to get that background. Without that we wouldn't have gotten the background. ... Back to that we had to do the theory and the simulations to close those gaps we didn't even realise were there to begin with. We figured it out along the way, and we had to close those gaps and then develop the confidence which you were speaking about Robin to get to a point where we now can go to sea and do the real thing. [Emphasis mine: FGI-1]



Photograph 11: Transfer at sea

The tools and methods identified in the data concerning course creation, teaching and learning and assessment are now discussed. In the course of teaching and learning in Generation Two of the PP, 12 of the 14 teaching tools were used and all three of the learning tools. This diversity of approach to IVET4 catered for the diversity of learning styles amongst the Turners. As Charlene stated:

So one individual may have gained a lot from the being in the classroom environment, the next individual learnt a lot from a 'monkey-see, monkey do' at Woodstock, another individual may have learnt a lot by being in their own safe environment at sea and learning there. By having

those different areas and different disciplines to learn you actually caught a lot more as opposed to if we had just gone to sit in a classroom. We would have probably got only 20% if that whereas we probably managed to catch 80% then because we had different environments and different conditions under which the learning happened. [FGI-1]

Photograph 11 above depicts Kevin ‘transferring’ from one vessel to another in a small orange dinghy. It is a dangerous manoeuvre and requires that one climbs down the Jacob’s Ladder of the vessel you are leaving, waits for the right moment to jump from the ladder and into the waiting dinghy. One travels a kilometre or so across the open ocean to repeat the jump this time from the dinghy to bottom rungs of the Jacob’s Ladder and then scrambles up to safety. Both Kevin and I have had to do this for the sake of IVET4. Kevin did it many times in the development of the SOPS and the teaching of Generation Two.

6.5.3 Generation Three: Practices of Teaching and Learning

The description of Generation Three is different to the previous generations described as the starting point is Internet Computer Technology. Future People Online-In-Person Learning Platform mediated the teaching and learning of this generation. Although I&J TV is described in the creation of courseware above, for the reasons stated in that description, I&J TV did not move beyond the pilot stage. Therefore, I focus here on the teaching and learning practices of Chief Engineers Programme because the most progress of a blended online approach was demonstrated in this programme. As indicated above, the development of a Production Academy on the Future People Online-In-Person Learning Platform was underway when the Earning and Learning blended online project was terminated.

6.5.3.1 Mutual Professional Learning Practices in Generation Three of Production Project

The actors in the Chief Engineers Programme were primarily Rick Achmat, as a Leverage Professional; Senior Engineering staff; Engineering Workshop staff; the Turners (Chief Engineers, Seconds and Thirds); and me. The class started with 17 Chiefs and as the Seconds and Thirds started turning up of their own volition the class size was edging up weekly, and we got close to 40 interested Turners before Chief Engineers Programme was closed down. The teaching and learning in Generation Three were complex and pioneering which demanded that all the actors taught and learnt with an innovative and engaged ethos. In Rick’s words what made Generation Three so different was the mediation using Future People Online-In-Person Learning Platform because:

It was breaking ground from an I&J Limited perspective. We had promised to take people from classroom-based learning to computer-based learning. We got them to interact with technology and use technology ... they became the Kings within their Kingdoms. How was it [Future People Online-In-Person Learning Platform] different? We had taken them ... or the plan was to take them to the 21st century. And that is where we are right now. You can’t take it back ... you can’t stop it. [Emphasis mine. II-3].

Unlike other IVET4 interventions, all the players in the game were there because they wanted to be there – it was something brand new, exciting, refreshing and results were quickly evident. The teaching content, times and spaces were formalised; however, the mutual learning amongst the actors was

informal and took place in person and online, at the water-cooler, on the quayside, on Zoom, over WhatsApp, at all hours ... Chief Engineers Programme mediated by Future People Online-In-Person Learning Platform was infectious.

6.5.3.2 Sites of Practice in Generation Three of Production Project

The sites of practice included online spaces provided by Office 365 (Word, Excel, and Outlook), Zoom and WhatsApp. The architecture of Future People Online-In-Person Learning Platform and the affordances of the platform are described in Section 6.4.1 and expanded in Table 6.1 (cf. 6.5.3.3) Sites also included physical spaces – small meeting rooms for one-on-one conversations, namely the Boiler Room or the Chiefs’ Boardroom and the auditorium. The material-economic arrangements of the different sites are tightly wound up with the ‘doings’ of teaching and learning practices and are described as a composite below.

6.5.3.3 Doings and Objects in Generation Three of Production Project

The ‘doings’ involved one-on-one and group shore-based and online meetings; the use of smart phones, laptops and Future People Online-In-Person Learning Platform. It was in the doing that the complexity lay. In an attempt to make this complexity plain I describe the role of each actor and the site/s of practice in Table 6.2 below under the headings of Actor, Physical Space-Place and Online Space-Place. Table 6.2 summarises the role of seven actors who worked on the Chief Engineers Programme namely, Facilitator (myself), Leverage Professional (Rick), Planned Maintenance Manager, Senior Planner, Compliance Manager, Engineering Workshop Staff, and finally, the Training and Development and Human Resources Managers. Much of the work that was done to make the Chief Engineers Programme work so well could be described as ‘disappearing work’ and to bring this to light I indicate whether the actor’s practice was a ‘saying/thinking’ [ST], or a ‘doing’ [D] or a ‘relating’ [R]. Rick described the starting point of the blended-online endeavour with the arrival in 2021 of smart phones and laptops as learning tools for sea-going staff which,

... gave people limited access to smart technology but nobody really knew how to go and do the first aid steps should they run into problems....but we as a management team we expected people to give you the quality of work or feedback based on your assumption or our assumption on what it should be, but not taking into account that these people were primarily just doing what they were told, so it was a matter of ‘monkey see, monkey do’ ... and I wanted to change that perception. [II-3]

Table 6.3 is a summary of the Chief Engineers Programme Actor Roles and Sites of Practice mediated by Future People Online-In-Person Learning Platform. Following this I elaborate on the role of the Leverage Professional.

Table 6.3: Summary of Chief Engineers Programme Actor Roles and Sites of Practice Mediated by Future People Online-In-Person Learning Platform

Note: Text in bold refers activities that contributed to the creation of courseware practice

ACTOR	PHYSICAL SPACE-PLACE	ONLINE SPACE-PLACE
ACTOR 1 Facilitator & Future People Online-In- Person Learning Platform Architect Myself (RAF)	RAF played the role of external project lead and innovator <i>which came to mean:</i> 1) Negotiated Chief Engineers Programme Project Charter with all the actors involved covering responsibilities, outcomes, and costs etc. [ST & D & R] 2) Built relationship with Turners so that they felt safe enough to engage in Chief Engineers Programme [R ⁺⁺⁺] 3) Conversed informally with the Rick and senior engineering staff often to learn about the engineering content, current engineering issues which impacted training, Internet Computer Technology issues etc. These conversations helped me to navigate the project through significant organisational change and upheaval for nine of the planned 18 months [ST & D & R ⁺⁺⁺] 4) Conceived and developed Chief Engineers Programme Module One [ST & D] 5) Taught Module One to the Turners in small groups or one-on-one in the Boiler Room (pre-covid – Feb 2020) [D & R] 6) Re-worked Module One for presentation only using Future People Online-In-Person Learning Platform (with Covid – commenced again in August 2020) [ST & D] 7) Co-developed Module 2: Planned Maintenance System; and Module 3: Procurement Forms with subject matter experts [ST & D & R] 8) Participated in all Planned Maintenance System presentations and documented proceedings [ST & D & R] 9) Converted notes into actionable items for the engineering line management staff as the items were engineering related issues raised in the Planned Maintenance System sessions. This resulted in micro-change management as actions implemented a change in procedure, or a shift in responsibility and so on [ST & D] 10) Met with Turners on a one-on-one basis in small meeting rooms to continue the teaching-coaching process through the Chief Engineers Programme modules [D & R] 11) Note: Chief Engineers Programme (revised) Introductory Module and the Planned Maintenance System Module ran concurrently to make up for lost time. 12) Updated the Blokkies spreadsheet daily based on physical or online interactions [D] 13) Created e-Portfolios of Evidence for the Turners which I populated as I received the e-evidence e.g. assignment, video, timesheet etc. [D] 14) Constructed a Facilitator's Guide for the Earning and Learning model using Future People Online-In-Person Learning Platform. [ST & D]	RAF as Facilitator played the most extensive online teaching and learning role which came to mean: Ongoing Tasks: 1) Created and made micro-adaptions and innovations to Future People Online-In-Person Learning Platform [ST & R] 2) Created mobisodes for the Chief Engineers Programme Introductory Module; and seven mobisodes for the Procurement Forms Module [ST & D & R] 3) To note: Creation of PP mobisodes was also underway concurrently Daily Tasks: 4) Built relationship with Turners so that they felt safe enough to engage in Internet Computer Technology. This was joyful because the Turners loved using Future People Online-In-Person Learning Platform. <i>This is an online-space mirror image of Pt 2 in the physical-space</i> [R ⁺⁺⁺] 5) Met with Turners on a one-on-one basis to continue the teaching-coaching process through the Chief Engineers Programme modules. This was done online using the affordances of Future People Online-In-Person Learning Platform i.e. WhatsApp messages, photos, and videos; Zoom; Outlook and Word. This is an online-space mirror image of point 10 in the physical-space [D & R] 6) Kept detailed notes of all interactions and forms of mediation for the Turner's e-Portfolio of Evidence; and for reporting purposes to the Executive [D]

ACTOR	PHYSICAL SPACE-PLACE	ONLINE SPACE-PLACE
ACTOR 2: Leverage Professional (Rick Achmat)	Rick had no official role ashore, whatever he did was by his own choice, and largely in his own time too. He conducted his lessons ashore at his desk or on the vessel when it was alongside – wherever the Turner felt comfortable. He assisted the Turners and me from 2019-2021 which came to mean he: 1) Built relationships with Turners so that they felt safe enough to learn Internet Computer Technology skills and was an ambassador for Chief Engineers Programme[R⁺⁺⁺] 2) Assessed the digital literacy of a Turner through gentle conversation [ST & R] 3) Adapted and scaffolded content to suit each Turner [ST & D] 4) Conducted many one-on-one sessions with the Turners to teach them how to operate laptops and smart phones [D & R] 5) Taught Word, Excel, and Outlook as per the Office 365 syllabus found in Chief Engineers Programme Module One (see Appendix 6) [D & R] 6) Assisted RAF to trial the mobisode concept [D & R] 7) Provided feedback to RAF on Future People Online-In-Person Learning Platform and the content programmes of Chief Engineers Programme, Skipper Development Programme and PP which enabled RAF to make micro-adaptions or innovations in a fast and agile manner [ST & D & R]	Rick was central to the establishment of Future People Online-In-Person Learning Platform and this role fell more or less into the ambit of his ‘day job’ and meant: 1) Ensured connectivity for the Turners on laptops, Zoom and smart phones [D] 2) Helped each Turner one at a time to connect to Zoom and WhatsApp which enabled them to use the Future People Online-In-Person Learning Platform [D & R] 3) Assisted RAF and the Turners with any technical app or connectivity issues on the vessels [D & R] 4) Arranged Original Equipment Manufacturer personnel to upskill the Turners on electronic equipment in Bridge, Engine Room and Factory. This was part of his official function but often doubled up as a Future People Online-In-Person Learning Platform-Chief Engineers Programme lesson or increased e-literacy in general [D]

ACTOR	COMMENTARY ON SENIOR ENGINEERS	
Senior Engineering Staff included:	Although the senior engineering and workshop staff saw their involvement as ‘enlightened self-interest’, they shouldered the extra role of teaching the Chiefs with commitment and enthusiasm. Many of the workshop staff went the extra mile for the Chiefs e.g. refreshing their knowledge on electrical drawings. An older Chief rushed up the stairs from the workshop to meet me in the Boiler Room saying: “Look Robin, I did this drawing! Do you understand it?” I obviously didn’t which only served to increase his enjoyment of his new skill. [R]	
ACTOR 3: Planned Maintenance System Manager The originator of the Planned Maintenance System; and responsible for the roll-out ashore and on the vessels.	PHYSICAL SPACE-PLACE Presented the Planned Maintenance System Introductory Module to Chiefs and any other sea-going engineers. This meant: 1) Worked with RAF to create a multi-module Planned Maintenance System Module with PowerPoint at the offices of Trawlers [ST & D] 2) Spent many hours with RAF to create video footage using different recording devices. [ST & D & R] 3) Presented Planned Maintenance System Module 1 to small groups of Turners in the Boiler Room or the Auditorium [D] 4) Engaged in conversation with the Turners on the Planned Maintenance System to build ship-shore collaboration [ST & D & R] 5) Changed Planned Maintenance System based on Turner feedback [ST & D & R] 6) Committed to solving problems that hindered the execution of the Planned Maintenance System on the vessels based on Action Notes presented by RAF 7) [ST & D & R]	ON-LINE SPACE-PLACE Subject matter expert for the Planned Maintenance System. Did not actively participate on the Future People Online-In-Person Learning Platform as there was no need to do so based on in-person presentations for Planned Maintenance System Module: Part 1. This may have changed for other Planned Maintenance System Modules. [ST & D] The Planned Maintenance System Manager made a significant contribution to the content production of a Planned Maintenance System video which was part of the I&J TV pilot trial. [ST & D]
ACTOR 4: Senior Planner The Senior Planner reports directly to the Planned Maintenance System Manager	Commenced the Procurement Forms Module with the Chiefs. This meant: 1) Worked with RAF at the offices of Trawlers to create seven mobisodes documenting the Procurement Forms Process [ST & D] 2) Developed a spreadsheet to track the Turners’ improving accuracy when using the Procurement Forms [ST & D] 3) Commenced one-on-one sessions with the Chiefs re the Procurement Forms procedure [D & R] 4) Committed to solving problems that hindered the execution of the Procurement Forms e.g. IT to reconfigure drop-down menus. Reported progress to Chiefs [ST & D & R]	

ACTOR 5: Compliance Manager All Chiefs and sea-going engineers reported directly to Superintendent	Administered and co-ordinated Chief Engineers Programme which meant: 1) Managed the shipping and shore-leave schedules of the Chiefs [D] 2) Matched these to training sessions and workshop availability [D] 3) Assessed the learning value to a Chief of the current work in the shop [ST] 4) Communicated ship-shore [R] 5) Constantly re-organised the plans to accommodate engineering contingencies which arose daily [D] Note: Without this steady administration the Chief Engineers Programme would not have got off first base.	No official online role, although he would join Zoom calls when he was available to support the teaching [R]
ACTOR 6: Workshop Staff This includes the foremen and artisans of the I&J Limited Workshops on the quayside i.e. Electrical; Refrigeration; Diesel and Machine Shops	Provided opportunities for the Chiefs to improve their bench skills. This meant: 1) Co-created outcomes-based module outline for Refrigeration and Electrical Foreman with RAF 2) Supervised, or delegated this supervision to a qualified artisan, to oversee the improvement of Chief's skills [ST & D & R] 3) Enabled Chiefs to do more repairs and maintenance at sea [ST & D & R] 4) Completed a timesheet which was presented as evidence in the Chief's e-Portfolio of Evidence [D] 5) The foreman of the Refrigeration and Electrical workshops motivated for a Capital Expenditure Request to build a simulator to assist learning ¹²⁴ [ST & D & R]	No online responsibilities or involvement
ACTOR 7: Training and Development and Human Resources Managers	The department held terminal responsibility for formal and informal VET and for the Chief Engineers Programme project. This meant: 1) Requested monthly qualitative and quantitative progress report from RAF for monthly feedback to Executive [D] 2) Financial sponsor of the project [D] 3) Administered venue bookings and collation of learner statistics for Sector Education and Training Authority reporting purposes [D]	There were no online responsibilities or involvement.

The data on the role of the Leverage Professional (cf. Actor 2 in Table 6.1 above) bears expansion:

I asked Rick why he chose to play this voluntary role:

I like people, and to see people grow and succeed. They don't necessarily want the answer, they just want a sounding board, someone to listen to them. And if you give people an ear it is just one of those things ... seafarers they very ... kinda in isolation for a while and sometimes they just need another person to speak to... It is all about empowering people and if you take the sea-going staff into account primarily very few of them have had formal education and formal

¹²⁴ This project was scrapped with Chief Engineers Programme and Future People Online-In-Person Learning Platform.

training so the bulk of it was on the job training...To give people opportunities that the formal structures haven't afforded them. [Emphasis mine. II-3]

I asked him how he had observed the changes in the Turners as they were exposed to Internet Computer Technology through Rick's 'leverage role', my involvement, the Chief Engineers Programme and Future People Online-In-Person Learning Platform:

The questions I get today with respect to technology questions – What they could do to enhance their kids' lives?. And if you think back two years they probably would not have had that conversation with me... Got to sometimes pinch myself when I speak to the people today and I think back two years. [II-3]

Commentary on the complexity

The teaching and learning practice of blended online IVET4 is vigorous and complex as Table 6.1 above indicates. The items in bold in the columns headed Physical Space-Place and Online Space-Place, indicate that these activities contributed to the creation of courseware practice. However, they have been included in the table to give the reader an impression of the dynamism of the intersecting practices as these 'doings', plus the assessment practices, were all occurring in parallel rather than in a sequential series. There were approximately 70 people (including Turners) conducting 71 activities continuously. I was 'leading from the middle' and had daily involvement in Chief Engineers Programme to reach the programme's goals. The Future People Online-In-Person Learning Platform Production Project had commenced too. It was very busy, and sometimes we even got things done! One could say that activities and responsibilities fell into seven broad categories which were distributed in different ways in the physical-space versus the online space-as indicated in Figure 6.5. The values allocated in Figure 6.5 are a professional estimate by me, as the facilitator and co-ordinator of the course, of time and effort spent on each category of activities in the physical or online space.

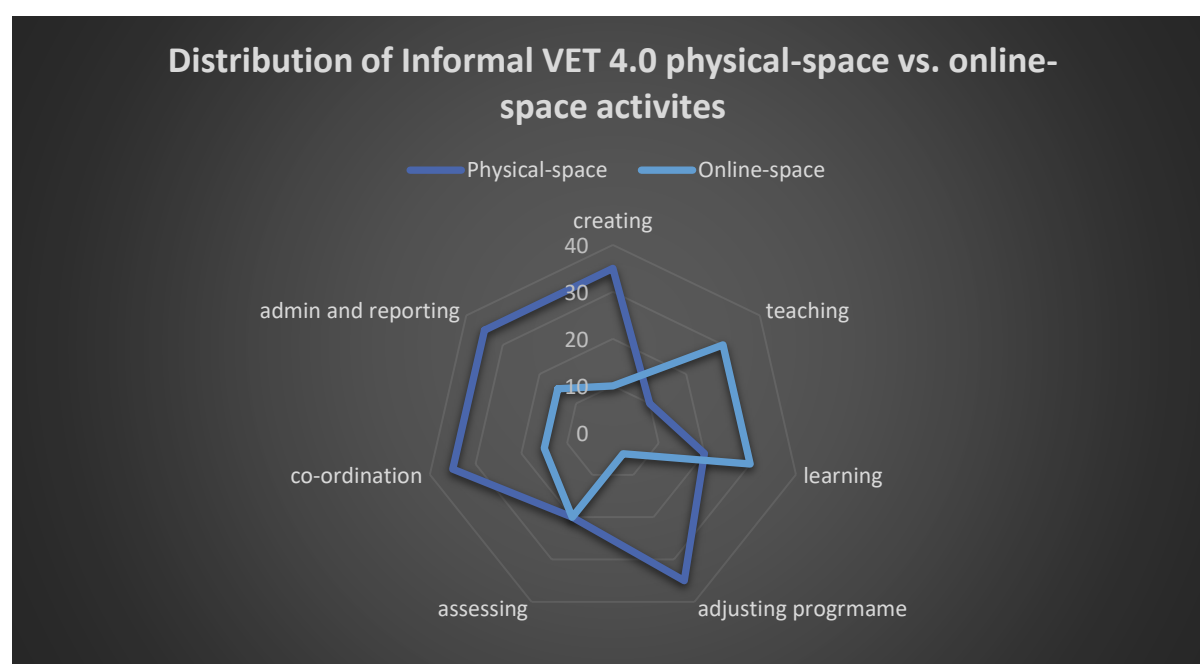


Figure 6.5: Web Diagram showing Distribution of IVET4 across physical-space vs. online-space

6.5.4 Table of Invention 4: Summary of the Practices and Practice Architectures of Teaching and Learning

<i>Examples of sayings</i>	<i>Cultural-discursive arrangements</i>
<i>Sayings:</i> ▪ Use and meaning of words critical e.g. the word ‘development’ in the Skipper Development Programme; or ‘black membrane’ in PP ▪ Use of formalised, assessment-driven language. ▪ Familiarity with Internet Computer Technology terms and apps <i>Thinkings:</i> ▪ Move from no production process, procedures, or principles at the start of Generation One of the PP; to understood principles and a formalised process and procedures at the end of Generation Two of the PP. ▪ Innovation of Future People Online-In-Person Learning Platform	<i>Sayings:</i> ▪ Heterogeneity of the Turners, for example, they spoke different languages – Afrikaans, African Languages, French and Portuguese. English was always a second or third language. Turners had different levels of education and different cultures. ▪ Development of 28-Standard Operating Procedures. ▪ Work of the leverage professional, Chief Engineers Programme and Future People Online-In-Person Learning Platform <i>Thinkings:</i> ▪ Creation and deployment of Freezer One and Two Courses; and the creation and curation of 500-page Production Manual ▪ Executives scrapped I&J TV which ‘forced’ the development of Future People Online-In-Person Learning Platform which proved effective in IVET4. Affordances of Internet Computer Technology and ubiquitous apps.
<i>Examples of doings</i>	<i>Material-economic arrangements</i>
▪ Giving time to build relationships before teaching content. ▪ Making complex concepts understandable. ▪ Innovation of Earning and Learning Model for the delivery of IVET4 in the workplace at sea.	▪ Relationship bridge enabled fast content delivery ▪ Use of fun simulations, exercises, and games ▪ Affordances provided by Future People Online-In-Person Learning Platform

<i>Examples of relatings</i>	<i>Social-political arrangements</i>
<i>Positive:</i> ▪ Love and respect by facilitators and amongst the Turners broke down differences in language, culture, and education levels. ▪ Response to Kevin conducting informal 4.0 at sea, in 'their' world ▪ Engagement and excitement of Turners Future People Online-In-Person Learning Platform; and commitment of RAF and Rick to 'knit in' each Turner one at a time. <i>Negative:</i> ▪ Lack of recognition of the achievements of Generation One and Two PP. ▪ Abrupt termination of the Chief Engineers Programme, the PP and the Earning and Learning Model.	<i>Positive:</i> ▪ Culture of dignity and respect created in the physical-space and the online-space ▪ Operational Management support of Kevin's trip and accommodation the shipping schedule to allow for transfers at sea ▪ The affordances of the Future People Online-In-Person Learning Platform <i>Negative:</i> ▪ Executive hubris and disconnect to operations ▪ Executive resistance to change lack of engagement with complex, yet innovative IVET4 opportunities
<i>Project/s</i>	<i>Practice tradition</i>
The project aimed to teach IVET4 courses in a way that the Turners would learn from the facilitators and grow; and for the facilitators to learn from the Turners and grow in such a way as to teach more effectively.	Over the life of the Production Project, the practice tradition moved towards more transgressive teaching and learning. This was done by applying a range of 17 teaching and learning tools. Teaching broke the barriers of classroom teaching and moved onto the vessels in Generation Two; and encompassed physical-space teaching and online-space teaching and coaching in Generation Three.
<i>Situated knowing, dispositions (habitus)</i>	<i>Practice landscape</i>
<i>For the courseware developer/s:</i> Knowledge, skills and values which allow for the application of an innovative teaching strategy to engender mutual learning, and agile content assembly to match fast-moving production and engineering requirements <i>For the Turners:</i> Knowledge, skills and values which allow the learner to build self-assurance and confidence; and to learn and apply content. Further, to venture into Internet Computer Technology	The practice landscape required collaborative pedagogical and Internet Computer Technology technical problem solving 'in order to teach so that IVET4 learning would happen'. This included input from subject matter experts. This work occurred at in the offices of Trawlers, on the vessels, and remotely. A high level of communication and networking amongst disparate professionals was demanded.

Table of Invention 4 is based upon Kemmis (2022)

6.6 Practices of IVET4 Assessment of the Production Project

The data for this section is detailed in Analytic Memo 5 (cf. Appendix 9) and the Data Code Index (cf. Appendix 7). I use the same device to describe the Practices of Assessment as I did for the Practices of Teaching and Learning, which is to explicate these practices as they occurred in the three generations of the PP. IVET4 Assessment practices are not regularised like the assessment practices of formal, accredited VET. This meant as course designers we could tailor-make the assessment process to suit the objectives of the course and the needs of the Turners. Today I can describe the IVET4 assessment practices across the three generations of the PP in a coherent, holistic manner; however, this is not how the methods or tools of assessment presented themselves in practice. Assessment was one of the harder areas of IVET4 to work out and the questions we asked ourselves as developers across all three generations of the production project were:

- Who should be assessed?
- Should it be done in a group or as individuals?
- How should the assessment be done? By whom? And when?
- Should the assessments be written or oral? What language should be used, English?
- Should assessment be done in the workplace (ship) or the classroom?
- How do assessment results equate to ‘real-world’ improvement on the production line?
- How did the assessment benefit the Turner?
- Who was the assessment really for? What was the value of a percentage pass and to whom?

I came to understand IVET4 assessment should rather be seen as an available ‘range’ which caters for softer (informalised) or harder (formalised) IVET4 assessment; and many points in between. This concept is represented by a dumbbell rather than a continuum to discredit the idea that one is improving as one moves ‘up’ the continuum. Both sides and all the points in between are useful. I observed empirically that various assessments could be used in ‘soft’ or ‘hard’ mode.

The cardinal difference between a soft and a hard assessment is the level of public exposure of an *individual’s* competence, or otherwise. An example of a soft assessment is a group exercise used in the Freezer Production Course One where a group of six learners were required to map out the production process on their vessel using flipchart paper. In Generation Two of the PP, one example of a hard assessment is the quantitative and qualitative measurement of a learner performing his job (e.g. trimming or sorting) in real time on the vessel. These assessment results were often used for deployment or performance management purposes. An example of an assessment which could be used as a soft or hard assessment can be found in Freezer Production Course Two where individuals were required to draw a fish and label various parts of the fish. In a soft assessment mode this exercise could be done in consultation with other learners and not ‘count’ as part of the course mark; or it could be used as a hard

assessment where the drawing is done under test conditions and counts towards the learner's course assessment. Initially in teaching Freezer Production Course One, we found that the more exposed individuals were, the more anxious they became and the less well they performed. Charlene, Kevin, Rick, and I understood that assessment is as much about relationships as it is about testing. It was necessary to 'stir' learners into assessments to gain an accurate assessment of the learners' production skills rather than their test taking skills in a second language. The use initially of more soft assessment tools in Freezer Production Course One, and a migration towards the hard assessment tools used in Freezer Production Course Two allowed us to scaffold the assessment process for learners. The completion of this migration process i.e. where learners were routinely measured using hard assessment tools occurred over the life-span of the PP – it was not a quick assimilation by the learners but rather a slow and gentle one that built individual confidence. This concept is further illuminated in Chapter 7 under the PA of Range in IVET4 (cf. 7.2.2.3)



Figure 6.6: Assessment Dumbbell

6.6.1 Generation One: Assessment

Charlene's voice opens the discussion here on the sayings/thinking, doings and relatings of assessment practices in Generation One [FGI-1]:

Oh yes so we measured ... we decided not to focus on the individual ... we wanted to have it as a positive experience at the time. So we do a measurement of how fast it takes to pack if you are doing it right and we did do it on the vessel, but we used it as a group ... we didn't really focus on the individual ... we didn't want to see this as a punishment. We were worried that it was going to come across as a punishment as opposed to ... we just wanted ... here's the team you are all packing well or you aren't and then we did later go to 'this is your best packer, this is best trimmer, this is your best ... so there was a little bit of a 'I am the best' ... again, I am not sure if that has been followed through at this point ... but we definitely at the beginning the assessment wasn't individual based and I do know we have moved it on from that ... and we needed to move on from that cos you needed to then have an individual assessed and found competent before he went on board ... [Emphasis mine]

From the outset we took a softer approach to assessment for a few reasons, namely: a) the Turners were already distrustful of any activity initiated by shore-based management due to the ship-shore divide which permeates the culture of Trawlers; b) the Turners received regular training on safety and food hygiene for legal and certification requirements but production training was completely new; c) with low levels of literacy the Turners felt threatened by an 'academic' classroom environment; and lastly,

d) we wanted to make the training a fun, positive experience. For Charlene, Kevin and me, our guiding form of assessment was ‘how did the training show up in the business?’ It was our contention that if learning was taking place that the real-world results would speak for themselves.

In Generation One we implemented five different forms of soft assessment and one form of hard assessment. One could say that the soft assessments would be classically regarded as classroom exercises, however, we designed them to double-up assessments of knowledge and skills. This helped us to gauge the Turners’ actual knowledge and skill base, and whether or not our teaching methods were working. This insight allowed us to constantly ‘build in flight’ and accommodate the training to ensure the training would improve the practice of production. One could almost say that we did the assessment ‘by stealth’ so that the Turners did not perceive that they were being assessed. This meant that they could focus on learning without fear of failure. Here are some examples of how we used the *five soft assessments* and *one hard assessment*:

i. Group work: For example, three teams exist on the freezer vessels – the A-squad; the Fillet-squad; and the Freezer-squad and each team is responsible for particular production procedures. We divided the Turners into the same teams and asked them to map the production process and each procedure. This was also a teambuilding exercise. We were able to assess knowledge at the beginning of the course and take a temperature reading on the teamwork and co-operation on each vessel.

ii. Simulations: For example, the Turners did a practical exercise in the vessel discharge area of sorting several hundred fish into hake and by-catch (other species); and then the hake into different sizes. The facilitator and Jap (retired Production Manager) evaluated the accuracy of the sort and gave feedback. This exercise assessed the sorting skills of the Turners. Sorting is one of the first production procedures and sets the line up for a good or bad production run. Another example of a simulation is the apple exercise described above. This exercise tested the Turners concepts of trimming, waste, quality principle, and calculating a percentage. It further tested the ability to use a scale, as pictured in Photograph 12, to weigh the apple pieces and then to convert grams to kilograms etc.



Photograph 12: Example of scale used in the Apple Experiment

iii. Hands-on Practicals: For example, the Turners were required to draw and label a fish and ten points were assigned to this exercise. They were also required to ‘head’ several paper fish in an effort to teach the Turners exactly where to cut so that fish was not wasted. These assessments were included because we had assumed, incorrectly, that if the Turners worked with fish all day that they would understand what a fish was, its biology and so on. This realisation is expressed by Charlene:

And I think we had a recognition of the people we were working with. And even in the shocking moment of finding out that they didn't understand what a fish was – it was a shock, but it was never a judgement. It was ok we've now hit this roadblock and how are we going to get around it and how are we going to help them understand this so that we can get around this and then carry on teaching what we were actually originally set out to teach.[FGI-1].

In confirmation of this discovery a senior person on the production team, Assistant Factory Manager, wrote: "I learnt a lot of thing(s) about fish." [Q4].

iv. Woodstock Visits: Cape Town Processing (Woodstock Factory) is in Woodstock and the Turners would be taken there during the course of the training to sharpen their trimming and packing skills. An assessment of the trimming and packing times of each Turner was taken and used in a team score.

v. Certification: Each Turner was given a certificate of completion and a red stress ball to commend his efforts. From an assessment point of view this meant that the Turner had been trained on Freezer One and Two and was eligible to sail on a Freezer vessel. Charlene issued a 'no certificate, no sail' rule. Each successful Turner had a miniature certificate in his Seaman's Book. Each Turner was recognised and for many of them this certificate was the first one they had received in their adult life. Johann, as General Manager, made time to hand out the certificates and 'throw' out the red balls because he believed that recognition was important and especially given the national legacy of apartheid [II-2]. These were always happy, fun occasions.

vi. Real-world results: This was the only 'harder' assessment we used in Generation One. We implemented two measurements which were conducted as a group, and these were trimming (removing defects from hake fillets) and packing (packing different sized hake fillets into different sized boxes). Only the best trimmer or packer was recognised. Charlene used the trimming and packing times which were reported from each freezer vessel for most shifts to build up big data which could be used for analysis. Heinz, a Production Manager reflected on the success of this assessment strategy [WA4]:

Actually the measurement is quite good especially I can remember the trimmings that we did. No one actually thought the impact that the trimmers would have on the packing line until you can actually use some way of measuring how much trimming they miss [packers trimming fillets] ... now they can actually see the quantity of what they actually miss and how it would impact the packers.

He indicated that the packers' trimmings came down to <25%; and that evidence is important as it speaks for itself.

Looking through a sustainability lens, the decrease in trimmings meant that more of the fish caught and processed ended up as final product and there was less wastage. This in turn increased the 'landed tonnage' of product, which is the metric used to keep tally of I&J Limited's state-granted quota. This meant that less fish were caught to fulfil the quota. Even a small percentage decrease of 'trimmings' on the trimming table multiplied by many thousand tons of hake makes a significant difference.

In 90% of the questionnaires, the six assessments discussed above were cited as one of the favourite parts of the courses. This was a thrilling observation because it meant that we had turned assessment on its head from being feared to being enjoyed as well as providing measurable data and improvements in production.

The culmination of Generation One Assessment Practices is summed up by Charlene:

I think that was ... um ... as much as I think the rest of the company possibly wanted better bottom lines, better yields, better efficiencies ... and that was probably the end goal but what our [Charlene, Robin and Kevin] foundation was everyone wanted the crew themselves to feel more valued and more engaged and more respected I suppose. Through that ... because they were then more engaged we could work on getting the concepts. [FGI-1]

Despite the different imperatives and assessment methods employed in the succeeding generations, the ethos expressed by Charlene remained true for Kevin and me through the choppy waters of the succeeding generations.

6.6.2 Generation Two: Assessment

There were five assessment methods or tools employed in Generation Two – two were soft indicators and three were hard assessments. This assessment strategy was commensurate with the objective of Generation Two which was to develop, train and accredit all production staff on the relevant Standard Operating Procedures to the Turners' jobs. Note: some of the indicators used as soft assessments in Generation One are used as hard assessments in Generation Two i.e., it is how the tool is used which makes it a softer or harder assessment indicator.

The two softer assessments which were used are the worksheets in class and the certification process. Kevin used the Refresher Worksheets [D12] firstly, to assess how much of the knowledge of Freezer Courses One and Two had been retained; and secondly, to remind the Turners of the principles of production. Although there was no certification ceremony, refresher certificates were added to the seaman's books. As for Generation One we continued to learn and here is a comment made about the assessment of the Refresher Worksheets:

That was a huge realisation for all of us was the level of education that we were dealing with and ... to the point now where we do the theoretical test, and it is frightening to think that out of 90-odd points some people get below 10 [%] and illiteracy and English understanding and numeracy is really bad. So we were talking about the ABET, how the training can also highlight who needs what kind of training. [FGI-1].

The hard indicators which were employed were:

i. Woodstock Visits: The same exercise was repeated but the scores per individual were taken rather than the group's score. There was pressure on the Turners to reach pack or trim within the quantity and quality thresholds which by this point had been established through the collection over time of 'big

data'. The individual scores were then used to assign employees to particular roles on the vessel i.e. a Turner had to be within the threshold to be assigned as a packer or a trimmer.

ii. Onboard Theory and Practical Assessment: This is where the assessments were individual, in real time with clear pass/fail marks. Each Turner may do more than one task on the freezer vessel e.g. he may sort, pack and label boxes (Master Cartoner). He was required to pass the theory and the practical laid out in the Standard Operating Procedure/s for his task/s so that he could become accredited to perform that task/s in the factory on the freezer vessels. No Turner may do a task for which he is not accredited. The layout of a Standard Operating Procedure is provided in the description of the practice of creation of courseware for Generation Two (cf. Figure 6.1 in 6.3.1 above). See items 31.12 and 31.13 in Figure 6.1 which indicate the capabilities and the assessment portion respectively in the Standard Operating Procedure for the task of Master Cartoner. All Standard Operating Procedures have these capabilities and assessment portions and were used for the assessment of the theoretical and practical knowledge and skills required by the learner for the task represented by the corresponding Standard Operating Procedure.

iii. Real-world Results: In addition to the once-off accreditation for a particular job, a qualitative and quantitative reading is required for every procedure for every drag (10 ton bag of fish processed). This data is sent ashore to the Business Intelligence Division who present this production data as daily, monthly, and annual statistics, trends and so on.

If one considers how far the Turners have come in terms of their ability to undertake (formal) hard assessments, Charlene, Kevin, and I were of the opinion that this ability was built slowly from the base of the Generation One soft (informal) assessments. The Turners could not have started at this point. Part of this growth is demonstrated in the growing confidence of the Production Management Team to push back against some of the measurements imposed. Here are some of their ideas [FGI-2]:

- Production Management Team: Packing times on the spreadsheet for each product was set in an excited manner rather than in a real environment where someone is going to face this from the first day until the end of the trip.
- Production Management Team: Times should not be set in the factory. Woodstock times are not realistic, nor was the quality checked at Woodstock. Packers more careful with the quality as their money depends upon it. Puts a lot of pressure on the guys.
- KG: Suggested competitions in real-life are likely to set more realistic, sustainable times.
- Production Management Team: Unintended consequence: Be careful about the 'time taking' because packers pack carelessly or under spec to make the quicker times especially in comparison with the other packers.
- The Production Team also requested external moderators to assess how they themselves were managing the onboard and assessment and accreditation of the Turners.

Their sentiments are echoed by Johann who supports Standard Operating Procedures to assist people as they are learning but "the way the Standard Operating Procedures and procedures were applied at I&J

Limited was to nail someone for not doing it correctly or not doing it right or not following.... two different views on how to do it” [II-2].

In May 2021 when Kevin and I handed over the Production Programme to I&J Limited, the accreditation of Turners was well underway as well as the use of big data, although I suspected there would be some fine-tuning to the numbers; and the Turners’ continued positive attitude and uptake of the Standard Operating Procedures would depend on how these assessments and Standard Operating Procedures are managed by shore-based management in future. It is a work in progress. I close this section with Kevin’s words, “... so I think we’ll have given a really good foundation and a really good mix of product, and theory and exercises for them to take to the next level”. [FGI-1]

6.6.3 Generation Three: Assessment

As discussed above the objective of this generation was to create a technical platform to deliver VET 4.0 at sea. This original intention of this initiative was a vehicle to create a Production Academy, however, it was used more extensively for the Chief Engineers Programme. To demonstrate how assessment was conducted in Generation Three I draw upon the assessment tools of the Chief Engineers Programme as we had achieved the most in this programme before VET 4.0 Generation Three was stopped in May 2021. If the Production Academy had been created as planned, the assessment strategy would have been similar to the Chief Engineers Programme.

The Chief Engineers Programme was designed to dovetail exactly with the Chief’s daily responsibilities. The Chiefs had not received supportive IVET4 for some time and embraced the opportunity. In reference to the Dumbbell Assessment Range (Figure 6.8), the assessment strategy was a midpoint between soft (informal) and hard (formal) assessment. The reason for this strategy was that on one hand, the engineers had a similar profile to the production factory hands and were ‘gun-shy’ of English tests, books etc.; and on the other hand, the Chiefs were responsible for meeting particular standards. The assessment tools which I chose, in collaboration with the Chiefs’ Superintendent with 40 years of engineering experience, included: homework worksheets; practicals in the engineering workshops including a simulator; drawings and timesheets; onboard Planned Maintenance System inspections; a Learning Map – Blokkies; e-practicals; real-world results which included the Chief’s Annual Performance Appraisal; and certification. These assessment tools were used in parallel with one another and not in series as was the case in Generation One and Two. Also, unlike the previous generations, the eight assessment tools were all initially applied in ‘soft mode’ but as the Chief became more confident with the learning process, and more competent in the required skills and knowledge, and the shore-based engineering department had made the required departmental workflow, reporting, and process changes to support the Chief Engineers Programme, then the assessment tools would be used in ‘hard mode’. An example of this dynamic process of assessment is: If a particular maintenance task required specialist knowledge or a custom-made tool to do the job, then during the onboard Planned

Maintenance System inspection this maintenance item would be noted but the Chief would not be penalised (soft assessment applied). However, once he had been trained and had the right tool, he would be held accountable (hard assessment applied). Please find below an expanded description of assessment tools used in Generation Three.

i. Blokkies: Another differentiating factor of Generation Three was that the programme was learner-driven. This was done to accommodate site-specific logistics and the Chief's availability due to both the shipping schedule and his shore-leave roster. Every learning opportunity had to be seized as the fishing, and consequently the learning environment, was in constant flux. This meant that the Chief Engineers Programme described in Chapter 3 (cf. 3.16) was required to cope with this unpredictability starting from courseware design, through to teaching and learning, and assessment. This unpredictability was exacerbated by the Covid-19 pandemic. The course objectives for the Chief Engineers Programme (cf. 3.16) were divided into 50 learning blocks. The learner could undertake any learning block, in any order which suited him as long as he completed the required number of blocks for the two formative assessments (i.e. 33% or 17 blocks for each formative assessment) and the summative assessment (i.e. all 50 blocks). The Blokkies Spreadsheet (cf. Figure 6.4 below) was the tool which the Facilitator and the Turner used to plan his progress and to keep track of the Turner's assessments as he moved through the 50 learning blocks. A screenshot of a portion of this spreadsheet is provided below in Figure 6.4 which shows, by way of example, learning blocks 48, 49 and 50 for three of the Chief Engineers. The headings used on the Blokkies Spreadsheet are: learning block number, the Chief Engineers Programme Learning Objective (for the learning block), the Subject Matter Expert (for the learning block), the Cross Reference to the Course Modules and E-training Manual (for the learning block). In this screenshot the Formative Assessment planned for April 2021 is visible and indicates to the learner that 33% of the 50 (of any) learning blocks must be completed by that date. An example of how the Blokkies Spreadsheet worked was where a Chief Engineer was on 'work-by' which means that he is not required on a ship and nor does he have shore leave due to him. Coincidentally the Electrical Workshop had an interesting job for him to do – so he would take up the chance to improve his electrical or refrigeration skills and fulfill the learning and assessment requirements for learning blocks 48, 49 and 50. There was also space on the Blokkies Spreadsheet which allowed for the addition of work and learning which exceeded the learning target. This happened in many instances especially with the Turners making the most of the alongside workshop time.

	A	B	C	D	E	F	G	H	I
	#	CEP OBJECTIVES	SME	LEARNING TASK	CROSS REFERENCE TO MODULES AND E-TRAINING MANUAL	Menzi Minger	Shaun Wicor	Vaughn Green	Tandile Sipon
1									
48	48	Workshops: Electrical (Russell)	Russell/RAF	5 working days in the Electrical Workshop	Module 5.4				
49	49	Workshops: Refrigeration (Russell)	Russell/RAF	Sign off on bench skills by Foreman or his designate	Module 5.4				
50	50	Workshops: Electrical (Russell)	Russell/RAF	Sign off on bench skills by Foreman or his designate	Module 3.4				
51		Formative Assessment - end April 2021 (17 tasks in total = 33%)	Learner/SS	Qualitative assessment: skills & knowledge; Quantitative assessment: tasks completed as a ration of elapsed time.	Formative Assessment				
		Formative	Learner/SS	Qualitative assessment: skills	Formative				
CHIEF BLOKKIES ASSESSMENT MATRIX SIMPLIFIED +									
Select destination and press ENTER or choose Paste									

Figure 6.7: Screenshot of Blokkies Spreadsheet

ii. E-practicals: The course was designed to include a number of e-practicals throughout the programme. The first involved learning how to use the Future People Online-In-Person Learning Platform which was done in Module One. The Chiefs proved to be early adopters of the platform which was a real accomplishment as some had not used WhatsApp, or operated Office 365, and Zoom was new to most of them. The establishment and use of the Future People Online-In-Person Learning Platform was one of the drivers that enabled the move towards transgressive learning. Mastering the platform heralded the online portion of the course and allowed a Chief to do IVET4 in his cabin on the ship. Each Chief had to be carefully connected to the Future People Online-In-Person Learning Platform. This was the antithesis of mass online ‘one size fits all’ education – it was ‘slow’ education built upon relationships (Metelerkamp & Ferguson, 2021). The second e-practical was planned to run throughout the course and involved becoming proficient with Office 365. The third module developed was the use of the Procurement Form at sea to integrate with procurement software ashore to meet Objective (iv) of Chief Engineers Programme as described in Programme 14, Chapter 3.

In all instances the assessment of the e-practicals was based upon the **real-world** results i.e., evidence of mastering the Future People Online-In-Person Learning Platform; or using Office 365 in daily ship-shore communication; or the accuracy demonstrated in the completion of the Procurement Forms (also known as ADOBE forms to the staff at I&J Limited). To measure the last mentioned, a formulated

spreadsheet was developed by the Senior Planner (Engineering Department) to track the improving accuracy of the Chiefs' usage of the forms; and, for the Engineering Department, to highlight any system errors which were hampering the Chief Engineers' abilities to use these Procurement Forms properly, for example, insufficient detail in dropdown menus. Figure 6.5 below is a screenshot taken of a single frame from one of the mobisodes in the six-part Chief Engineers Programme - Procurement Form Mobisode Series. The screenshot shows the text which appears on the screen and the presenter of the material in the bottom right-hand corner. The presenter speaks through the text on the screen as he explains the learning content around the Procurement Forms. In this instance the presenter is the Senior Planner of the Engineering Department who deals with the Procurement Forms ashore. He is also the assessor of the Chief Engineers for Procurement Forms learning blocks.

What are the ADOBE forms and why do we use them?

Name

-  Create Notification Adobe Form.pdf
-  PM Consumables Adobe Form.pdf
-  Work Done at Sea Adobe Form.pdf

Key points to remember:

1. Adobe Forms are used to report:
 - Jobs done at sea by Chief.
 - Jobs reported via notification for shore engineering personnel.
 - Consumables used at sea.
2. These are sent to SAP and reviewed for accuracy of information before being processed .



Figure 6.8: Screenshot from Chief Engineers Programme Procurement Form Mobisode Series

An illustration of the effectiveness of the soft assessment approach was evident in the Office 365 module. Every Chief received a laptop for the first time and they were making significant progress setting up their machines, using Word, Excel and Outlook sufficiently well to meet the learning objectives of Chief Engineers Programme and to achieve their daily tasks of communicating technical information from ship to shore. The Chiefs were proactively setting up their lessons with Rick who was teaching them Office 365. At this point the Executive decided that they did not have confidence in the soft assessment approach and that each Chief must be formally assessed on his abilities in Word, Excel and Outlook by an accredited outside training provider. Most Chiefs fared very poorly and lost confidence. This served to confirm the Executives' view that our approach was not working and that the Chiefs were digitally incompetent. These test results were at odds with the real-world assessment i.e. that the Chief had learnt how to use Office 365 sufficiently to do his daily work [II-3]. I suggest that the

correct interpretation of these results would have been that the assessment conditions skewed the outcome and did not evaluate the Chief's digital skills but rather his ability to take a written test. This disconnect between operational management and the Executive is discussed in Section 5 under Practices of Management and is again illuminated in Chapter 7 under the PA of Relationality.

iii. Engineering Workshop: The chiefs were required to spend time in the Engineering Workshops to improve their bench skills. They were required to fill in a **timesheet** which indicated what tasks had been completed and whether the Foreman deemed the Chief competent to complete similar tasks at sea. Part of this assessment was the completion of **engineering drawings**, for example, electrical circuits. In addition, in the Electrical and Refrigeration Workshop plans were underway to build a **simulator** to simulate the refrigeration and support electrical circuitry on the vessels. The Chiefs would be given typical problems to practice on (soft assessment); and then they would be tested (hard assessment). The **real-world results** were, and would have been, an increased number of jobs done at sea by the Chiefs which saves vessels both turnaround time and money.

iv. Planned Maintenance System Inspections: The roll-out on the vessels of the Planned Maintenance System was Objective Two of Chief Engineers Programme. The Planned Maintenance System involved the routine attendance of engineering equipment and efficient operation of machinery. The generation of 'job cards' was automated, and theoretically, the job cards for a particular voyage must be complete on the vessel's return to Port. The job cards and the Planned Maintenance System work completed were reconciled by accounting software. A physical inspection was then planned on the vessel with the Planned Maintenance System Manager or Engineering Superintendent and the Chief Engineer to assess work done. Initially this was conducted as a soft assessment with the prime objective of building up relationships between ship and shore; discussing tricky engineering problems; and modifying the Planned Maintenance System if the practical reality required a change, for example, frequency of maintenance. If the Chief Engineers Programme had continued as planned, this assessment would have become a hard assessment that would have been scored and weighted and appeared on the Chief's bi-annual Individual Performance Assessment. A successful roll-out of the Planned Maintenance System would be indicated by **real-world results** in the decrease in unplanned maintenance, decreased number of failures or breakdowns, decreased port time and increased efficiencies in, for example, fuel usage.

v. Worksheets: An example of a Homework Worksheet is provided in Appendix 11. This worksheet was for Module One and included tasks like listing the technical engineering books in the ship's library. This was a task which built toward Objective (iii) of Chief Engineers Programme which is to improve the Chief's theoretical knowledge. Another task involved creating a video entitled 'My Finest Hour' which tested his ability to use the Future People Online-In-Person Learning Platform and aimed to make the Chiefs more visible to Senior Managers and Executives so the extraordinary achievements of the

Chiefs could be acknowledged. I received deeply moving videos and written testimonies from the Chiefs. Unfortunately the Chief Engineers Programme was stopped before these contributions were aired. This Executive action communicated itself to the Chief Engineers as deeply disrespectful.

Only lip service given to T&D and the good of the people but there was no support, no anything. It was actually ... um ... putting obstacles in your way than trying to help you and support us operational guys to train and develop and impact positively on our people ... [Anonymous]¹²⁵

There is a caveat to these remarks which is that they are made from an operational level vantage point, and the Executive would have a broader perspective to which we were not privy. I suggest in hindsight we had a blind spot that left the Executives' needs unmet in terms of assessment.

¹²⁵ Although the participants did not request anonymity, there are some quotes which I have attributed to [Anonymous] in the interests of protecting the individuals. From a data integrity point of view, these quotes can be traced to the source through the Analytic Memos, Data Code Worksheet and soft copies of the transcriptions and field notes if required.

6.6.4 Table of Invention 5: Summary of the Practices and Practice Architectures of IVET4 Assessment Strategies and Outcomes of the PP over Three Generations

<i>Examples of Sayings</i>	<i>Cultural-discursive arrangements</i>
<i>Sayings:</i> - Assessment language ‘undercover’ using gentle words of kindness and recognition <i>Thinkings:</i> - Innovative thinking to develop a range of assessment tools which could be used in different modes (hard, soft) - Participative, inclusive design and application of assessments with Turners and operational managers	<i>Sayings:</i> - Language and ethos adopted by operational managers and Turners <i>Thinkings:</i> - Allowed for scaffolding of assessment and testing - All parties ‘bought in’ to assessments of different kinds
<i>Examples of Doings</i>	<i>Material-economic arrangements</i>
- Multi-modal forms of assessment applied - Turners assessed and accredited at sea on Production Standard Operating Procedures - Turners sent for standardised testing which resulted in inaccurate results	- Range of assessment tools developed and used flexibly in different modes (hard or soft) - Production Manual with Standard Operating Procedures, including theoretical and practical assessments - Assessment paradigm of Executive is that only traditional standardised testing is valid
<i>Examples of Relatings</i>	<i>Social-political arrangements</i>
<i>Positive:</i> - Kevin’s positive working relationship with sea-going staff. - Robin and Kevin work well together as pioneers of range and	<i>Positive:</i> - Kevin spent a lot of time on every freezer vessel – living, learning, and working. - Relationship benefitted from ‘deep time’ and had been built up over 16 years of working together. - Formalisation of Standard Operating Procedures and realisation that everyone has an important role

mode of assessments befitting the Turners - Increased respect for people and process - Turners developed a positive relationship with assessment and testing <i>Negative:</i> - Executive lack of appreciation for assessment results.	- Multi-modal assessment tools <i>Negative:</i> - Form of reporting lost in translation between operational management and the Executive
<i>Project/s</i> The project was to apply and moderate the assessment strategies which had been created to meet the different requirements of Generation One and Two of the Production Project; and Generation Three which was mediated by Future People Online-In-Person Learning Platform for the Production Project and Chief Engineers Programme.	<i>Practice tradition</i> Over the life of the Production Project, the practice tradition moved towards more transgressive assessment. This was done by applying a range of assessment tools in a softer (more complex, less formal, less conventional) or in a harder (simple, formal, standardised).
<i>Situated knowing, dispositions (habitus)</i> <i>For the courseware developer/s:</i> The knowledge, skills and values which allow the developer to apply an innovative assessment strategy to measure individual or collective outputs in pioneering IVET4 projects (PP and Chief Engineers Programme) <i>For the Turners:</i> The knowledge, skills and values that allow the learners to build confidence and acceptance of testing and, through this, to develop professionally	<i>Practice landscape</i> The practice landscape required collaborative pedagogical and Internet Computer Technology technical problem solving which included input from subject matter experts. This work occurred at Council for Scientific and Industrial Research, in the offices of Trawlers & Anglovaal Industries Ltd Head Office, on the vessels and remotely. A high level of communication and networking amongst disparate professionals was demanded.

Table of Invention 5: Assessment Practices is based upon Kemmis (2022).

6.7 Practices of Love of the Production Project

The data for this section is detailed in Analytic Memo 6 (cf. Appendix 9) and the Data Code Index (cf. Appendix 7). As mentioned in the Introduction, the practice of love, trust and confidence cannot be chopped up neatly into the three generations of the PP. This practice evolved over time and is threaded through back and forth through the generations. Because of the pervasiveness of the practice of love, it has been mentioned in the description of other practices above. In this section I simply draw the threads into a cogent description under the term ‘Single Impression’. In an attempt to present the data rather than my own views and sentiments on the practice of love, I offer thick descriptions from the data generated with sea-going and shore-based participants. The word ‘love’ is unusual in a corporate setting particularly one with a neo-liberal western culture. The predominance of the use of the word ‘love’ is because it is the word the Turners used; and it is the word that came up at every Certificate Ceremony officiated by the General Manager.

6.7.1 Single Impression: Love the Great Mediator

We discovered that love was the dominant mediation tool in the practice of IVET4. Love, expressed in self-confidence, respect, communication, trust, and co-operation, was the ‘flywheel’ of the PP.

The ‘flywheel effect’ is a concept is described by Collins (2022):¹²⁶

Each turn off the flywheel builds upon work done earlier, compounding your investment of effort. A thousand times faster, then ten thousand, then a hundred thousand. The huge disk flies forward, with almost unstoppable momentum ... Good to great comes about by a cumulative process-step by step, action by action, decision by decision, turn by turn of the flywheel – that adds up to sustained and spectacular results.

Every bit of relational capital which was built had a multiplier effect for good on the outcome of the PP, Chief Engineers Programme and Skipper Development Programme. I present the evidence below which substantiates this assertion in the words of those who witnessed, and worked with this phenomena over a number of years:

The sea-going production staff:

Person 1:

This is not only building us for work purposes it does also build us generally in life because for instance communication. Communication is broad, it is something we use also at home. You need to communicate something ... the way you want it to be done ... we also need to be productive at home ... as a human being you are becoming better, you become a good judgmental as a person, you become to see things in a way that someone will say even if it comes so bad that you can make it look good. [FGI-2]

¹²⁶ Available at: https://www.jimcollins.com/article_topics/articles/the-flywheel-effect.html [Accessed on 5 September 2022].

Person 2:

The small word ‘respect’... mentioned so many times in the training ... the respect the guys have for each other now than before, it makes so much difference because why now everybody know how to talk to each other ... I explain it so much to the manager and the chargehand and even to the other guys ... if you give someone a job it is how you give it to him ... Respect, especially on the Trawlers, it is a big thing and respect was coming out of this training ... [respect] this was one of the words that ... I don’t know how to say it ... was coming out a lot and I think the guys they take note because why we can see it out there. We can see it out there really Kevin, really. [FGI-2]

Written comments on questionnaires put to sea-going production management teams:

When asked, “What was the best thing you learnt?” answers included:

- Communication [Q2]
- Trust, feedback, teamwork [q5]
- To communicate and enjoy your work [q7]
- How to connect with people [Q9]

When asked, “How did you feel when the course started, and when it ended?” answers included:

- I was first on my nerves after that I feel very good. [Q8]
- At first I felt a bit out of my comfort zone since I was never directly involved in production, but by the end of the training I was feeling comfortable. [Q10 – Martin, the shore-based trainer]

Factory Hand’s testimony (as reported by Kevin):

I [Kevin] went into the factory, the ‘gees’ [spirit, ethos] was amazing, the smell and sights awful, but everything ‘flowing’ with great gusto - in spite of an all-nighter from a 25 ton drag the night before and this guy ‘Mako’ with ‘Rasta’ hair, on the line, saw me, his face lit up, said “Aweh Kevin” as I walked past! Later on he asked about sending him a photo of me and him with his certificate from two years ago ... had a short chat in the mess later, was really special to connect with him again – some really special unbelievably hardworking people in there, and if we can help give hope and inspiration in some small way, how awesome.

Kevin’s testimony as sea-going and shore-based facilitator:

... and you know these okes [guys]...can flick a knife in a split second and will have that at your throat if you mess up, but respect ... but the word ‘love’ came out and that changed the whole dynamic and we even had it in the test or the worksheet we do now... with all the words for teamwork beginning with C for there it is about care for one another, care for the assets, care for the boats and the equipment. But it is also caring for one another and the word ‘love’ came out. And I think it added another whole level of recognition and understanding, being valued, and being appreciated and closely coupled with that would be the word ‘connecting’ – and it is how do we connect with each other? [FGI-1]

Charlene’s testimony as internal project lead and Resource Manager:

In response to comments by Kevin on the importance of *home language* in building connection e.g. greeting each other in the other’s language, Charlene drew the link between team connection and “*open(ness) to learning*”. She also observed the ‘contagion’ of this ‘connectedness’ moving between

the PP and the Skipper Development Programme and ‘infecting’ the senior Trawlers managers with more empathy and allegiance for sea-going staff.

I definitely feel that ... someone like a Kirsten [Business Intelligence Analyst] is more engaging and more supportive of the sea-going crew. A Gerard [Marine Manager], for example, also is more engaging and supportive. Whereas prior to tackling this ... and it was probably not this particular course, but it was the follow on when we did the Skipper Course ... which brought the production module [PP] into the skipper course ... And that course also having a BI portion, a finance portion etc., etc. I think that was more successful in changing attitudes and building more connection than the Production Course itself. The Production Course back to Kevin’s point created that feeling of value and respect but didn’t necessarily change management attitude. Cos there were too few people involved in it [IVET4 programmes] actually ... [FGI-1]

Gerhard’s testimony as the internal lead of the Skipper Development Programme:

I asked Gerard what he was most proud of as Internal Champion of the Skipper Development Programme and he responded:

I think it is the development of ... the interactions we had. I mean you had a lot of interactions with the guys in my absence, or me being absent at stages, and the feedback that you gave to me in terms of character [Individual Competency Files]... but also the interactions that I had with them in terms of the personalised, character ... that bond we had, or that we formed at that stage. And like anything, relationships ... I mean are sometimes strenuous but at least there was something to be strenuous. [II-2]

My own testimony as external project lead on the PP, Skipper Development Programme and Chief Engineers Programme:

I presented my own (re)-awakening to the idea that relationship comes before teaching content, and how this changed my facilitation approach (cf. 6.5.1). Although I was cognisant of this phenomenon when delivering previous programmes, I was nonetheless forcefully surprised all over again in the PP. I refer back to the Mentorship Programme (cf. 3.7 above) where the Human Resources Manager’s only brief to me was to ‘win the hearts and minds of the sea-going staff’. In the Mentorship Programme we set out with the explicit aim of improving relationships and although we did not focus on productivity, there was an increase in productivity which was a positive and unintended consequence. The lesson I learnt is – focus on building relationships and the rest will follow. Allied to this was the *doing* – meeting every vessel on every turnaround as agreed before docking. Echoes of the flywheel effect are evident.

Johann Botha’s testimony as General Manager:

Johann agreed the word ‘love’ came out across different vessels; and that the “guys realised that the Trawlers managers cared about them as individuals”. He also said that words like “care, family, love for I&J Limited, teamwork, pulling together” had “never before been said at I&J Limited.” [II-2]

Rick’s testimony as Leverage Professional:

I left Rick’s testimony to last as he was the only volunteer.

I think we removed the fear factor, we kinda lit the flame to curiosity, we lit the flame to wanting to improve, we fundamentally changed the perspective of an individual who was scared to speak to their kids about life, homework. So what we have done is built or helped parents to come a bit more confident in order to engage with their kids. If you think about it, most of the seafarers employed don't have relationships with their families. You speak to people today and they speak to you about their kid's schoolwork, 'my kid is at varsity' and you say to yourself *#\$ a couple of years ago you wouldn't do this conversation. And we kinda injected that want – family, curiosity ... the game has always been – whatever I have had, my kids must have better. Yes, financially I&J Limited might be giving them the opportunity to do that ... but it also gives them the opportunity to be confident to speak to their kids with regard to just about everything ... whether it be schoolwork, whether it be smart phones, computers these days ... it has become a lot easier. That is where I feel we that we have helped a lot. [II-3]

In summary the impact of 'relatings' or the practice of love can be witnessed in all the participants' testimonies who were involved in the PP; and one can observe how this human, relational practice was infectious amongst the Trawlers senior managers and between the different IVET4 Programmes. There was a sadder, more frustrating side to the Practice of Love which is discussed under Practice of Management. I further illuminate this finding on the potency of love in IVET4 practices in Chapter 7 under the PA of Relationality.

6.7.2 Table of Invention 6: Summary of the Practice of Love in IVET4

<i>Examples of sayings</i>	<i>Cultural-discursive arrangements</i>
<i>Sayings:</i> ▪ Use of the word ‘love’ ▪ Not permitting foul language or derogatory nicknames in the IVET4 sessions despite this way of talking as ‘the sailors’ way’ <i>Thinkings:</i> ▪ Believing in the Turners – their abilities, their willingness to engage and hunger for learning ▪ My understanding of the potential synergies between the different IVET4 programmes to aim to increase skills and create a common understanding	<i>Sayings:</i> ▪ The dominant culture of a sea-going brotherhood ▪ Expectations set by facilitator initially; and the experienced emotional benefits to the Turners turned them into the custodians of respectful language on and off the ship <i>Thinkings:</i> ▪ Hubris of the key actors (Resources Manager, facilitators and Leverage Professional) ▪ The ‘licence to operate’ afforded to myself by the General Manager of Trawlers and the senior management team. This was akin to having ‘freedom of the city’ and I had access to ship and shore, I was privy to confidential information, and I could engage with whomever I wished
<i>Examples of doings</i>	<i>Material-economic arrangements</i>
▪ Actively “seeing people as people” ▪ Active recognition of Turners ▪ Kevin’s sea-going trips train Generation Two of the PP built living, working, learning relationships.	▪ Half a day built into the Freezer One and Wetfish Programmes to develop the ‘relational bridge’ ▪ Certificate Ceremony with General Manager handing out individual certificates and branded red I&J Limited balls to each participant. Each participant acknowledged by General Manager and invited to share his highlights. These occasions cemented the word ‘love’ into the Trawlers everyday vocabulary. ▪ Trawlers Management accommodated the shipping schedule to accommodate the ten trips which Kevin did on the freezer vessels primarily.
<i>Examples of relatings</i>	<i>Social-political arrangements</i>
▪ More teamwork in evidence on the freezer vessels ▪ Key shore-based actors have warm, collegiate, and happy working relationships ▪ Closer bonds between shore and ship management teams	▪ Module on Teamwork in Freezer and Wetfish Courses One which used games and group work to get concepts across ▪ Relationships benefitted from ‘deep time’ and had been built up over 25+ years ▪ Interaction built into course design for PP, Skipper Development Programme and Chief Engineers Programme

<i>Project/s</i>	<i>Practice tradition</i>
This project was never envisaged until the teaching and learning practice began in Generation One of the PP and revealed that relationships came before content.	The practice tradition of classic VET is that the teaching and learning practice ignores relationships except for some rapport between teacher and student. In informal VET4.0 relationships expressed as love, confidence and trust were the 'fly wheel' of learning.
<i>Situated knowing, dispositions (habitus)</i>	<i>Practice landscape</i>
<i>For the courseware developers:</i> The knowledge, skills and values which enable the developer to work in a kind and collaborative manner which builds relational capital between the Facilitator and the Turners; amongst the Turners; and between the Turner and knowledge <i>For the Turners:</i> The knowledge, skills and values which allow the learner to build positive relationships and the relational bridges which enabled learning. And this firstly, between himself, other learners and the facilitator, and secondly, between himself and knowledge	<i>Brought to the 'site':</i> The practice landscape is not a physical time-space site but rather a thinking-sayings-relatings 'site' or an atmosphere which engenders the amassing of relational capital. Love is embodied. It is brought to the site of practice by the Facilitator and the Turner. It reveals itself in the effectiveness of learning and the increased respect of process and people. <i>Taken away from the 'site':</i> There are 'dementors' who rob the atmosphere of goodness through their action or inactions; and decrease the trust and self-assurance of Turners and Trainers alike.
<i>Project/s</i>	<i>Practice tradition</i>
This project was never envisaged until the teaching and learning practice began in Generation One of the PP and revealed that relationships came before content.	The practice tradition of classic VET is that the teaching and learning practice ignores relationships except for some rapport between teacher and student. In informal VET4.0 relationships expressed as love, confidence and trust were the 'fly wheel' of learning.
<i>Situated knowing, dispositions (habitus)</i>	<i>Practice landscape</i>
<i>For the courseware developers:</i> The knowledge, skills and values which enable the developer to work in a kind and collaborative manner which builds relational capital between the Facilitator and the Turners; amongst the Turners; and between the Turner and knowledge <i>For the Turners:</i> The knowledge, skills and values which allow the learner to build positive relationships and the relational bridges which enabled learning. And this firstly, between himself, other learners and the facilitator, and secondly, between himself and knowledge	<i>Brought to the 'site':</i> The practice landscape is not a physical time-space site but rather a thinking-sayings-relatings 'site' or an atmosphere which engenders the amassing of relational capital. Love is embodied. It is brought to the site of practice by the Facilitator and the Turner. It reveals itself in the effectiveness of learning and the increased respect of process and people. <i>Taken away from the 'site':</i> There are 'dementors' who rob the atmosphere of goodness through their action or inactions; and decrease the trust and self-assurance of Turners and Trainers alike.

Table of Invention 6 is based upon Kemmis (2022).

6.8 Practices of Management of the Production Project

The data for this section is detailed in Analytic Memo 7 (cf. Appendix 9) and the Data Code Index (cf. Appendix 7). This section turns away from the IVET4 Production Project (PP) itself and looks at the evidence around the structural and institutional influences which shaped the PP and Trawlers itself. Like the Practices of Love, the Practices of Management cannot be neatly divided into the three generations of the PP as these practices suffuse every element of IVET4. I repeat the device used for the Practices of Love and present the data as impressions. There are four: 1) a longitudinal glance at the impact of the Executive Senior Management Team on IVET4 practices; 2) Executive Senior Management Team practices which constrained IVET4; 3) Executive Senior Management Team practices which promoted it; and 4) the organisational changes which happened *because* of IVET4 practices.

There are three caveats to any comments on the Executive Senior Management Team; firstly, the Executive Senior Management Team have the big picture in mind whereas all commentary comes from an operational standpoint; secondly, the Executive Senior Management Team were invited, but declined to engage with this research project, thus all perspectives are one-sided (and there is always another side); and thirdly, the Executive Senior Management Team are employed by the Anglovaal Industries Ltd multinational company which is governed by neoliberal growth expectations, short-term reporting cycles and a highly performative culture of fear for one's job.

6.8.1 Impression One: The Impact of Executive Senior Management Team Practices on IVET4 over 25 Years

The description below is based upon both my own observations over 25 years as recorded in the Reflective Narrative in Chapter 3 which is triangulated with data presented in the three impressions which follow.

I focus on the impact of management practices on the PP; however, the data permits a glance into 'deep time' and how the management practices have influenced IVET4 practices at Trawlers. One cannot lay the blame, nor give credit to the current Executive and Senior Management Team for the failures or successes of the 14 IVET4 projects completed at I&J Limited over the last 25 years. Each team 'set-up' the practice arrangements for the next team which is analogous to the 'banks of the river' described in the Historical Reflective Narrative (cf. 3.1.1). In Figure 6.9 below, I provide an infographic of Executive Senior Management Team's influence on IVET4 from 1995-2021 in five-year intervals.

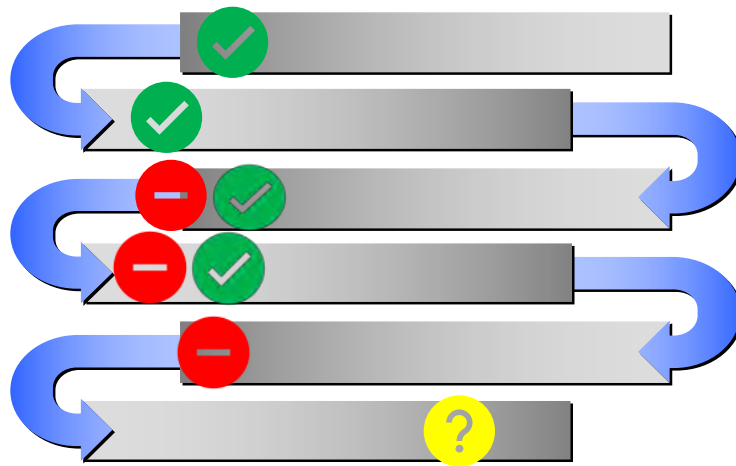


Figure 6.9: Infographic of Executive Senior Management Team impact on IVET4 over 25 years

Executive Senior Management Team is labelled ESMT in the infographic. To provide further explanation of Figure 6.9, I observed that from 1995-2005 Trawlers operational managers were a strong team and had been given terminal responsibility for running the division without Executive Senior Management Team involvement. There was a pro-people, pro-innovation culture at Trawlers and IVET4 projects flourished. From 2006-2015, IVET4 continued to succeed although in 2013 this situation changed abruptly due to increasing Executive Senior Management Team involvement; changes within the Executive Senior Management Team; and the increasing influence of the Anglovaal Industries Ltd culture. From 2016-2020, IVET4 at Trawlers was booming once again with the PP, Skipper Development Programme, and Chief Engineers Programme all underway under the uneasy joint partnership of the Trawlers operational managers and the Executive Senior Management Team. The General Manager restrained the impact of the Executive upon Trawlers staff which provided institutional space for the IVET4 projects to continue to be successful. His actions were a vital enabling practice. Significant staff changes and direct management of Trawlers by the Executive Senior Management Team in 2021, led to the demise of IVET4 programmes altogether; and the future is as yet uncharted waters.

In the I&J Limited case, if there a trend to be identified it is that operational management is important to the success of IVET4. I would suggest this is because they are ‘close to the ground’, understand how the projects work and witness the benefits of the programmes first-hand and on a daily basis. By necessity, the Executive Senior Management Team operates at an abstracted level and does not have the visibility of the operational team. Perhaps the casualties of the PP and Chief Engineers Programme lay in the Executive Senior Management Team running an operational function from an executive standpoint, with time constraints and increased responsibilities.

6.8.2 Impression Two: Management which Constrained IVET4

Focussing on the PP and the period between 2016-2021, there was data saturation around six points. For brevity’s sake I name these constraining Executive Senior Management Team practices and have

chosen only a few examples from the data to substantiate each point. As before I draw on thick descriptions from the data; however, I have retained the anonymity of the shore and sea-going operational staff in some instances.¹²⁷ The link to the data source may be found in Analytic Memo 7 and the data code spreadsheet. To link the raw data to an emerging pattern of evidence, I have made short observations after each section under the heading ‘Researcher Observations’.

6.8.2.1 Executive Senior Management Team Approach to People and Staff Development

It was just unfortunate that as years gone by that I realised that the people focus is not ... um ... throughout the company. It is not from the Exec down to the divisions – it is more operationally and where we operated at. And hence the start of these programmes ...

With regard to our training philosophy, sometimes I think the ideas are still very archaic, they don’t kinda of necessarily embrace the now opportunities that is available ... The training programme might just be too advanced for people to kinda comprehend and even though that is where the problem with our management comes in, they just cannot sync the two because they come from a formal educational background whereas primarily your sea-going factory workers have very little or no education, formal education that is.

...it was very much ... um ... view of you know the guys are useless, they don’t know what they are doing so why waste your time on doing these kind of things?

When asked if the Executive Senior Management Team had been changed by the PP the person replied, “I am not so sure about the Exec level because I don’t they come down far enough to recognise the change. It is still left in the hands of the, what we refer to, as the general [operational] managers.”

Researcher Observations: The perceptions expressed seem to indicate a gap between operational managers and the Executive Senior Management Team, and that communicating across this divide about informal VET 4.0 was mostly unsuccessful. Also indicated is the effect of the different onto-epistemological perspectives based on personal backgrounds and educational experiences of the Turners, operational managers and the Executive Senior Management Team.

6.8.2.2 Executive Senior Management Team Approach to Organisational Culture

You said we did the work quietly and under wraps, it was unfortunately done so ... the feeling one gets is when the Exec finds out about it they want to derail it ... not let them know you are doing it, not let them know how we are achieving and how it is faring and impacting the people because there was just this attitude of trying to put obstacles in place and derail whatever good is done for some or other reason ... I am still trying to figure that out....must just be the attitude of some.

Work done in this way became known as ‘Saturday Work’. This is a term used in other marine industries to do exploratory work which was done on Saturdays when the gatekeepers or Executive were not on site.

¹²⁷ Although the participants did not request anonymity, there are some quotes which I have attributed to [Anonymous] in the interests of protecting the individuals in their current roles.

Researcher Observations: A culture of fear was fomented from 2016 onwards which stifled innovation and truth-telling because people were afraid to lose their jobs. Therefore innovative work became ‘Saturday Work’. The success of the intervention would be revealed only once it was well established. The lack of transparency frustrated the Executive Senior Management Team but was effective in progressing with more transgressive IVET4 programmes.

6.8.2.3 *Executive Senior Management Team Approach to Recognition of Achievements*

One of the challenges with our Execs is their memory retention. So you would have shown that, and it would be well done ‘pat on the back’ and then forget that they were shown it. Even if it is a fantastic number, a fantastic improvement, it is not a lasting memory. I think that is for the general managers, middle managers, very frustrating. You do send the message up, you do show this huge success, and it is just a drop in the ocean as opposed to filling the swimming pool. We filled the swimming pool, but no one is now taking notice that the pool is now full. And the fact the sun soaks up ... and we work with our swimming pool, and we have dropped a tile and you have got to fill it up that is seen – why have you dropped a tile and they have forgotten about the fact that you have filled the swimming pool. That is heart-breaking and the challenge for middle management is not to let the crew see that lack of appreciation. You need to protect them so you can keep the momentum down there because what they have achieved, what they have learnt, what they have changed is remarkable. And like X says the numbers are there and can be shown. [Emphasis mine]

If one considers the feedback from production staff provided in FGI-2, the WA1-4 and in the Questionnaires 1-10 the shielding of the production staff by middle management was effective, except for the disillusionment with the Executive Senior Management Team’s ‘start-stop-start again’ approach to VET which is discussed below.

It was always questioning how we do it, what we do it and why we are doing it so that kind of continuous ... just from the side grinding questioning and not supporting ... and then always someone knowing better what we should have done ... no guidance or support given to a process and a project that will add and did add tremendous value to the company.

Researcher Observations: Based on these comments it seems that the operational managers protected their staff from the perceived lack of acknowledgement of real-world results; and that there was a disconnect between this and an ‘audit approach’ which did not align with the scope of the IVET4 approaches being developed at operational level.

6.8.2.4 *Executive Senior Management Team Approach to Reporting*

Programme literature never read – it was easier just to shoot it down.

Most Execs sceptical – whatever you tell them they won’t believe you. Despite many reports, they will only believe it when they want to believe it. They want tangible things like the bottom line.

This is where it got confusing because we were reporting bottom line results. For example, trimming and packing improvements in Generation One, and in Generation Two ...

The value ... I don't have the numbers off the top of my head but we [together with the Production Technical Expert] worked out some of the value add and the numbers ... it is massive, it is millions. And it can be shown but whether it is visible to the Exec level I don't know if they have actually done that, but I think that is something we could look at.

Over five years both Kevin and I did presentations, weekly updates, summaries, board reports, cost-benefit spreadsheets, scorecards, interim and end-of -project reports. I had one-on-one meetings with a number of the Executive Senior Management Team and was requested to submit the same reports many times. In addition, the operational managers did their own reporting. These reports were accepted and understood by the Trawlers and operational managers but did not seem to breach the walls of the Executive Senior Management Team. Examples of these reports are included in the corpus of data and identified on the Analytic Memo 7. My requests for meetings with the CEO were unsuccessful. I suggest in hindsight we had a blind spot that left the Executives in the cold. We focused upon measurably improving the production efficiencies through improving the knowledge and skills of the Turners. There are many confounding variables when it comes to production and, thus, an improvement in production cannot be isolated to one source. For example, the softer assessment approach and the packing, trimming, grading, and scaling measurements made sense to the Trawlers Management as this method produced visible production results on the vessels every month, however, this form of assessment did not meet the financial and reporting expectations of the Executive.

Researcher Observations: Was enough effort made to inform the Executive Senior Management Team, in a way that made sense to them? Because of the 'fear factor', did the Executive Senior Management Team get the right information from the ground up to make decisions?

6.8.2.5 Executive Senior Management Team Approach to IVET4 and Innovative Internet Computer Technology-mediated Learning

The Chief Engineers Programme, which was mediated by Future People Online-In-Person Learning Platform, was discontinued prematurely as described in Chapter 3 (cf. 3.16). When asked about the impact of the cessation of this course, one participant commented:

The stopping of the programme had an outpour of why, what happened, as in what did we do wrong type of thing? And it was one of those unfortunate exercises that again was taken by a group or individuals who had no understanding for the programme other than sitting on the outside and wanting a brownie point so to speak. But quite frankly they had no idea why they stopped it... [Emphasis mine]

The default position with the Turners was to doubt their own confidence and ask, 'what did we do wrong' is indicative of how quickly the relational capital built up in the course can be eroded.

They didn't understand what was being done but yet they were in an Human Resources capacity. And when you convey the wrong message up or down the line, you are looking for trouble. And I think that is what happened. And that is why they ended up stopping the programme. [Emphasis mine]

The Human Resources function was centralised and understaffed which forced a prioritisation of the formal VET 4.0 programmes. They did however play a reporting role for the IVET4 programmes at the divisional and I&J Limited Board levels where the complexity and innovative nature of the blended online approach was ‘lost in translation’.

Whether it be a training facility, they just don’t grasp the fact that the background, the audience and whatever is needed to make these things work. There is a lack of understanding from a management point of view.

Researcher Observations: Informal VET 4.0 is more complex than formal VET to report on as the course creation, teaching and learning and soft-hard assessment is more transgressive and does not fit into the classic ‘chalk and talk’ model. Lack of meaningful engagement left me feeling that we had reached a dead-end ... for here and for now.

6.8.2.6 Executive Senior Management Team Approach to the Stability of the Organisation

This is first felt in the lack of maintenance of successful IVET4 interventions. I have included a portion of text from an interim report which I submitted to the General Manager of Trawlers concerning the Engineering Modifier Project (cf. 3.15) on 5 April 2019 which explicates this point.

I&J have started excellent projects in the past but have stopped work too soon and the new ideas/culture/processes have not become embedded in business as usual e.g. 1) In 1995/6 extensive training was conducted with vessel management teams (and the union) so that grievances and disciplinary matters were handled on board. The average number of dismissals per month dropped from 20 people to 0 people, then we stopped work on this project, and all labour matters reverted to shore staff and the vessel managers no longer took ownership of their crew; 2) In 2003/4 a highly effective mentorship programme was initiated between Trawlers managers and entire vessels to inculcate an ownership culture, and, despite improved vessel performance across the board, we stopped. Although there is still some evidence of this project 15 years later e.g. management of core teams, the impact evaporated, and ownership once again reverted to shore-based personnel; 3) A fully fledged Asset Care Programme was commenced in 2014 and then stopped....and we are starting again with an almost carbon copy of the same programme. Several factors led to work stopping on projects prematurely, amongst them are – the frequent replacement of senior staff, a ‘short-termism’ in thinking devolved from corporate financial reporting requirements, and most damaging of all, a culture of fear and lip service to the value of good staff. We are all victims and perpetrators, and these are our lessons. We need to see the EM and other projects (e.g. Skipper Development Programme/VLP) through to completion. The change must become bigger than one man or one department. We have this opportunity now, leading to and beyond 2020. That even if managers change, the good remains because it has become systemic and embedded in Trawlers. The change must become bigger than one man or one department. [D4]

In this section I focus on managerial cultural-discursive and material-economic arrangements concerning IVET4, which I refer to as ‘start-stop-start again’. This is the jaded cloud under which the First and Second Generation of the Production Programme began which meant as developers and facilitators we started on the back foot. It is evident when one follows the thread of my Reflective Narrative through the 14 projects that starting projects and not finishing them, in some instances, or failing to maintain the training and development gains in others, is a ‘way of doing things’ at I&J Limited. This cultural-discursive and material-economic arrangement seems to feature in the

organisation, as it is not confined to one particular constellation of Executives but was evident throughout my 25-year tenure in the company. This results in corporate and individual gained competencies lying dormant or being lost altogether.

In the second instance, instability arises from frequent changes of senior staff and a lack of continuity. Examples of rapid senior staff changes have been woven into the descriptions of other practices. A comment was made that the Company has done something but not enough...

There was no commitment, this is the plan ahead we have 18 months to do this programme...whenever they felt like chopping and changing it happened. And the training programme suffered, and the individual suffered as a result of that training programme being 'skepped' [stopped] or delayed.

Researcher Observations: IVET4 is less protected from organisational instability than formal VET. This is because the former does not have National Qualifications Framework qualification and accreditation status; it attracts a substantially lower Skills Development Fund rebate for the company; and there is no marine, engineering or food safety legal compliance imperative attached to the PP, Skipper Development Programme, Chief Engineers Programme, or similar projects.

6.8.2.7 Could it have been Different?

Nothing you [Robin] could have done better – all of us but perhaps X should have got the Exec critically involved, made more effort, forced it down their throats. IJ TV wrongly named ... sounds like a jolly.

I don't think the training was aligned. I think there were a couple of pages missing. There was a gap and everybody kinda had their own ideas as to where it should go. And they would have discussions around what they think should happen without discussing it with the people [Rick and Robin] actually involved in it. That is where I saw it go wrong.

I don't there is much you [Robin] could have done. I firmly believe there was an agenda, and the agenda was 1) individual personalities; 2) it is all of the departmental assistants they didn't see ... they didn't look down the same tunnel.

Researcher Observations: Despite the gloomy remarks made by operational staff, based on their many years with I&J Limited, I propose that there are 'sayings/thinkings', 'doings' and 'relatings' which could reshape the 'river banks'. Considering the data presented, and my observations in the linking remarks, I suggest that this offers a few starting points for 'coming to practice differently'.

In summary, the constraining sayings/thinkings of the practices were associated with Executive Senior Management Team attitudes towards people, an expedient culture characterised by short-term 'turn-over' of staff at Executive Senior Management Team level; and a lack of engagement with the complexities of IVET4. The constraining 'doing' was perpetuating instability in the organisation; and for 'relatings' it was lack of recognition for achievements emerging from IVET4 training programmes, and appreciation for staff at lower levels. Despite these constraints on Executive Senior Management Team practices, which inhibited IVET4 at Trawlers in recent times, promoting practices of the Executive Senior Management Team were evident and must be elucidated.

6.8.3 Impression Three: Management Practices which Promoted IVET4

In this section I follow the same approach as for the discussion of the constraining factors except that participants' positive contributions are not anonymous, and I make a single concluding observation to link the raw data to the emerging patterns. In this instance there was data saturation around five practices: three for the Executive Senior Management Team, one for the General Manager of Trawlers, and one for his operational team.

6.8.3.1 Executive Senior Management Team - Paying the Piper

The greatest contribution which the Executive Senior Management Team made was to foot the considerable bill for the three generations of the PP. The Historical Reflective Narrative bears testimony to the fact that this practice is consistent with the long track record of I&J Limited to invest in IVET4 and intentionally develop their staff. An inference which may be drawn was that the Executive Senior Management Team recognised that there was a bottom-line benefit to these interventions and a return on their investment. Adding weight to this conjecture is that I&J Limited paid a 'premium' price for the PP, Skipper Development Programme, and Chief Engineers Programme because IVET4 attracts lower Skills Development Fund rebates than formal VET programmes.¹²⁸ Clearly, without the budget allocation there would have been no programmes.

6.8.3.2 Executive Senior Management Team - Initiating the PP, Skipper Development Programme, and Chief Engineers Programme

Although it was the low opinion of the Executive Senior Management Team of the vessel management staff that caused the Executive Senior Management Team to instruct the Trawlers Operational Team to initiate the PP, Skipper Development Programme, and Chief Engineers Programme, without this 'push from above' the programmes may not have happened at all, and they certainly wouldn't have got off to their speedy starts, necessitating the 'building in flight' mode of IVET4. The Executive Senior Management Team provided the impetus for the IVET4 which was needed.

6.8.3.3 Executive Senior Management Team – Cancelling the I&J TV Platform

At one of the reading groups, held by the Pedagogy, Education and Praxis International Research Network in 2021, Kemmis provided me with an insight: that what looks like a constraining practice on the surface, may in fact be an enabling practice at a deeper level. As described in Chapter 3 (cf. 3.13), the Executive Senior Management Team stopped I&J TV after Board approval, however, this led to the necessity of inventing Future People Online-In-Person Learning Platform. Future People Online-In-Person Learning Platform proved to be cheap and effective and was well received by the Chief Engineers and their staff. This is an example of a constraining practice which led to an unintentional promoting practice.

¹²⁸ Companies may submit grants for informal VET 4.0 programmes of 20% of the business's total grant applications.

Could cancelling first the I&J TV Platform, then Chief Engineers Programme mediated by Future People Online-In-Person Learning Platform, cancel learning? I thought it had until Rick assured me otherwise. His analogy was that we had had just enough time and momentum in the Chief Engineers Programme “to help the Turner get onto his horse and that he is continuing to ride”. To repeat Rick’s words, “You can’t take it back ... you can’t stop it.” He gave me two recent examples [II-3] that the online blended learning was continuing at an individual level for some of the Chief Engineers:

Today [16 November] I mean ... I had a guy who told me that he was not computer literate ... he travelled in from Wolseley [130 km drive] today to come and sit with me to discuss his tax situation. I got him to register on e-filing all on his own after explaining to him how it works. But he came in all the way from Wolseley. I said to him we could have done this on the phone – No! He feels better if we do the work together. [II-3]

I do know that certain individuals are still using our textbooks [Office 365 textbooks] today, because I got shown one today. Chief X is another one that has just bought into that programme. [II-3]

6.8.3.4 General Manager of Trawlers - Active Promotion of IVET4

As the General Manager of Trawlers, Johann promoted the IVET4 in a number of ways. He continued putting the PP, Skipper Development Programme, and Chief Engineers Programme into the divisional budget for approval. He took an active interest in Generation Two of the PP, and in Generation Three of the PP particularly. In support of Kevin getting the training and accreditation of the Standard Operating Procedures done, Johann’s email instructions on 5 May 2020 to all parties were clear:

We are about to embark on an extensive training initiative for all our people in the Freezer Factories. This training will be done on board, during operations – starting with the Bluebell when she sails, and following that, Umlobi. This training is an update on the training done during and before 2018 – incorporating the work of Mr X [the production technical expert] have been doing on the vessels during these last months. The Trainer is Kevin Gaynor who conducted the earlier training for us as well. For Kevin and Mr X to be effective during the onboard training, and to be able to adequately prepare, I need the below to be done please ... [D19]

As discussed above (cf. 6.4.1) , Johann’s practices promoted the development of I&J TV – from the first visit with Council for Scientific and Industrial Research, through the piloting stages to Board approval. Without his support the Earning and Learning model of IVET4 mediated by I&J TV would not have materialised. Although Johann was no longer with I&J Limited, the knock-on effect of his support was the emergence of Future People Online-In-Person Learning Platform. Here is an example of a promoting practice begetting another promoting practice even after the person ‘has left the building’.

Referenced above is the concept of ‘Saturday Work’ (cf. 6.8.2) where more transgressive forms of IVET4 were developed and tested e.g. Earning and Learning model. Johann made institutional space for this work to occur on all days of the week until it had reached a critical mass and was ready for presentation to the Executive Senior Management Team.

6.8.3.5 Operational Team: Full Support of the IVET4

The operational management team took their lead from Johann, and he described their enabling contribution in this way:

One of the big unintended consequences of the Skipper Development Programme was the amount of trust that was built between the skippers and the shore-based people because of the time and effort which was put in by the shore-based people, the likes of you, Gerard [Marine Manager], Wynand [Engineering Manager], Charlene [Resources Manager], everybody. Personal attention was given to the skippers and that kind of trust was just um ... you can't really measure and cost that ... because that was the ... that was actually I think meant more to everybody than the physical programme itself meant. Because ... now there is a trusting conversation that is happening that never used to happen in I&J Limited, never ever... the Skipper Development Programme and that contact and that continuous contact ... and the open, clear, and honest communication that was the last bit of straw that made the guys realise that the shore management could be trusted kind of thing. [Emphasis mine. II-2]

Details of the managers' involvement have been provided above in Table 6.6 (Summary of Chief Engineers Programme Actor Roles and Sites of Practice Mediated by Future People Online-In-Person Learning Platform). However, in Johann's view, there was a downside to the operational managers' dedication to IVET4. This was that the training and development work was in addition to their normal responsibilities, and Trawlers did not have the manpower to support this, so people worked long, pressurised hours which were not sustainable.

Researcher observations: In summary, considering which practices promoted IVET4, the Executive Senior Management Team gave the 'push' to start the programmes and 'put their money where their mouth was' by releasing funds for the programmes over a number of years. The practices of the General Manager and the Trawlers operational managers promoted the PP, Skipper Development Programme, and Chief Engineers Programme at Trawlers for shore-based and sea-going staff. Nonetheless this was not without price to both Trawlers and the managers themselves.

6.8.4 Impression Four: IVET4 begets Organisational Change

In this section I provide four examples to illustrate the point that IVET4 'forces' organisational change; and I make a short observation at the end to link the data presented to the emerging patterns of this research. At Trawlers there is a long history of this phenomenon, and the first example is drawn from the Historical Reflective Narrative in Chapter 3.

6.8.4.1 Example One: Historical Reflective Narrative

As a consequence of the two IVET4 programmes (cf. 3.3 and 3.4) commencing in 1995 regarding the Labour Relations Act, the handling of discipline and grievance went from shore-based to sea-going; and from a dismissal rate of 20 men per month to zero. Programme Three was at the behest of the vessel management staff and the Trawler and Line Fishermen's Union to improve shore-based managers' practice of employee relations in line with the Act, and to match the sea-going competence. Examples given above in the Mentorship Programme (cf. 3.7) illustrate large-scale procedural and relational

changes ashore and at sea. Perhaps one of the most startling changes wrought by the Butterfly Programme (cf. 3.9) was the discovery of multi-year fraud in the Procurement Department which led to the criminal conviction of an I&J Limited employee.

6.8.4.2 Example Two: Production Programme

Generation One and Two drove the change from the organisation having no documented production processes, no Standard Operating Procedures, and no training after 110 years in existence, to, over a period of five years, having a well-trained production staff who understood the production principles, processes, and were trained and accredited on the Standard Operating Procedures. This degree of change on the sea-going side reverberated ashore, particularly for the Business Intelligence Department. The changes at sea enabled the gathering of ‘never seen before’ production statistics which turned into big data for Executive Senior Management Team decision-making and reporting purposes.

6.8.4.3 Example Three: Skipper Development Programme

This programme included financial acumen. As a result of this, the Skippers’ Individual Performance Appraisals were changed to include only measurable indicators. To attain these figures monthly, the Finance Department was engaged to change or generate new accounting software reports. The Individual Performance Appraisals were normally biannual; however, due to the Skipper Development Programme it was decided that these would be completed monthly which meant that the relationship between ship and shore was changed, strengthened, and sustained.

Despite this significant change, Gerard provided a reality check regarding the impossible task we were attempting in the Skipper Development Programme:

Stretch this development programme over the progress of a career. I think we were trying to fit in, and it is not a negative it is a reality, we tried to fit in what should have happened over the course of a career ... fit in to a couple of months or a year or two. [II-2]

6.8.4.4 Example 4: Chief Engineers Programme

This programme fell into Generation Three where IVET4 was moving towards more transgressive praxis. The quantum shift from classroom based, facilitator-led programmes to blended online, Turner-driven, on the vessels, in real-time IVET4 was not even an idea until late 2018, yet it became a reality by mid-2020 – a first in the company and a first in the deep-sea trawl industry in South Africa.

Researcher Observations: To summarise, IVET4 should not be regarded as safe, neat, simple, or containable. Before committing to an IVET4 programme, the Executive Senior Management Team and Operational Managers ought to apply their minds to the course design (curriculum, teaching and assessments); and understand that once this kind of education has started it can’t be stopped because of the individual learning momentum which seems to build up. It is likely to be messy with emerging complexities; and it is unlikely to be easily harnessed into neat, predictable short-term reporting cycles,

especially if the reporting remains quantitatively biased. A progressive monitoring and evaluation framework could provide more lucid reporting. Nevertheless it is these unruly characteristics of IVET4 which made the programmes situated, accessible and attainable for the Turners.

Time is a significant factor in IVET4 – it takes time. This is the antithesis of the neoliberal mindset of hurry or ‘squeezing time’ (Southerton, 2003) or the ‘frenetic standstill’ where there is more busyness for the same result (Karger, 2021). I&J Limited has its own ‘institutional rhythm’ (Blue et al., 2020) which has been both a constraining and a promoting factor at different times.

6.8.5 Table of Invention 7: Practices of Management

Examples of sayings	Examples of cultural-discursive Arrangements
<i>Sayings:</i> - Executive Senior Management Team (positive) instruction to commence PP, Skipper Development Programme, and Chief Engineers Programme - Clear email instructions to cooperate with Generation Two PP on the vessels <i>Thinkings:</i> - Executive Senior Management Team reflect sceptical orientation towards employees’ learning at operational and shop-floor level - Executive Senior Management Team appeared not to engage with the design, teaching, assessment, and outcomes of the Three Generations of PP	<i>Sayings:</i> - Hierarchical, top-down approach to management of division - Unequivocal positive support for PP <i>Thinkings:</i> - Structured worldview of I&J Limited Executive Senior Management Team, which was reinforced by the holding company, Anglovaal Industries Ltd. - Institutional disconnect between the Executive Senior Management Team and the operational management levels manifest at Trawlers
Examples of doings	Examples of material-economic Arrangements
- Executive Senior Management Team approved budget for IVET4 projects - General Manager practical support of PP training on the vessels - General Manager support of ‘Saturday Work’ - Organisational changes required <i>because</i> of the PP, Skipper Development Programme, and Chief Engineers Programme	- Regulated budgeting process for IJ Limited; State funding through the Skills Development Grant System - Trawlers’ internal e-communication and clarification of roles - Institutional resources, time and money provided to conduct innovative work without Executive Senior Management Team interference - Review (or generation) of company policies, procedures, and routines e.g. bi-annual performance reviews facilitated organisational change

Examples of relatings	Examples of social-political arrangements
- Operational staff protected their staff from lack of recognition of achievements by the Executive Senior Management Team - Staff and external consultants alike were muted to the detriment of IVET4	- Trawlers managers' understanding of the socio-political environment at Trawlers enabled by positive, longstanding staff relationships. - The hierarchical and power structure of I&J Limited and Anglovaal Industries Ltd allowed for effective gatekeeping
Project/s	Practice tradition
<i>Partial success:</i> The project was to engender practices by the Executive Senior Management Team which promoted IVET4. It was also for the facilitator (Robin) to spearhead the organisational changes required which arose from and promoted the PP.	<i>Partial success:</i> Between 2016-2021 the practice tradition moved from one where the Trawlers Operational Managers were given the authority and responsibility for the PP, Skipper Development Programme, and Chief Engineers Programme, to one where the Executive Senior Management Team took control. This progression stifled the blended online IVET4 and affected associated organisational change potential.
Situated knowing, dispositions (habitus)	Practice landscape
<i>Partial success:</i> For all actors (Turners, Operational Managers, and the Facilitators) in the IVET4 projects the knowledge, skills and values which allow the engagement with the Executive Senior Management Team in an appropriate and positive manner that promoted the programmes <i>Partial success:</i> For the Executive Senior Management Team: The knowledge, skills and values which allow for decision-making which increases profits through training; and permits corporate of 'good to great' management of staff	<i>Partial success:</i> The practice tradition of the relationship between the Executive Senior Management Team and the rest of the organisations is played out in many arenas which included physical spaces, online spaces, and interstitial relational spaces. Organisational change occurred at an operational level at Trawlers and mostly involved changes in policies, procedures, and technical reports to produce big data.

Table of Invention 7 is based upon Kemmis (2022).

To bring together the description and analysis of the five practices of the Three Generations of the PP, I created the Table of Invention 8: Synthesis of Data: Coming to practice IVET4 in section 6.9 below. To create this table I took a helicopter view of the data so the information in the table represents the very essence of each generation. The interstitial variation of practices and the changing circumstances or arrangements are marked in blue and provide a 'stepping stone' from one generation to the next. This permits a meander through the 'sayings', doings' and 'relatings' of each generation and how these practices have moved through the intersubjective space to form the practice architectures of each generation. In the instance of my study, this table of invention should be regarded as a snapshot in time of the 'river and the river banks'. I suggest that as these IVET4 projects continue beyond my involvement into a fourth generation that this table could be regarded as more cyclical rather linear. Each future generation has new practices and retains some or all of the practices of previous generations; and may even return to an (almost) carbon copy of a previous generation.

6.9 Table of Invention 8: Synthesis of Data: Coming to Practice IVET4 of the Production Project

Learning: Coming to practise differently, situated in changed practice architectures	
Practices	Practice architectures
<i>Sayings/Thinkings</i>	<i>Cultural-discursive arrangements</i>
<i>From (T¹)</i>	<i>From (T¹)</i>
Executive initiated PP Generation One. Informal English and a range of teaching methods used to convey complex production concepts for the first time ever.	Low Executive focus on the project. Unrestricted methodology of IVET4 courseware development.
<i>Reproduction with variation ...</i>	<i>... to enmesh with different circumstances, arrangements</i>
Scaffold of knowledge with the support of a common 'production' language.	Increasing pressure on production teams to perform.
<i>To (T²)</i>	<i>To (T²)</i>
Executive initiated PP Generation Two. Formal, detailed language used to convey Standard Operating Procedures and assessments.	High Executive focus on the project. Production process and Standard Operating Procedures template and language formed the foundation of the Production Manual.
<i>Reproduction with variation ...</i>	<i>... to enmesh with different circumstances, arrangements</i>
Robin was determined to get online-blended learning to sea-going staff at sea, in real-time.	Increasing Internet Computer Technology capabilities available on vessels which could support online learning.
<i>To (T³)</i>	<i>To (T³)</i>
Consultant-driven imperative. Starting point technical (posthumanist practice epistemology). Project moved from ideation phase to the development of two prototypes (I&J TV & Future People Online-In-Person Learning Platform), through the testing phases, and finally to the deployment of Future People Online-In-Person Learning Platform.	Support of General Manager. Blue sky ¹²⁹ thinking ethos and time-space. Support of Anglovaal Industries Ltd Internet Computer Technology at Director level.
<i>Doings</i>	<i>Material-economic arrangements</i>
<i>From (T¹)</i>	<i>From (T¹)</i>
Creation and delivery of Freezer and Wetfish courseware, exercises, and simulations ashore. Developed a range of teaching and assessment tools.	The layout of the factories on the vessels, the production processes, and procedures; and the range of teaching and assessment tools afforded by IVET4 model.

¹²⁹ 'Blue sky thinking' is a form of creative brainstorming. If there were absolutely no limits, no judgments, and no consequences, where could your imagination take you? The sky's the limit. Available at: <https://ideadrop.co/idea-management/beauty-blue-sky-thinking/> [Accessed 11 January 2022]

<i>Reproduction with variation ...</i>	<i>... to enmesh with different circumstances, arrangements</i>
Turners had been working with increased production skills and knowledge which provided a scaffold to engage in more specialised learning and individual (hard) assessments.	Increasing pressure on production teams to perform; and for this performance to be individually assessed and reported.
<i>To (T²)</i>	<i>To (T²)</i>
Creation, training, and assessment of the 500+ Production Manual.	The production processes and procedures; the Standard Operating Procedures template, and the information required to populate the Standard Operating Procedures (incl. assessments) provided the material-economic practice architecture.
<i>Reproduction with variation ...</i>	<i>... to enmesh with different circumstances, arrangements</i>
Shore-based training was expensive and logistically challenging.	Most sea-going staff had android smart phones and the connectivity of the vessels had been somewhat upgraded.
<i>To (T³)</i>	<i>To (T³)</i>
Development of an online platform for sea-going staff; and the deployment till May 2021 of the Earning and Learning model to engineering staff at sea.	Restrictions of vessels' connectivity; and the Turners' low digital literacy skills. Executive Senior Management Team decided to stop online learning at sea.
<i>Relatings</i>	<i>Social-political arrangements</i>
<i>From (T¹)</i>	<i>From (T¹)</i>
Creation and delivery of courseware energised by creativity, laughter, and fun. Relationships with and amongst Turners fundamental to learning.	Habitus and experience of course creators (Charlene, Kevin and Robin)
<i>Reproduction with variation ...</i>	<i>... to enmesh with different circumstances, arrangements</i>
Resource Manager no longer involved. Relationships becoming more formal to sync with changing development and delivery expectations	Increasing visibility by the Executive Senior Management Team of performance of production teams at sea with institutionalised daily production efficiency measurements.
<i>To (T²)</i>	<i>To (T²)</i>
Creation of the Production Manual and execution of the training and accreditation was mechanical, pressurised and marred by interpersonal conflict amongst developers. Relationships with and amongst Turners revitalised.	Habitus of actors with different work ethics and different expectations on the quality of the end product.
<i>Reproduction with variation ...</i>	<i>... to enmesh with different circumstances, arrangements</i>
Robin worked alone to find online solutions for sea-going staff.	Finding an online solution for sea-going staff was not a priority.
<i>To (T³)</i>	<i>To (T³)</i>
The Internet Computer Technology and Education team developed I&J TV Platform which was scrapped within six months. Robin worked alone again. The deployment of the Earning and Learning model mediated by Future People Online-In-Person Learning Platform electrified relationships with Turners and brought with it joy and laughter.	For I&J TV – Alignment of 'can do' personalities invested in creating a minimum viable product. For Future People Online-In-Person Learning Platform, Robin was supported by Engineering Department; and Training and Development Department to develop platform.

<i>Project/s</i>	<i>Practice tradition</i>
<i>From (T¹)</i>	<i>From (T¹)</i>
Knowledge and skills development of sea-going freezer and wetfish staff. Facilitator-led, based upon Freezer One and Two, and the Wetfish Courses and mediated by a range of teaching and softer assessment tools. All training shore-based.	Pioneering work as training the production staff on production principles, processes and procedures had never been attempted. Courseware created from scratch and a range of teaching and assessment tools developed to fit the purpose.
<i>To (T²)</i>	<i>To (T²)</i>
Accreditation of freezer production staff. Facilitator led and based on the Production Manual and mediated by a range of teaching and harder assessment tools. Training occurred at sea and ashore.	Conventional, mechanical courseware development. Classic teaching tools employed for the Refresher Course ashore. Entirely novel teaching and assessment tools used to teach and assess at sea.
<i>To (T³)</i>	<i>To (T³)</i>
Development, trial, and implementation of blended-online training for sea-going staff. Course content mediated by the Future People Online-In-Person Learning Platform. Majority of learning at sea directed by the Turner.	Move towards transgressive online blended IVET4. Locus of learning shifted from shore-based to at-sea mediated by Future People Online-In-Person Learning Platform. Turner-driven learning with a mixed range of hard and soft assessment tools. Short coaching sessions ashore
<i>Situated knowing, dispositions (habitus)</i>	<i>Practice landscape</i>
<i>From (T¹)</i>	<i>From (T¹)</i>
Collegiate, creative, and fun individuals.	Classroom based with simulations conducted at shore-based facilities.
<i>To (T²)</i>	<i>(T²)</i>
Performative, task-orientated team with professional conflict.	Teaching and assessments done at sea and ashore.
<i>To (T³)</i>	<i>To (T³)</i>
Collegiate, creative, and fun individuals.	Transgressive move from physical space-place to online space-place. Some coaching ashore at Trawlers Offices.

Table of Invention 8 is based upon Kemmis (2022).

6.10 Conclusion to Chapter 6

This chapter has provided a description and analysis of the five key practices identified in the Three Generations of the PP namely, Practices of the Creation of Courseware; Practices of Teaching and Learning; Practices of Assessment; Practices of Love and lastly, Practices of Management. Each practice was informed by the analysis and scope of data availability. The Practices of the Creation of Courseware were given three sections of this chapter, one for each generation to give voice to the disproportionately large impact which the courseware creation had on the other four practices. Next the Practices of Teaching and Learning and Practices of Assessment were given one section each; and the

Three Generations of the PP were discussed under sub-headings in each of these sections. The Practices of Love and Practices of Management followed and were given one section each. These practices could not be neatly sliced and diced as both practices wove back and forth through the generations. Nevertheless, there was data saturation around particular points which I named ‘impressions’ and elucidated the data in this way for each practice. A Table of Invention was created for each of the seven sections and the eighth Table of Invention provides a summery or bird’s eye view of this data description and analysis chapter.

“We argue that the focus on ensuring validity and transparency of qualitative research is not specific to any single stage of the research; instead, it should be part of all research stages.” (Hayashi et al., 2019, pp. 98–99). Thus, to conclude, I reviewed this chapter against the five criteria of Information Power, namely; 1) the aim of the study; 2) sample specificity; 3) use of established theory; 4) quality of dialogue; 5) analysis strategy (Malterud et al., 2016). I propose that the description and analysis of the corpus of data above carries sufficient Information Power to be considered valid.

In terms of the Quality Framework, I comment on three characteristics of quality which are relevant to this chapter, namely: Ethics, Positionality and Reflection.

Ethics: The two focus group interviews, the three individual interviews, the four WhatsApp videos, and the 10 questionnaires¹³⁰ have all been presented as data with written permission from the participants. No participants indicated that they wished to remain anonymous. Despite this, where I thought a direct quote may be deleterious for the participant, especially around the negative remarks of the sitting Executive Senior Management Team, I have withheld the identity of the participants. In terms of documentation and photographs included in this chapter, I engaged with I&J Limited management in an ongoing way since receiving the signed Gatekeeper Permission Form in June 2020 and remained alert for the duration of the thesis writing process for any indication from the Company that they wished to withdraw evidence. As my work is about the practices of IVET4 and not the intellectual property vested in the PP, I have taken special care not to include sensitive production information, for example, I have only included the contents pages of the courseware rather than the whole course.

Positionality: My positionality is a risk to be managed in this research project as I have been immersed in the data for the last 25 years. I included many quotes and thick description to mitigate this risk. Of the 18 participants, only one spoke in his first language which is English, the rest of the participants speak English as a second or third language which means that most of the quotes are grammatically incorrect. I have not edited the quotes to ensure the essence of the remarks remain. To further ameliorate my positionality I have restricted my observations to the minimum required to link the raw data to the

¹³⁰ Note commentary on five of the questionnaires provided in Chapter 5 in terms of permission status.

emerging data trends. The exception to this is where I have included my own work as evidence especially when referencing the Historical Reflective Narrative.

Reflection-Diffraction: I underwent onto-epistemological shifts as I wrote this chapter. I suggest that this insight arose because I used the heuristics provided by TPA and I applied these tools to each practice consistently. My first sense was that I was being unmoored or untethered or separated from my data which I experienced as relief as I had been concerned that I had been too close to it for too long. My second sense was that the thick descriptive nature of the qualitative data added ‘voice’ and perspective to the study other than my own, which also challenged my initial views. Both these reflections led me to a significant insight, and I share a note which I penned in December 2021 when trying to make sense of being adrift from my data ...

I had planned and written most of this chapter when I realised that the data was using me to speak its truth. I have been working with my data for many years and know it well and believed I had seen a particular picture emerge upon which I based the structure of this chapter. The deeper I got into the description and the analysis, and the more I was goaded by the data which presented a different picture altogether, I realised that I had to represent the kaleidoscope picture which the data was projecting rather than the rather paltry back and white picture I had in mind. I had to be true and go back to the beginning of Chapter 6. This insight also has implications for the work I had already put into Chapters 7 and 8 as the cross-cutting dimensions of IVET4 were different to what I thought they would be. My emotional response to this insight was one of relief and delight because I had seen new things in my ‘oh so familiar’ data! My heart sinks at the re-work.

With reference to Figure 5.2 (Rubik’s Cube) (cf. 5.2.3), sometimes like the cube where all the colored squares get mixed up, and then with one or two or ten moves, the colored blocks are all aligned again ... so, it was with this data chapter, at times the data looked all jumbled up and then slowly move by move, it came together.

With reference to Figure 4.1 (The Theory of Practice Architectures) at the start of this chapter, I used this figure as a template and worked from left to right, and top to bottom for each practice. This culminated in the Table of Invention 8: Synthesis of Data: Coming to practice IVET4. Chapter 6 set up the corpus of data for further abstraction in Chapter 7 where the key dimensions or overarching practice architectures of IVET4 in the case study are illuminated.

CHAPTER 7: ILLUMINATION OF THE PRACTICE ARCHITECTURE OF METHODOLOGY AND METHODS IN IVET4

7.1 Introduction to Chapter 7

The title of this chapter reflects the evidence presented in Chapter 6 which points to a methodology and methods used to create, teach and assess IVET4. This methodology and its methods are constituted of many practices and practice arrangements which hang together in the overarching Practice Architecture of Methodology and Methods of IVET4.

Chapters 7 and 8 are two sides of the same coin and ought to be read together. These chapters are designed to definitively answer the four research questions; and to set up the evidence which substantiates the two claims which I make to new knowledge in the field of IVET4. For ease of readability, I cover the first claim, which is a methodological contribution, in Chapter 7; and the second contribution, which is a theoretical one, in Chapter 8. As stated in Chapter 1 (cf. 1.4.1), the main research question [A] reads,

A. What IVET4 practices and practice architectures are evident in the Production Programme conducted over five years for I&J Limited Sea-going staff in the South African commercial deep-sea trawl industry?

As stated in Chapter 1 (cf. 1.4.2), the research sub-questions [B-D] read,

B. What IVET4 practices and practice architectures constrained or enabled learning in the Production Programme?

C. How can this deeper understanding of learning be used to improve similar informal IVET4 programmes?

D. How can this work be transferred and scaled to contribute to the emerging IVET4 theory and praxis?

In the description of the data in Chapter 6, a number of practice architectures (PAs) were identified which fall into two categories. The first category is PA of Methodology and Methods of IVET4 and is overarching of three sub-PAs, namely,

- PA of Informality of IVET4,
- PA of Pedagogical Ranges in IVET4, and
- PA of Relationality in IVET4.

Research Questions A and B are descriptive while Research Question C is explorative. The answers to Research Questions A, B and C are provided in the PAs of Methodology and Methods of IVET4 and are explicated in Chapter 7. In the answers to Research Questions A-C, the first contribution to new knowledge may be found in the elucidation of a Methodological Process and Methods for the ideation, building, sustainability, and development of an IVET4 programme. I use the metaphor of building a single house to illuminate this methodological contribution.

The second category of PAs identified in the description of the data in Chapter 6 consists of only one PA which is:

- PA of Maturing Ecologies of Practices in IVET4.

The answer to Question D is found in the explanation of the PA of Maturing Ecologies of Practices in IVET4. Question D is also an explorative question. This answer substantiates the second contribution to new knowledge which is the theoretical conception of the Practice Architecture of Maturing Ecologies of Practices found in IVET4. This concept provides a mechanism to transfer and scale IVET4 programmes beyond the original site. I use the metaphor of building many houses on different sites to illuminate these ideas.

I describe the two contributions to new knowledge as ‘first’ and ‘second’ and I do this only to lay out the evidence in a cogent manner. In reality the *methodological process* and the *theoretical conception* are interrelated. The IVET4 educator would be working simultaneously with the methodology and methods of an IVET4 programme, whilst continuously scanning the IVET4 programme within its site for the state of – or indicators of – maturity of the ecologies of practices i.e. evaluating whether or not the IVET4 programme was emerging, in transition, or maturing.

In Chapter 7 I cover the PA of Methodology and Methods and answer Research Questions A-C. This basis provides the substantiation of the methodological contribution which I make to new knowledge; and I end Chapter 7 with the explanation thereof. In Chapter 8 I cover the PA of Maturing Ecologies of IVET4 Practice and answer Research Question D which sets up the foundation for the theoretical contribution which I make to new knowledge.

7.2 Practice Architectures of Methodology and Methods of IVET4

In this section the reader will find the answers to Research Questions A-C; and the substantiation for the first contribution to new knowledge: *Methodology and Methods of IVET4*. There are three PAs which fall under the umbrella of PA of Methodology and Methods of IVET4. At the end of this section I draw into conversation the TPA conceptual framework and the empirical evidence to provide a view on these practices and PAs which were identified in the PP [Research Questions A]; and whether or not these constrained or enabled learning in the PP [Research Questions B]; and finally, in the light of what

has been learnt, how similar IVET4 programmes could be improved [Research Questions C]. Built upon this foundation, I explicate the *Methodology and Methods of IVET4* which I offer to the formal VET and IVET4 Community of Practice.

7.2.1 Practice Architectures of Informality in IVET4

Informality in IVET4 begets assumptions which ought to be tested. Should an IVET4 educator be invited to lead a learning project where it is deemed that IVET4 is the best option to achieve the organisation's learning goals, one of the first practices is to map the parameters of informality in the space-time-place of the proposed project. Based on the cultural- discursive, material-economic, and social-political arrangements which emerged from the empirical data of this thesis, I proffer that there are four plotting points to determine the PA of Informality. To plot the boundaries of the PA of Informality is to survey the feed of practices, i.e. to establish what affordances the IVET4 project is likely to be given, and what obstacles the intervention may encounter. If the IVET4 educator uses his/her intellect, intuition and 'other ways of knowing' to accurately appreciate the shaping forces, or PA of Informality, in play, it is more likely that he/she will set up the IVET4 intervention to succeed; and the reverse is also true. The IVET4 educator's knowledge and skills in conducting 'warmth work', and actively listening (McGarry, 2022), would be deeply engaged whilst conducting the analysis of the practice context. In addition to this, he/she could turn to principles of adaptive leadership (cf. 9.2.1.2), which are suited to complex scenarios, to assess the challenge and to 'question what he/she is most certain of' and the dominant narratives proffered by the organisation (Benington & Turbitt, 2007).

In the Reflective Historical Narrative, for the Programmes 1-4 and 10 sufficient time was allocated to do this preparatory work; and for Programmes 7 and 8, 11 and 12 and 14 time had to be 'forcefully' made to assess the 'lay of the land'. I suggest that this difference could be put down to two factors, the first is the latter programmes were subject to the culture of the organisation which had become 'immediate results orientated' when the family business was taken over by a multinational company; and the second reason is that the business conditions were tougher and the surveillance of the Anglovaal Industries Ltd Board on these projects was greater from 2016 onwards.

The establishment of the PA of Informality is not a once-off tick-box activity, but rather, an ongoing act of observation and reflection especially when IVET4 interventions are sizable and last a number of years. The IVET4 educator must be agile in approach as the shaping forces of informality shift. In determining the PA of Informality, there is not a 'one answer fits all' as each IVET4 programme, by characterisation, is unique in its place-time.

To provide substance to the four plotting points referenced above, I offer a number of questions for each point which I asked in the PP, Skipper Development Programme, and Chief Engineers Programme projects to establish the PA of Informality in each instance. These questions may be useful to other IVET4 educators who wish to do the same. The outcome or answers to these questions are contained in

Chapters 1, 2 and 6 where different practices or practice arrangements of informality were described. These questions are posed from the standpoint of this case study but may possibly be adapted to other types of organisations.

7.2.1.1 Context of the IVET4 Programme

It is helpful to look at these questions through the lens of the practices of thinkings/sayings, doings and relatings which move through the intersubjective space to bundle together in cultural-discursive, material-economic and social-political arrangements respectively.

- Who owns the organisation?
- What governance structures are in place?
- What are the current challenges faced by the industry or company?
- What is the dominant culture of the organisation? This question involves understanding the company's rhetoric on company culture and assessing for oneself whether this is lived out on the shopfloor and in the cut and thrust of business.
- Why did the organisation choose me to do the work, what did the management think I would bring; and was it realistic? How do I know I am delivering? How am I measuring my own performance? Although these performance indicators will align with the performance indicators of the IVET4 project, there may be other criteria – like professional growth – which the IVET4 educator wishes to achieve too.
- Are there logistical constraints that would affect the delivery of the training?

7.2.1.2 Objectives of the IVET4 Programme

The practices of sayings/thinkings moving through the semantic space in the medium of language to bundled together in cultural-discursive arrangements (Mahon et al., 2016) are foremost in answering the questions below.

- Why does management want to do this training; and who wants to do the training? Is this a ground-up request or a top-down instruction? This affects both the mindset of the learners, all other actors involved in the production of IVET4, as well as senior management's expectations of results.
- What is the actual problem they may be trying to solve? Frequently the objectives of the course requested by the company, and the problem which managers are trying to solve through IVET4, do not line up. One way of getting to the nub of the matter is to ask them to describe the *worst* problem which they are trying to fix. I usually start a pilot programme tackling the *worst* case scenario, with the knowledge that if the programme works with this example, then it has a good chance of succeeding in the long run.
- What does management want the learners to know (knowledge) and to apply (skills)?

- What do the learners want to know (knowledge) and to apply (skills)? What the managers want, and what the learners want, may well be at odds, for example, in the Skipper Development Programme where the Executives instructed senior management to put all the Skippers on a management development course; and the Skippers did not believe they needed to be ‘developed’ as they were already doing their jobs well.
- If the training was successful, how would it ‘show up’ in the organisation? This question goes deeper than the standardised training metrics of number of participants, sessions, pass rates etc., but seeks out to explore how real learning may be realised and measured in the workplace.
- Who is reporting to the executive? This could be the IVET4 educator, or it could be the senior managers. In the instance of the latter, the IVET4 educator is reliant on the senior managers to accurately relay the reporting. One of challenges of the PP, Skipper Development Programme and Chief Engineers Programme projects was that the Human Resources Department was responsible for reporting monthly on the projects, however, they were not close to the IVET4 interventions due to their own work pressures and running short-staffed. Nevertheless, this had a deleterious effect on the programmes. The content of reporting tended to be quantitative rather than qualitative and the form changed many times which made real progress hard to track.

7.2.1.3 Profiles of Participants

An IVET4 programme is an alchemy of official and ‘non-official’ stakeholders. Frequently the focus is solely upon the learners and little consideration is given to other parties who affect or may be affected by the training intervention.

- Who may have vested interests, or who may ‘run interference’, or who would be willing to support the programme? This social-political arrangement must be carefully mapped as it is often hard to see at first glance.
- Who are the subject matter experts, and are they willing to give time and energy to and an IVET4 programme? This contribution towards the equipping of other employees in the organisation takes time from the subject matter experts and often puts them under pressure to complete their regular tasks too.
- What is the profile of the learner? This would include, inter alia, gender, ethnic group and culture, race, language, literacies levels, digital proficiency, and access to Internet Computer Technology connectivity.
- Who may be threatened by the training intervention; and what can be done to alleviate their fears?
- Who may be a willing leverage professional (Jenkin, 2020)?
- One is dealing with different audiences, one is the Turners, another is operational management, and another is the executive. My observation is that the IVET4 educator is required to ‘translate’ the sayings/thinkings, doings and relatings of the IVET4 programme into a ‘language’ which

is understood by each audience. For example, the Turners want a practical demonstration of concept which is explained in a hybrid of languages by self-styled interpreters in the class; whilst the executive want to read the IVET4 programme in PowerPoint presentations and Excel spreadsheets. This ‘translation’ work is demanding and difficult. I suggest our (mine and the operational managers) limitations in effectively translating the programmes to the resident cohort of Executives limited my social license to operate only in 25th year at I&J Limited.

This section could be summed up by the seventh principle of Adaptive Leadership: “Protect the voices from below or outside – ensure that all perspectives and interests are considered, that minority viewpoints are taken into account, and that dominant views are questioned and challenged” (Benington & Turbitt, 2007, p. 384). Both cultural-discursive, material-economic, and social-political arrangements are called upon to help us with answers to these questions.

7.2.1.4 A Licence to Operate

The idea here is to assess for oneself, as the IVET4 educator, External Champion, or Project Lead how much organisational and political room there is for one to move. The more room one has, the more responsibility rests upon one’s shoulders for ‘praxis’ rather than practice, where praxis is regarded as “action that is morally-committed, and orientated and informed by traditions in a field” (Kemmis and Smith in Mahon et al., 2016, p. 25).

- Who is making the terminal decisions around the IVET4 intervention i.e., who is paying the bills?
- Where does the internal accountability for the programme lie, for example with the Human Resources Department or with the line manager; and is this jurisdiction made explicit?
- What are the expectations of the Executive, or the ‘back-stop’ decision makers, both in terms of reporting and *rate or speed* of ‘deliverables’? One may not get the opportunity to have this conversation. This means that one may need to work through an intermediary, for example, middle management, or attempt to ‘manage upwards’ through the reporting process. Sometimes the cadre of Executives at the time have understood the complexity of the task and the profile of the learners well; at other times they have had a positivist, reductionist view which leads to the attitude of ‘this is simple and shouldn’t take long – so why isn’t the IVET4 programme finished yet or why aren’t the Skippers developed yet?’
- Does the site management trust you? This is a pivotal question. For example, from 1995-2020, I enjoyed a high level of trust by the senior management team and had the ‘freedom of the city’. I could go anywhere on the site including onto any vessel, and I could talk to anyone, or ‘rope’ interested parties in to help me with a particular matter, and even instruct staff in respect of activities of the projects. This is very unusual in a fishing company. The effect of this was that I could work quickly, build up credibility and relationships in all areas of the business, and

develop an empirical knowledge of what was happening from grass roots to the senior team. This kind of trust from both sea-going and shore-based staff took time, consistency of approach and continual renewal of relationships. This social-political practice arrangement *enabled* all the IVET4 programmes. This freedom ended abruptly in 2021 with the changes in executive and senior management where the view was ‘we don’t want to see consultants on site’. This affected the IVET4 programmes underway at the time – PP, Skipper Development Programme, and Chief Engineers Programme. This did not, could not, affect the formal VET South African Maritime Safety Association courses as they held legal tenure and fulfilled compliance requirements.

- Is the management team prepared for the implications of an IVET4 programme? In the I&J Limited setting organisational change management was required in all the IVET4 programmes (1-3, 5, 7-8, 10-14) but not in the performance related programmes (4 and 9). This meant that the programmes were ‘messy’ and disruptive of an ‘old’ organisational practices, processes, or procedures in favour of new ones which were more effective. This organisational change also reinforced the application of learning in these programmes as what was being taught was being practised on the job. In terms of the license to operate as the educator-consultant, I advised management that the process was going to be messy, and asked if they ‘had the stomach’ for this. The analogy I used in these discussions was of a patient undergoing an operation – in the middle of the surgical procedure it looks disastrous for the health of the patient, and if one stopped the operation at this point, it would be! In other words, my advice to the management was to count the cost before commencing with an IVET4 programme because if they did not want to deal with the inevitable ‘can of worms’, it is better not to start, as the company would be worse off if an IVET4 programme was begun and terminated midway. In my experience the management teams understood and supported the ideation of change but when it started to actually happen, there was often resistance, lack of focus or resources which required me to ‘lead from the middle’ to ensure that we did what we said we were going to do. I relied on the fourth principle of Adaptive Leadership which reads: “Create a ‘holding environment’ in which the painful adaptive work can be done effectively; this can be a physical and/or psychological space, both providing safety and also stretch and challenge” (Benington & Turbitt, 2007, p. 384).

7.2.1.5 Does the PA of Informality Enable or Constrain the IVET4 Programme?

The reason that it is important to accurately assess, and possibly shape the PA of Informality in the course of this initial engagement with the Company, is because IVET4 does not enjoy the same protection that formal VET may enjoy. I illustrate this point using the PP case study:

The Bridge Officers and the Engineers undergo formal VET training and certification in order to comply with Marine Safety Authority of South Africa requirements. Without the specified certified and

competent Bridge and Engineering staff on board, a vessel is denied permission to leave port. This is as it should be, however, production staff do not enjoy the same status. No training or certification of factory crew is required by South African Maritime Safety Association or any other industry body. The Skipper and the bridge/deck crew catch the fish and land it on the boat; and the Chief Engineer and his engineering staff provide a 'safe platform' i.e., a powered vessel and an operational factory. The production staff turn the raw resource into value-added products, and this is where the money is made or lost, yet no formal training is required which is the reason I&J Limited led the industry by commencing with the PP in 2016. The PA of Formal VET for Bridge and Engineering staff has been entrenched in the industry for decades even before the establishment of South African Maritime Safety Association in 1998 as the merchant shipping legislation covered certification and training requirements. This is all well understood and accepted by I&J Limited staff, senior managers, and executives. IVET4 enjoys none of the benefits of this formalised process thus the PA of Informality is at play. The same standing in I&J Limited, as for the formal VET programmes, must be established for the IVET4 training, if it is to succeed. This was particularly challenging when the senior managers or executives changed as the process of creating a bone fide version of the IVET4 PP had to begin all over again.

On Reflection: As my praxis at I&J Limited continued coupled with my PhD journey and the resultant personal onto-epistemological shifts, my resolve hardened to start every VET 4.0 intervention with same set of questions as discussed above. This period of questioning and figuring out the real, honest answers was foundational and probably took a third of the time in the creation of the courseware. In programmes where these questions were never adequately answered, or did not enjoy consensus amongst the managers, nor between the operational managers and the executive, this lack of clarity dogged the programmes throughout their lifespan.

Is the PA of Informality enabling or confounding? *If* the context, the objectives, the profiles of participants, and the educator's social license to operate are all thoroughly established; and *if* these four 'plotting points' enjoy the same status-protection as formal VET, and *if* the PA of Informality is accepted and understood especially by senior management and the executive, then the PA of Informality is enabling. The reverse is true. Whether the PA is enabling or confounding is not static; the four plotting points may change independently of one another over the life of a long-term project like the PP, as a river's banks change over time. The IVET4 educator is thus required to actively maintain a PA of Informality which is achieved by circling back to the four plotting points discussed. As with the other PAs of IVET4, the practice architecture is organic, constantly shifting and requiring attention from the IVET4 educator.

7.2.2 Practice Architectures of Range in IVET4

Mahon et al. (2016, p. 20) stated that,

If we put the theory of practice architectures to work analytically in our own sites of practice, it can help us to identify what tools we need to finish the job, or, more accurately, to get on with the never-ending job of transforming education and transforming professional practice more generally. It can be used as a framework for making *practical judgements* about what ought to be done in the situations at hand i.e., in response to site-based conditions and circumstances.

This section explicates the idea of the PA of Range. I follow this by describing the tools and range of tools available for courseware creation, teaching and learning, and assessment which were evident in the corpus of data. I would like to acknowledge that if I had not used the analytic memos or the Tables of Invention described in Chapter 5 and applied in Chapter 6, I am unlikely to have identified the powerful potential of the concept of *range* in IVET4 interventions.

Explaining the PA of Range

This practice architecture lies above a dense web of practices and practice arrangements which were described and analysed in Chapter 6. The empirical data revealed that there were five distinctive IVET4 practices and practice arrangements namely, Practices of courseware creation; teaching and learning; assessment; love; and management.

For the first three practices – courseware creation; teaching and learning; and assessment – I identified that within each practice, a number of ‘sub-practices’ were evident. For example, in the practices of courseware creation, two of these sub-practices were the incorporation of simulations into the training (apple experiment or sorting fish in the Discharge Area); and the collation of course manuals for the participants (Freezer courses 1 and 2 and the Wetfish course).

For the courseware creation practices there were 12 sub-practices; for the teaching and learning practices there were 18 sub-practices; and for assessment practices there were 12 sub-practices identified. There may be more sub-practices, but these are the ones which were discernible in the data. I named these sub-practices, ‘*tools*’. I named the ‘group of tools’, associated with all the practices the ‘*range of tools*’ or ‘*toolboxes*’ available to the IVET4 educator to execute the desired courseware creation; teaching and learning; and assessment practices.

The *tools* and *ranges of tools* for the execution of IVET4 make room for innovation, diversity, flexibility, and agility in the bespoke workplace training space. In the PP, the tools and ranges of tools were only categorised retrospectively through this research; at the time they were simply the sayings/thinkings, doings and relatings of ‘building the PP plane in flight’. This latitude or informality is juxtaposed with the formalised VET of the National Qualifications Framework qualifications, learnerships and unit standards where the creation of content, the practice of teaching and assessment are more regimented. This well-ordered, rigid approach, which is adjudicated and accredited by the

National Qualifications Framework, and its affiliated compliance bodies, is in place for good reason which is to ensure the standardisation and transferability of courses. In reading this section, I would like to reinforce a point made in Chapter 1: where I reference the National Qualifications Framework, SETAs or formal VET, I do so very lightly and only where there are touchpoints which relate directly to this research project which focusses on the particular pedagogical practices of the PP.

Illustrating of the PA of Range

I use an illustration to further explain the PA of Range. There is an outdoor art installation in my home city of Cape Town, South Africa called the Rhinosaurus (see Photographs 13 and 14). A tourist explained her experience of the Rhinosaurus: ¹³¹

At first it looks like a whole bunch of completely unrecognisable huge metal shapes sticking out of the ground...but when you walk around it and get to a particular spot they all align to form a very unexpected sculpture.

The ‘completely unrecognisable huge metal shapes’ have two interpretations in the PA of Range: The first is that each metal shape represents a single tool in a single range as described above. An IVET4 educator may select some or all of the tools and combine them in a unique combination to create a bespoke IVET4 programme. In the three generations of the PP, I used a different combination of *courseware creation range of tools* for each generation; and I used some of the tools in the same way for one generation but in a different way in another generation of the PP.



Photograph 13: Rhinosaurus pieces

For example, the fabrication of the workbooks for PP Generation One were created using a traditional courseware method which focussed on particular learning objectives, like trimming and packing. However, in Generation Two the courseware was created from the standard operating procedures of the

¹³¹ Available at: <https://www.sapeople.com/2014/10/18/rhinosaur-art-installation-sea-point-cape-town-942/> [Accessed 12 January 2022]

production process and became the ‘first-in-the-industry’ definitive technical textbook of 500 pages on freezer sea-going production.

The second meaning of the metal shapes is that a single metal chunk represents an *entire toolbox or range* (practices and practice arrangements) for the creation of courseware, or teaching and learning, or assessment. Not only can each tool from each toolbox be used in different combinations with each other but so can the toolboxes be used in different combinations with each other. For example, in Generation One and Two of the PP, the tools and toolboxes were learner-centric, whereas, in Generation Three the tools and toolboxes were arranged to be technology-centric and focussed on the Future People Online-In-Person Learning Platform.

The ‘very unexpected sculpture’ represents the IVET4 programme, for example the PP, Skipper Development Programme, or Chief Engineers Programme. It is the whole programme which has been created from the *tools and toolboxes or range of tools* and combined in a unique way to create a particular ‘fit for purpose’ IVET4 programme. The different tools in the three toolboxes of Courseware Creation, Teaching and Learning and Assessments can be used individually or combined in any way which provides the informal VET educator with endless permutations to create, offer and assess IVET4 programmes. The next sections (7.2.2.1-7.2.2.3) provide insight into each toolbox.



Photograph 14: Whole rhinosaurus

7.2.2.1 Practices and Practice Arrangements of the Range of Courseware Creation in IVET4

This section covers the ‘Toolbox of Courseware Creation’. This is the range of tools used in the practices of courseware creation. These are presented in a tabular form (see Table 7.1) which incorporates their use over the three generations of the PP. This table is followed by a few discussion points related to the topic.

Table 7.1: Toolbox or Range of Coursework Creation Tools and their use in each Generation

#	Course Creation Tools	Generation 1	Generation 2	Generation 3
1	Research content	X	X	X
2	Map (production) process	X	X	X
3	Observe process	X	X	X
4	Interview subject matter experts	X	X	X
5	Experiment with different methods of presenting content (e.g. apple experiment; heading exercises)	X		X
6	Discussion amongst co-creators (Knowledge was held collectively as not one of us had all the information)	X	X	X
7	Curate content and draft the courseware material for the Learner’s Guide, Facilitator’s Guide, Portfolio of Evidence, Assessments	X	X	X
8	Shooting of videos and/or photographs for content purposes	X	X	X
9	Creation of online content i.e. mobisodes			X
10	Create online platform – internet based i.e., I&J TV			X
11	Creation of online and offline learning platform i.e., Future People Online-In-Person Learning Platform			X
12	Revise courseware and PowerPoint	X	X	X

A few discussion points about the tools and range of tools used in the creation of courseware practices

i. Starting from scratch: The tools represented above reflect an IVET4 programme which started from scratch. Before the courseware could be created, we had to establish the content i.e., map the production flow and process on the freezer and wetfish vessels; and create detailed instructions for

particular procedures like trimming and packing on the freezers and icing and bin stacking on the wetfish. In the instance of the freezers, the trimming and packing procedures foreshadowed the creation of the Standard Operating Procedures which constituted the Production Manual in Generation Two of the PP. All ten of the IVET4 programmes which I led from 1995-2021 at I&J Limited began without content and thus required research, mapping, observing, and interviewing to generate the content before, and during, the creation of courseware.

ii. The pre-eminence of courseware creation: On reflection, the creation of courseware for the Production Programme turned out to be the blueprint which set the co-ordinates for the practices of teaching and learning, and assessment. The practice of creation of courseware for the PP also provided the *modus operandi* for the Chief Engineers Programme and the Skipper Development Programme. The practice involved content creation and figuring out pedagogical methods that would promote effective learning in IVET4. This was achieved with much trial, error and returning to the drawing board – this was an iterative process and not a linear one.

iii. Use of the same tools across generations of the PP: Noteworthy is that eight of the twelve tools for the creation of courseware were used across all three generations of the PP, whilst this number is noticeably lower for teaching and learning practices and assessment.¹³² This resonates with the prominent influence of the practices of courseware creation over the other four practices observed in Chapter 6.

iv. Considering a (posthumanist) of practice (Gherardi, 2021): In Practice Theory terms I was aiming towards creating courseware for Generation Three as a *critical praxis* as I was aware that the I&J Limited executive, senior managers, and the training department had not contemplated online in situ IVET4 for sea-going staff and that it was not on their agenda. As referenced in Chapter 4, critical praxis implies “action that is morally, socially, and politically informed ... and [moves towards] developing the capacity to question institutionalised habits or educational practices that may be in conflict with values, purposes, and moral intentions, in order to create positive change”. I knew what I was considering was disruptive, would require a change of mindset and might be threatening to some who were comfortable with the way things were – chalk and talk training for mariners ashore.

In the light of the focus on technology in the generation of courseware for Generation Three of the PP, I considered whether or not I had followed a posthuman epistemic practice in the creation of Generation Three courseware. This approach dethrones the human; attempts to dissolve common dualisms e.g. nature/culture, subject/object etc.; and “assumes a *relational epistemology* ... that blur[s] the boundaries between ontology and epistemology” (Gherardi, 2021, p. 2). On reflection I

¹³² Tools used in all three PP generations are highlighted in blue.

suggest that I did not adopt a post-human epistemology even though I&J TV or the Future People Online-In-Person Learning Platform was a ‘more-than-human’ element; it was still humans, me and others, who guided the decisions around the creation, application, and adaption of this technology.

v. Cairn-building Curriculums: The analogy of building a cairn on a mountain path is a helpful one to explain the ongoing nature of the creation and development of the curriculum of the PP. The programme was built up over time by a number of contributors as is explicated in the courseware development of Generations One, Two and Three (cf. 6.2, 6.3 and 6.4). Over a five-year period the PP materialised and became embedded in Trawlers as an essential training course for sea-going staff. This is like building a cairn one small stone at a time until it can be seen for miles around; if one asked how the cairn got there, people would say, “but it has always been there.” The PP is an example of ‘slow’ course development versus ‘fast’ course development. In the instance of the latter, a course is developed and deployed over a few weeks, or a generic course may be bought ‘off the shelf’. Both slow and fast programme development have their place; however, in the context of the PP, slow, careful courseware creation was required.

vi. ‘Building in flight’: This method of courseware creation as the course unfolds had the advantages of a) beginning the IVET4 programme immediately; b) the improved knowledge and skills of the Turners was observable in the workplace equally fast; and it allowed for an agile *curriculum design process* which took in the complexity and dynamism of course content as it became available (reference point (i) above). A significant disadvantage of ‘building the IVET4 programme in flight’ was that this was not the frame of reference held by the executives of workplace training, despite the fact that it was at their bequest that the training started immediately. Their expectations were of a simplified, standardised ‘off the shelf’ IVET4 course accompanied by classroom teaching and assessment. This dissonance between the executive expectations and the realities of ‘building in flight’ remained a difficult reporting problem throughout the programmes.

vii. The use of artefacts and simulation: Artefacts and simulations played a key role in all three PP generations. There were two types of artefacts: a) an artefact which represented something else e.g. apple experiment which was imbued with meaning; and b) artefacts which were facsimiles of the real objects e.g. the paper fish or the sorting tubs (Jarzabkowski, Spee, Smets, 2013, pp. 43–44). Artefacts enabled simulations and provided a visual reference as well as a common language. We found that the shelf life of artefacts and simulations lasted, for example, the concepts around the apple simulation are still referenced on the freezer vessels, as is the artefact of the red balls which represented ‘good ball, bad ball’ i.e. on the production line it is important to do one’s job well so that one passes on a good ball to the next person on the line.

viii. The Value of Saturday Work: Sometimes the changes needed to be done as ‘Saturday work’ – a term coined to describe experimental work or necessary changes which were completed by those who, at once understood the value which would be created by the changes, but also expected to encounter a corporate headwind. These changes were then flighted to a broader audience once success had been attained. An example from the PP case study is the development of I&J TV which only appeared on the corporate radar after about a year of figuring out the technical solutions for deployment of the platform at sea and a success pilot implementation. When I&J TV did appear it was in the form of a Capital Expenditure request which was granted by the Board. At times, the changes were never publicised but simply accepted as a new way of ‘doing things around here’. This was done either to avoid corporate entanglement; or most often we were too busy with the PP and onto the next change to report adequately. An example of this was the development of the Future People Online-In-Person Learning Platform and the use of mobisodes.

7.2.2.2 Practices and Practice Arrangements of Teaching and Learning in IVET4

This section covers the ‘Toolbox of Teaching and Learning’. This is the range of tools used in the practices of teaching and learning. These are presented in a tabular form which incorporates their use over the three generations of the PP. This table is followed by a few discussion points related to the topic.

Table 7.2: Range of Teaching and Learning Tools and their use in each Generation

#	Teaching and Learning Tools	Generation One	Generation Two	Generation Three
	Teaching Tools			
1	<u>Site 1</u> : Teaching in a classroom (one to many)	X	X	
2	<u>Site 2</u> : Teaching in other sites i.e., Woodstock Factory, Discharge Area, Quality Control Laboratory (one to many)	X	X	
3	<u>Site 3</u> : Teaching at sea (one to many)		X	
4	<u>Site 4</u> : Teaching online (one to one)			X
5	<u>Site 5</u> : Meeting rooms (one to one/few)			X
6	Teaching using workbooks	X	X	X
7	Teaching using I&J Limited systems as a basis (Production Standard Operating Procedures; Planned Maintenance System)		X	X
8	Teaching using PowerPoint	X	X	X

9	Teaching using worksheets and drawings		X	X
10	Teaching using fun games and competitions (ball, bottlenecks)	X		
11	Teaching using practical exercises (paper fish)	X		
12	Teaching using simulations (e.g., apple exercise, fabric fish, sorting, sponges, and drip loss; and Refrigeration Simulator envisaged for Chief Engineers Programme)	X		X
13	Teaching using group work	X		
14	Teaching using the flipchart (no white boards)	X	X	
	Learning Tools			
15	Listening because it matters	X	X	X
16	Acceptance and absorption of other or contrary information or practices	X	X	X
17	Changing course content, exercises, assessments to accommodate new information	X	X	X
18	Recognition of Turner-contributor	X	X	X

A few discussion points about the tools and range of tools used in teaching and learning practices

i. The Power of Metaphors: There is a rich body of work on metaphors of learning, for example, metaphors of acquisition or participation (Blau et al., 2018; Sfard, 1998). In my own professional practices of *teaching* and *learning*, I have found the application of metaphors a helpful reflexive practice to access a deeper personal understanding from the Turners in answer to this question: *Am I teaching in a way that the Turners are learning; and am I learning (from the Turners or the leverage professional or the operational managers or the subject matter experts) in a way that improves my teaching and professional relationships?* Sometimes I would ask the Turner to explain his understanding of a concept using a metaphor. At other times I would provide the metaphor and I would ask the Turners or others to use this metaphor to explain the same idea. For example, I asked the Financial Manager and the Engineering Manager to use the symbol of a lighthouse to explain their understanding of the teaching of the Finance Course for the Skippers on the Skipper Development Programme. The Finance Manager provided the picture of an immovable lighthouse i.e., the teaching was to build financial compliance knowledge and skills in the Skippers so that they would follow the rigid cost allocation and financial reporting requirements without deviation. The Engineering Manager pictured a lighthouse which shone a bright beam illuminating the way forward and believed that the

Skippers should use the financial reports available to them to make future decisions. The Finance Manager’s view was retrospective, while the Engineering Manager’s view was proactive. Neither was wrong as the Finance Course enlivened both perspectives. Nevertheless, two very different mindsets resulted in clashing expectations for the Skipper Development Programme Finance Course, as well as caused ongoing conflict between the shore-based accountants and the engineers in real-time. Through the use of the metaphor, we were able to pinpoint this difference in perspective – and then leave the two managers to work out their way forward – while we continued with the teaching of the course.

ii. Problem-solving: When things go wrong in an IVET4 programme it is often in the teaching and learning of a course. Kemmis et al. (Edwards-Groves & Davidson, 2017, in Kemmis et al., 2020, p. 105) provided a useful table to help one work out what is going awry. Although this table is intended for a teacher in a classroom setting, it has relevance to IVET4 too, with one caveat, however, which is that the IVET4 educator must not only consider this ‘trouble’ as emanating from the student. S/he should also apply a reflexive approach and consider whether s/he is ‘trouble’ making. I add this caveat because in the PP, Skipper Development Programme and Chief Engineers Programme, teaching and learning were a participative dance of turn-taking and so the ‘trouble’ could come from one side or the other or both; and it could even be from without, for example, organisational politics.

Table 7.3: Different kinds of interactional trouble that occur in classrooms, prompting repair

Trouble related to ...	Kind of trouble	Source of the trouble: when students ...
Sayings	Epistemological	- Have not understood the content - Do not know the answer to the question
	Reasoning	- Misinterpret the topic - Use a logic appropriate to another situation (such as home) rather than logic preferred by the teacher
	Theoretical	Answer in ways the teacher deems unacceptable or rejects because they draw upon a less preferred theory of learning
	Stylistic	Display certain forms of expression or word choice which the teacher regards as inappropriate
	Cultural	(From different cultural backgrounds) do not cue into the cultural idioms, expressions, routines, or events used in the everyday language and social practices of others present
Doings	Organisational	Display uncertainty about what to do
	Pedagogical	Disrupt teacher’s preferred progression, and the lesson management breaks down
Relatings	Relational	Do not cue into, enact, or understand the preferred ways of relating defined by teacher

Based on Edwards-Groves & Davidson (2017) in Kemmis et al. (2020, p. 105)

iii. Intersecting pedagogical practices: If one considers the theoretical contours of the practice site or niche, the project, and habitus of practitioners (participants), and the practice landscapes described in Chapter 4; and one views the PA of Teaching and Learning through this lens, one can appreciate that there are ‘intersecting pedagogical practices’. This is illustrated in the Figure 7.1 below which shows four intersecting practice settings – the IVET4 course, home and community, onboard life, and I&J Limited institutional life. An appreciation of the impact of the intersectionality of these sites upon the learner and “endeavouring to understand the landscape is an important aspect of critical pedagogical praxis because it is necessary for being able to be *responsive and respond appropriately* to people and situations characterising that landscape” (Mahon et al., 2016, p. 193, italics in original). I would like to suggest that these ‘ecologically connected pedagogical practices’ foreshadow the ‘trellis of practices which support learning’ (Francisco, 2020) for the individual because the different landscapes represented below may ‘hold’ practices which support learning, or not. I pick up the concept of ‘trellis of practices which support learning’ in Chapter 9 as a Recommendation.

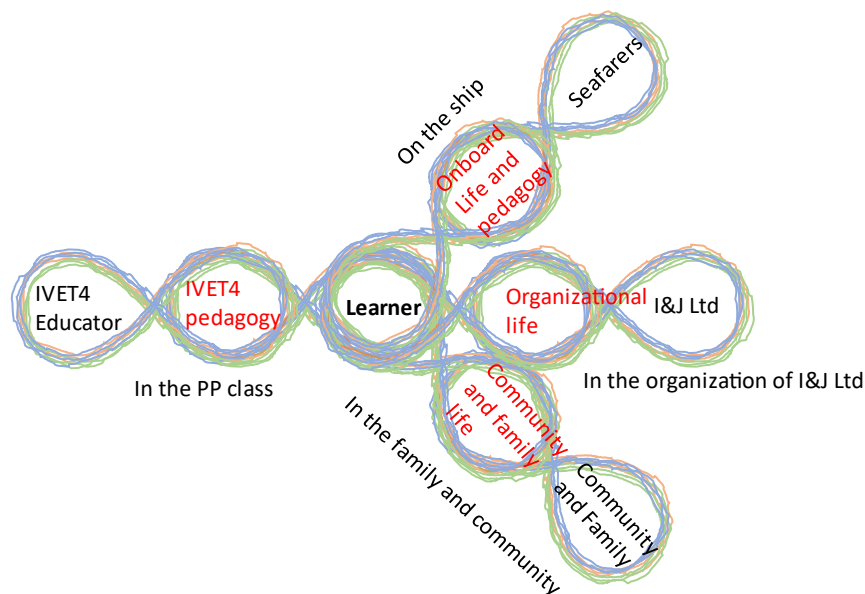


Figure 7.1: Teaching and Learning Ecologically connected in Multiple Pedagogical Practices.

This figure is adapted from a figure created and supplied by Kemmis
(S. Kemmis, personal communication, July 31, 2021).

7.2.2.3 Practices and Practice Arrangements of Assessment in IVET4

This section covers the ‘Toolbox of Assessment’. This is the range of tools used in the practices of assessment. These are presented in a tabular form which incorporates their use over the three generations of the PP. This table is followed by a few discussion points.

Table 7.4: Range of Assessment Tools and their use in each Generation

#	Assessment Tools	Generation One	Generation Two	Generation Three
1	Group work and presentations	X		
2	Hands-on practicals in class (different sites)	X		
3	Practicals in the engineering workshops at Trawlers or on the lines at Woodstock Factory			X
4	E-practicals: Use of Office 365 and Procurement Forms. Use of Future People Online-In-Person Learning Platform (WhatsApp – voice, video, text; Zoom; and mobisodes)			X
5	Worksheets in class or as homework		X	X
6	Timesheets and drawings	X		X
7	Onboard theoretical and/or practical assessments		X	X
8	Learning progress maps (Blokkiess)			X
9	Simulations	X		X
10	Real world results and I&J Limited Annual Appraisals	X	X	X
11	Certificates of attendance	X	X	X
12	(Internal) Accreditation		X	

A few discussion points about the tools and range of tools used in teaching and learning practices

i. Assessment under Formal or IVET4: The difference between formal and IVET4 is particularly stark when it comes to assessment strategies. In formal VET under the auspices of the National Qualifications Framework, all courses are accredited by the relevant Sector Education and Training Authority (SETA). The summative and formative assessment is prescribed against an approved body of knowledge at an assigned level. In sum, formal VET must comply with strict assessment formats, protocols, and outcomes enacted by accredited assessors and moderators. IVET4 is not formalised or regulated in this way and may be performed by an unaccredited facilitator. One is not better than the other; each has

their place. It is not the intention of this study to compare the two systems and here I restrict the discussion to IVET4 assessment as practised in the PP. On one hand, without the restrictions of formal VET assessment, our imaginations were the only limitation to the assessment tools available to us; on the other hand, the programmes neither enjoyed the same acceptance from the Executive Senior Management Team, nor the protection or predictability which characterises formal VET.

ii. Finding an IVET4-suitable assessment strategy: The philosophy and practice of assessment for the IVET4 PP, Skipper Development Programme and Chief Engineers Programme was to make use of a range of 12 different assessment tools which are tabled above and each tool was used in a hard or soft manner as described in Chapter 6. By deciding on this approach we had deliberately dismantled the dominant assessment paradigm at play at Trawlers. This paradigm is built upon two assumptions:

- The first assumption is that classroom teaching followed by a written assessment in English is an indication of actual competence.
- The second assumption is that the competence established through this testing process will translate to better work on the job.

Neither of these assumptions held true for the Turners. We needed to find a meaningful way of assessing them – if this was indeed even necessary. In a sense we obviated the requirement for traditional assessment and leapfrogged from learning straight to real-world outcomes and on-the-job metrics, and this leads directly to the next point.

I observed that the systemic, sophisticated, soft-hard range of assessment tools is best suited to managerial teams with a pioneering mindset as they are likely to be more comfortable with the messiness of these stages of IVET4. This could be equated with the PAs of the Emerging and Transitioning Ecologies of Practices of IVET4 (cf. further elaborated in 8.2.1 and 8.2.2). Hard assessments i.e. financial results represented in numbers, on the other hand, seem to be better suited to managerial teams with a settler mindset as they are likely to be more comfortable with the stability and predictability of this stage of IVET4. This could be equated with the PA of the Maturing Ecologies of Practices of IVET4 (cf. 8.2.3). One is not better than another but is defined by the needs of the organisation and the maturity of the IVET4 programme. The neo-liberal world view of the 110- year old JSE-listed company is a settlers worldview.

iii. Finding an assessment strategy which suits everyone: A list of questions was provided in Chapter 6, Section 6.6 which was helpful in determining the assessment strategy for the PP, Skipper Development Programme, and Chief Engineers Programme. These questions reference whether or not: a) the assessment should be individual or collective; b) formalised or informal; c) written tests or workplace assessments; and lastly, d) whose interests should be served by the assessments. As I posited in Section 6.8.2.3 (Executive Senior Management Team Approach to Recognition of Achievements) perhaps in

hindsight we had a blind spot that left the Executive Senior Management Team in the cold and their expectations of the assessment of the course were not taken into account.

iv. Assessment and relationship: Assessment strategies changed through the different generations of the PP as the Turners' confidence and trust grew in us as IVET4 educators. Learners were supported in the First Generation of the PP to cope and perform with the formal 'hard' assessments in the Second Generation.

7.2.2.4 Does the PA of Range Enable or Constrain the IVET4 Programme?

A tool or a toolbox are neutral objects and only become useful or harmful in the hands of the craftsperson. Whether a broken hinge is fixed, or a beautiful statue carved from a block of wood depends upon the craftsperson's knowledge and skill not only to choose the right tools for the task but also how to use that tool adeptly. So it is with the *PA of Range*. The promotion or constraint of IVET4 lies in the heart, mind, and hands of the IVET4 educator and how they pick and use the tools. There are 42 IVET4 tools described above, and these tools are categorised into three toolboxes for the *creation of courseware*, for *teaching and learning*, and for *assessment*. I suggest that these lists of tools may be extended, and the tools may be combined in many different ways in various IVET4 settings. It reminds me of turning a kaleidoscope – with every twist a new glittering image appears.

In the instance of the PP, one practice architecture builds upon another forming ecologies of practices. To know which tools to pick, how to use them and combine them in a manner which serves the desired outcome of the IVET4 intervention, the IVET4 educator must have competently mapped the PA of Informality described above (cf. 7.2.1). And just as the PA of Informality shifts and changes throughout the lifecycle of the IVET4 programme, so do the tools required to get the job done.

If the tools and ranges are well used, then IVET4 is enabled, and if not it is confounded or negatively affected. Figure 4.5. explicated above (cf. 4.4.3), and as stated in Section 4.4.3, the figure “shows teaching and learning as ecologically connected in pedagogical practice and represents the dynamic relationship between teaching and learning which indicates a co-produced or dialectically related practice”. Figure 4.5 is thus useful to illustrate the mutual dynamism of the PA of Range.

Of course the learners respond to the tools used to create, deliver, and assess a course. There is a turn taking between teacher and student, each shaping the practices of the other. In a classroom study TPA researchers used transcript analysis to show the “distinctive and dynamic dimensions of classroom talk and how it influences student learning as it unfolds discursively, in activities, and through relationships” – this represents the vitality of ‘dialogic pedagogies’ (Edwards-Groves, 2014 in Kemmis et al., 2020, p. 89). This research also showed that these dialogic pedagogies are explicit and deliberate. This is also true for the choice and use of tools and combinations thereof. Edwards-Groves in Kemmis et al. (2020, pp. 89–90) suggested that if this is done well then:

The environment becomes more inclusive and interactive when talk moves to generate relationships which [will]:

- build student power and agency;
- enable sustained, substantive learning conversations in classroom [or in the ship's messroom];
- create a shared responsibility for establishing and managing the classroom community;
- and develop, display and secure the substantive practices to be learned and the learning practices by which they are learned.

These are useful teaching outcomes for the IVET4 educator to consider when critically evaluating his/her use of the range of tools offered.

Considering TPA's site ontological lens, each rendition of a IVET4 course in a particular time-space-place is unique and the call and response between teacher and student in response to the tools used, and combination thereof, creates an enabling or constraining learning outcome.

7.2.3 Practice Architectures of Relationality in IVET4

This is the opening sentence of Chapter 6, Section 6.7.1: "We discovered that love was the dominant mediation tool in the practice of IVET4. Love, expressed in self-confidence, respect, communication, trust, and co-operation, was the 'flywheel' of the PP." Based upon the evidence presented in Chapter 6, I identified the third overarching PA of Methodology and Methods of IVET4 – the PA of Relationality. The PA of Relationality is constituted by two dominant expressions of practices and practice arrangements "which are bundled together in characteristic ways in practice landscapes and practice traditions [of the PP]" (Mahon et al., 2016, p. 13). These are the Pedagogy of Love and the Practices of Management and I will explicate each in turn. The three PAs of Methodology and Methods of IVET4 are mutually interdependent upon one another in an IVET4 *Complex of Education* which is illustrated in Figure 7.2 (cf. 7.4) below.

7.2.3.1 Practices and Practice Arrangements of the Pedagogy of Love

The words 'pedagogy of love' are deliberately chosen, firstly, because the word love appeared in the data frequently from the mouths of the Turners and facilitators and I wished to be faithful to the data even though 'love' is not a word one hears often in a neo-liberal multi-national corporation. The second reason is that, unbeknownst to me, other TPA scholars are using the same phrasing of 'pedagogy of love' in the titles of their recent works (Kaukko et al., 2021; Wilkinson & Kaukko, 2020).

I use two devices in this section to present the Pedagogy of Love, the first is a table which traces the Pedagogy of Love through the ten IVET4 programmes conducted at I&J Limited since 1995; and the second, is to open up some of the latest works on relationality from practice theory and beyond.

For the PA of Range I presented the 'tools' of courseware creation, teaching and learning, and assessment in tabular form. Although I use the same device here, this table is not to be read in the same way. Practices and practice arrangements of the pedagogy of love cannot be regarded as tools because

these are a matter of the educator's *habitus* and approach to IVET4. Nonetheless this table is powerful in tracing the pedagogy of love in all the IVET4 programmes conducted at I&J Limited. I do not include the four performance related projects (Programmes 4, 6, 9 and 13 in Chapter 3) in this table as these interventions had a different focus to the IVET4 programmes and were more transactional and less relational.

Relationships existed in the PP on six intersecting planes, namely: amongst the learners; between the group or individual learners and the facilitator; between the facilitator and the internal champion/s; between the facilitator and the human resources team; between the human resources team and the Executive; between the external Project Lead (Robin) and the Executive. In the table below each underlined word or phrase in the column, 'Practices of Building Relationality', could be regarded as a facet or practice of the pedagogy of love; and these in turn are linked to practice arrangements which are found or brought to a site in these intersecting planes of relationship.

Table 7.5: Testimony of the Pedagogy of Love over 25 years

PROJECT (10 x IVET4 PROGRAMMES)	PRACTICES OF BUILDING RELATIONALITY	PRACTICE ARRANGEMENT
<i>P1: Labour Relations (sea)</i>	Treated learners with <u>dignity and empathy</u> . No 'sailor-language' was permitted, especially the use of derogatory nicknames.	cultural-discursive and social-political
	RAF believed that the learners would rise to the occasion demonstrated by the use of English and the proper legal terminology.	cultural-discursive and social-political
	This course was a tremendous amount of <u>fun</u> as it was participative and included games, videos and role-plays which the <u>learners and I enjoyed</u> .	cultural-discursive and social-political
<i>P2: Labour Relation (shore)</i>	Built <u>empathy and communication</u> with sea-going staff.	social-political
<i>P3: Commissioning of Boronia</i>	Boronia Team was treated as the elites as this was the flagship vessel. The sea-going staff were <u>recognised</u> as valuable employees and this in turn built <u>self-confidence</u> and <u>teamwork</u> .	cultural-discursive, material-economic and social-political
<i>P5: Mentorship Programme</i>	Met every vessel every time – <u>doing what we said we would do</u> over a two-year period. Two hundred group meetings were held which <u>demonstrated management commitment</u> to the process. <u>Active listening</u> from ship and shore staff was evident. Provided answers and solutions to issues raised which <u>improved ship-shore relationships</u> .	cultural-discursive, material-economic and social-political
	Management <u>absorbed decades of frustration</u> which was expressed in the sessions <u>without judgement</u> ... until the anger and frustrations of the sea-going staff had been exhausted and they felt 'heard' by the senior managers.	social-political

<i>P5: Project Butterfly</i>	<u>Acknowledged the fear</u> of the buyers.	social-political
	Built <u>teamwork</u> and staff <u>appreciation</u> through the team stretch target and bonus.	material-economic and social-political
	<u>Justice was done</u> , and seen to be done.	Material-economic social-political
	Demonstrated <u>pride</u> and <u>recognised achievements</u> (tea at a five-star hotel).	material-economic social-political
<i>P6: Project Safari</i>	Treated learners with <u>dignity</u> and <u>empathy</u> .	cultural-discursive social-political
	<u>Gave learners autonomy (trust)</u> over the workplace to the Storemen (arrangement of Main Store and decoration of office and den).	material-economic and social-political
	Demonstrated <u>pride</u> and <u>recognised achievements</u> (tea at a five-star hotel).	material-economic social-political
	Project Safari was a tremendous amount of <u>fun</u> as it was participative and included games, exercises and simulations which the <u>learners enjoyed</u> .	material-economic social-political
<i>P10: Change Management at Woodstock Factory</i>	Addressed <u>fear of change</u> amongst factory workers. <u>Appreciated</u> long-serving staff members who had encountered similar large-scale changes over the year. <u>Built up knowledge</u> and <u>confidence</u> on new system. Seventy meetings with 10-20 learners per meeting were held which <u>demonstrated management commitment</u> to the process.	cultural-discursive, material-economic and social-political
<i>P11: Production Programme</i>	<u>Built in half-day of team building</u> before content training; and reinforced the relationality throughout the courses	social-political
	Treated learners as <u>co-partners</u> in the discovery and learning process (hence the name Turner)	cultural-discursive material-economic and social-political
	<u>Recognised success</u> with ceremony and certificates	material-economic and social-political
	Both Robin and Kevin (many times) went to sea – <u>met the Turners ‘on their turf’</u> .	material-economic
	The PP was a tremendous amount of <u>fun</u> as it was participative and included games, exercises and simulations which <u>we all enjoyed</u> .	material-economic social-political
<i>P12: Skipper Development Programme</i>	200 individual meetings were held over a two-year period which <u>demonstrated management commitment</u> to the process; and <u>(re)built ship-shore relationships, confidence and trust</u> .	cultural-discursive material-economic and social-political
	Took Skippers on a tour of I&J Limited shore-based facilities. This <u>engendered pride</u> in the Skippers as they could ‘see where their fish went’. They had never visited these facilities before, and they <u>appreciated the effort</u> and felt <u>special</u> .	cultural-discursive material-economic
<i>P13: Chief Engineers Programme</i>	Prioritised the Chief Engineers for IVET4 intervention which they <u>appreciated</u> .	cultural-discursive and social-political
	Developed the ‘Earning and Learning’ model which was mediated by the online Future People Online-In-Person Learning Platform. This <u>extended inclusion</u> of learners in their own workplace. Learning was <u>participative</u> , and learners were <u>entrusted</u> to manage their own learning.	cultural-discursive material-economic and social-political
	The programme was a tremendous amount of <u>fun</u> as it was based on technology which users had not been exposed to before e.g. Zoom, mobisodes	social-political

A few discussion points about the pedagogy of love

There is a mounting body of work amongst TPA scholars which perhaps represents an increasing momentum in the ‘relational turn’ of TPA. In Chapter 4, I offer the link between leading and relationality (cf. 4.4.4); and transformational educational praxis and relationality (cf. 4.4.8) found in TPA and broader scholarship. For the sake of brevity, I will not revisit this work although I wish to note its importance to the pedagogy of love. My observations are limited to recent works written from different theoretical perspectives which have bearing upon the pedagogy of love and, I suggest, are worth further investigation than this PhD allows.

The Leverage Professional: (Jenkin, 2020)

Jenkin (2020) writes from with a Technical Innovation System perspective, and this research explores the importance of knowledge and learning within South Africa’s forestry and biorefinery industries, and the innovation thereof. Like my study, Jenkin also found that there was a relational dimension to knowledge and learning – a “shared value, knowing each other and common language” (2020, p. 153). She suggested that “not all networks or relationships are good building blocks for social capital ... only those where there is a relatively high level of trust” (Sulkowski, 2017, in Jenkin, 2020, p. 156) and she acknowledged the importance of trust in knowledge exchanges.

Jenkin (2020) introduced the concept of a ‘Leverage Professional’. In the context of the PP, I considered Rick Achmat as a leverage professional for the voluntary, innovative, and constructive role he played in the PP. A leverage professional is defined as “an individual who plays a significant role in leveraging change within the system” (Jenkin, 2020, p. i). Jenkin (2020, p. 89) stated that,

The concept has two distinguishing elements: first, that of agency (leverage), and secondly, that of being a professional. The latter refers to individuals who are recognised for their proficiency and expertise within a network ... and agency refers to the motivation, aspiration and determination of an individual to act and make change happen.

She suggested that leverage professionals exhibit particular behavioural characteristics like commitment; that they are knowledgeable in their field and that this knowledge is recognised by others; and they are explorative and experienced (Jenkin, 2020, p. 217). In the phraseology of TPA, five constraints on the effectiveness of the leverage professional were identified; relevant to my study are a “lack of financial and managerial support; changing strategic foci; and weak capacity and knowledge amongst colleagues” (Jenkin, 2020, p. i).

When one considers the idea of a leverage professional and couples this with the evidence presented in Chapter 6 concerning Rick’s role in Generation 3 of the PP, it is clear that Rick embodied the definition of the leverage professional, exhibited the characteristics of one, and was constrained by similar barriers as his counterparts in Jenkin’s biorefinery industry. I propose that this concept has resonance with

‘middle leading’ (Edwards-Groves et al., 2020) and could be further explored in IVET4 to generate greater ‘leverage’ of resources (people, money, time) awarded to IVET4 interventions.

i. Pioneering is Relational: (Lotz-Sisitka, 2018)

If one considers that the set-up of the PP, Skipper Development Programme and Chief Engineers Programme, all three IVET4 programmes had an internal champion (an operational manager, like Charlene); and an external champion (myself or Kevin). Empirically this ‘double-act’ was vital in the *emerging* and *transitional* ecologies of practices of IVET4. In a *Think Piece: Pioneers as Relational Subjects? Probing Relationality as Phenomenon Shaping Collective Learning and Change Agency Formation*, Lotz-Sisitka (2018, p. 61) opened up analytical and theoretical tools for future empirical research concerning relationality in collective learning. The context of the study was a policy and strategy process to bring about national Green Economy Learning Assessments and the piece references two case studies, one in South Africa and the other on a Danish Island called Samsø.

Rosenberg et al. in Lotz-Sisitka (2018, p. 62) suggested that champions generally have the following relational competencies – builds coalitions, makes a case on behalf of others, reflects on the project, solves problems, works in multi-disciplinary teams, draws on the expertise of others and is agile in their management style. These competencies were observed in a public programme; however, I would suggest the same competencies have transferability to the internal and external champions of the IVET4 programmes mentioned.

Lotz-Sisitka raised the question of *how* these competencies are attained, and whether this should be regarded as individual or group competencies where relational goods are generated through relational interactions (2018, p. 63). Relational goods are considered to be “goods generated from the relations between subjects ... and that collective learning and change agency is not solely driven by the individual competencies of pioneers/champions, but must necessarily be situated in emergent and shared activity” (Lotz-Sisitka, 2018, pp. 70–71). The replicability of the champion is probed and, relevant to my own study, the question is raised “... what makes it possible for champions or pioneers to be named as such, and what conditions mediate their actions” (Lotz-Sisitka, 2018, p. 66).

A detailed empirical social-material analysis (or other forms of analysis) concerning an IVET4 programme, using the conceptual constructs provided in this Think Piece provided by Lotz-Sisitka (2018), I propose would further open up the pedagogy of love. It may shed light on the individual actor, the collective, the generation of relational goods, and the constraining or enabling conditions (practice architectures) which impact on building social capital and the social licence to operate which all enhances learning.

The delicate balance between love (cf. 6.7) and power (cf. 6.8) in the development, delivery, and assessment of the PP is evidenced in Chapter 6. The Think Piece by Lotz-Sisitka (2018) reflects this

relationship between love and power too. She quoted firstly one of the guidelines in a “Guide for Local Pioneering Communities” provided to Danish participants to support learning moving beyond Samsø Island to other sites; and secondly, she quoted the reflection of one of the Danish participants on this guideline (Lotz-Sisitka, 2018, p. 64. Punctuation and emphasis in original):

[Guideline] 01: Leadership: About Pioneer Communities and Personal Leadership

Power without love is coarse and ruthless. Love without power is sentimental. [...]

Reflection: Strong leadership is a vital component in any successful project. The paradox is that change is the work of love, but the driving force in the realisation of love is walking hand in hand with power.

ii. Practices are Social: (Gonzalez-Arcos et al., 2021)

Notwithstanding that Practice Theory is a range of theories with different approaches to socio-material research, all agree that entities are “not independent but interacting units which constitute social practices” (Gonzalez-Arcos et al., 2021, p. 3). A theory of the *dynamics of social practice* is based on five key premises (Shove, Pantzar & Watson (2012) in Gonzalez-Arcos et al., 2021, p. 3. Emphasis mine):

1. All social practices involve three interacting elements – materials, competencies, and meanings.
2. Social practices are carried out by actors called ‘carriers’.
3. Social practices change and evolve through the making and breaking of links amongst the elements.
4. Social practices are linked to other practices.
5. *All social practices have an emotional element.*

The work of Gonzalez-Arcos et al. (2021) focusses on behavioural approaches to sustainability interventions; and using a practice theory approach they explore the consumer response to the banning of plastic shopping bags in Chile in 2019.¹³³ Findings of the paper indicate that *social practice change* occurs through three recursive configuration processes – sense-making, accommodating, and stabilising. And that *challenges* present themselves as responsabilisation battles, unsettling emotionality and the (un)linking of other practices (Gonzalez-Arcos et al., 2021). They provide useful heuristic tools to make sense of the *social practice change* and the *challenges* in one’s own data (2021, pp. 6, 12 and

¹³³ Interestingly, the article was published in the *Journal of Marketing* with copyright to the *American Marketing Association*. This was interesting from a practice theorist point of view for two reasons, firstly practice theory was very lightly mentioned to fit in with the positivist stance of the journal; and secondly, that practice theory is expanding beyond the social sciences into business and management sciences. This insight was gained during a Schatzki Reading Group in conversation with the authors.

14). Despite the different settings, I suggest that this work is worth further exploration from an IVET4 perspective as organisational or behavioural change (cf. 6.8.4) is fundamental to the success of the IVET4 programme, particularly in the *emergent* and *transitional* phases of the *ecologies of practices* observed in IVET4 as elucidated in Chapter 8.

iii. Pedagogy of Love in Other Times-Spaces-Places: (Kaukko et al., 2021; Wilkinson & Kaukko, 2020)

I naively thought that ‘pedagogy of love’ was a phrase that I had come up with by myself. Nevertheless, I was delightedly disabused of this notion when, during a Kemmis Reading Group, Wilkinson introduced me to the substantial body of work on the topic. In this section I draw on large-scale research projects which were conducted with refugee children and teachers in Australia and Finland, where teachers went beyond the ‘duty of care’ and their practices were forms of pedagogical love (Kaukko et al., 2021; Wilkinson & Kaukko, 2020). I include these works because there are parallels to be drawn with the IVET4 programmes at I&J Limited. Given the confines of this thesis, I am limited to only a few brief touchpoints of introduction:

- There seems to be a wildness about approaching education as a pedagogy of love; the IVET4 programmes at I&J Limited have been pioneering with all the thrills and dangers that lie in wait for the pioneer. ‘Pedagogies embracing love’ was termed ‘revolutionary love’ as early as 2008 (Chabot, 2008, in Wilkinson & Kaukko, 2020, p. 4). The practices of the pedagogy of love are directed at creating a reality of safety, belonging and success (Kaukko et al., 2021, p. 1). This was the aim of the PP – to make the factory workers feel safe in the classroom, to create a sense of team and to give them the satisfaction of measurable and recognised success. It is the “acquisition of more than knowledge alone. It also encompasses the acquisition of habits, feelings, normative convictions, and self-understandings” (Schatzki, 2017, in Wilkinson & Kaukko, 2020, p. 1). The personal growth in the Turners was particularly evident when they expressed individually what they had learnt and how they had changed. The word ‘love’ was ever present at these occasions.
- The authors claim that love is not a ‘private issue’ but rather an ‘ethico-political practice’; and they embrace Freire’s concept of an ‘armed love’ and promote the view that, even though Freire did not refer to ‘love’, that his critique of the schooling system exemplifies love in education which,

Emphasized the need to develop pedagogies embracing love that nurtures emancipatory relationships include[ing] faith and dignity in our relationships with others, social responsibility for our world, participation in the *co-construction of knowledge, and solidarity across differences*. (Zembylas, 2017, in Wilkinson & Kaukko, 2020, p. 3. Emphasis mine.)

- Pedagogy of ‘anti-love’ [my phrasing] is commonplace in a neoliberal education which “is characterized by instrumentalist means-end thinking privileging leading and teaching as forms of *techne*’...” (Wilkinson & Kaukko, 2020, p. 2) – and devoid of relationality and emotional connection. This could have been part of the response to IVET4 particularly with regard to teaching and learning and assessment as explicated in Chapter 6 concerning the constraining practices of management.
- The case for refugees,

Children of refugee backgrounds and *students from equity groups* more generally are particularly reliant on the teaching and leading practices that make these [language] games explicit and equip learners with the necessary [social] capitals and pro-educational habitus to fully participate in education. (Wilkinson, 2017, in Wilkinson & Kaukko, 2020, p. 2. Emphasis mine.)

I didn’t understand your words, but I knew that you loved me. (Grade 3 Polish Immigrant to her Foundation Phase teacher at a state school in the Western Cape, South Africa.)

Intuitively I have felt that the IVET4 work I did with the sea-farers had resonance with refugee education as refugees have similar profiles to factory workers which were noted in Chapter 1, Section 1.2.5 (Learning Challenges). There is an increasing need to reach refugees through platforms like Future People Online-In-Person Learning Platform to share small bites of knowledge and create nourishing communities of practice. The overlap between my own work and that of Wilkinson and Kaukko is an area I would very much like to explore further.

iv. Polishing the Stone: (Edwards-Groves & Grootenboer, 2021)

Building relational trust is referred to as ‘polishing the stone’. There is a growing body of research which explore the qualities and characteristics which enable this relational work and I reference only a few examples in this paragraph. Firstly, Hopwood et al. (2021) went beyond describing *brilliance* which is already well theorised. Using TPA, they conceptualise how brilliance is accomplished and enabled; and foreground forms of enactment of brilliance and the conditions which thwart or promote such embodiment. Secondly, Lotz-Sisitka in the Think Piece discussed above entitled *Pioneers as Relational Subjects? Probing Relationality as Phenomenon Shaping Collective Learning and Change Agency Formation* has provided a number of characteristics of social learning (2018, pp. 66–67) which are worthy of in-depth research through an IVET4 lens. Thirdly, McGarry (2022) in his work (unpublished) on *re-imaging learning, activism and justice* provides six Tactile Theories and underpins this with individual or collective capacities which promote these practices. These are: co-defining matters of concern; active listening, warmth work; navigating power through participative parity; reflexivity and intuition; and what I dissect, dissects me – what I observe, observes me.

One could add the literatures in Chapter 4, Section 4.4, which explicates the recent conceptual developments in the TPA because the practice of *relatings* and the practice arrangement of the social-political are built into the bedrock of TPA. This means that the thread of relationality runs through most TPA research contributions. Given the limitations of this PhD, it is not possible to explore deeply the offerings of these authors to the pedagogy of love, however, it is safe to say that each underlined word or phrase in the column, ‘Practices of Building Relationality’ of Table 7.5 above are brought into conversation in the literature mentioned in this section. I suggest that a meta-study on relationality-pedagogy of love would enable IVET4 educators to grasp the concepts and inculcate the relationality characteristics into their habitus and praxis; and could form a module in the train-the-trainer for IVET4 educators. According to Edwards-Groves (2010, in Edwards-Groves et al., 2020, p. 130),

Professional learning and teacher development are compromised whenever the relational dimension in education practice is not properly attended to; that indeed, failure to attend to the relational may empty education of its moral and social purpose. Not only does failure to attend to the relational threaten the values expressed in educational (as opposed to non-educational) practices, but it threatens agency and solidarity among participants in those practices. In our view, restoring focus on the relational dimensions of education will sustain future educational and societal growth, and provide resources of hope for educators: a sense of cohesion of purpose, commonality of direction (solidarity), and a sense of collective power and control (agency).

I submit that identifying the pedagogy of love in the PP could be likened to ‘finding the stone’ which needs ‘polishing’ and shining up by IVET4 researchers, activists and educators.

v. *Embracing Love as an Education Force in the Anthropocene* (Hammond-Todd and Monk, 2021)

Hammond-Todd and Monk explored how anthropogenic forces (intelligence, engineering and the emotions of fear, desire and love) might be re-directed to reverse the negative effects of climate change poly-crises facing all life on Earth, particularly considering education and educational institutions. Hammond-Todd and Monk (2021) stated,

Reflecting back on the cultural and environmental experiences of our predecessors teaching a century ago, it is evident that educational systems need to realign their programmes to meet new realities of life in the Anthropocene. What is needed in this new epoch are educational programmes and processes that not only acknowledge the extraordinary period we live in, but also which assist in reshaping the anthropogenic forces underlying them: intelligence, engineering, and *emotion*. (2021, p. 57. Italics mine)

In their conclusions Hammond-Todd and Monk suggested that,

If we are to empower human populations and industry with the intelligence, engineering, *love* and hope that our planet requires, then perhaps we need to start by changing the educational institution itself. (2021, p. 59. Italics mine)

7.2.3.2 Practices and Practice Arrangements of Management Practices

Practices and the practice arrangements of Management have been adequately discussed in Chapter 6. Whether or not management practices were constraining or enabling was covered in Chapter 6 in Sections 6.8.2 and 6.8.3 respectively. Section 6.8.4 which deals with IVET4 and organisational change should be noted here too, because successful organisational change is relational work and not simply a matter of changing businesses process flows or procedures. This expression of the PA of Relationality does not need to be re-visited except to present a potential way to approach the ‘reporting dilemma’ identified (cf. 6.8.2 in Chapter 6) which may be worth further inquiry. However, I include a discussion below concerning the management practice of reporting as elaboration.

The Tricky Role of Reporting: It is difficult to report on *pioneering* work to someone who is expecting ‘settler’ work; and who has neither walked the pioneering journey, nor has the habitus or acceptance of the messiness of pioneer work. In Spee’s (2022) work using social practice theory to study strategy and strategic management, which is another example of practice theory expanding into management sciences, he referred to the concept of Wittgenstein and others of ‘language games’,¹³⁴ linguistic communities and the necessity of connecting these groups within an organisation. As Spee (2022, p. 8) offered,

Any organisation typically comprises multiple, often disparate linguistic communities. A linguistic community is governed by socially shared rules, as its members follow rules that guide the proper use of language. Participating in a language game thus requires linguistic (not managerial) expertise to use strategy [or IVET4 reporting] concepts or labels appropriately.

I suggest that the PP was an *emerging* and then *transitional* ecologies of practices, therefore, the ‘language game’ of myself and the other actors in the PP was pioneering. However, applying Spee’s (2022) notion, the language game around neoliberal reporting requirements of the company, and the mind-set of the Executive Senior Management Team was a settler one. A ‘translation device’ between the disparate linguistic communities to move pioneer ‘language games’ and settler ‘language games,’ was necessary to report on the IVET4 progress in a way that was understood by the ‘socially shared rules’ of the Executive Senior Management Team. For some of the team over the years this came easy, especially if they were close to the operation; however, in 2020-2021 the IVET4 failed to translate effectively. I suggest that the second contribution of this thesis, the *Maturing of the Ecologies of Practices of IVET4* would, amongst many other things, provide this missing translation device. I conclude this section with the words of the poet Makhecha (2020, p. 106):

¹³⁴ “Wittgenstein recognised the multifaceted realm of meanings (wedded to employing language in distinct situations), which he referred to as ‘language game. Meanings are generated by rules of the game’ (Wittgenstein), wedded to forms of life which comprise distinct situations/linguistic contexts (e.g. a formal strategy workshop, or board meeting, or private conversation among childhood friends). It is such rules that provide a language game with a self-referential logic.” (Spee, 2022, p. 7)

Journey of an organizational practice

My genesis lies in the minds of strategic elite,
My fate in the hands of operational fleet.
The elite defend and nurture me with expectance,
I become a routine as I gain acceptance.
As I am passed down to the mid-management,
They wonder in bewilderment!!
What to do or not to do is the question?
The answer varies with my relevance.
I am appreciated if results are positive,
Reprimanded and abused if negative.
I carry on as-is till I meet the ends,
But chopped, twisted, or lost if I lead to dead-ends.
If chopped, can I regenerate from lower part?
And, if twisted can I untangle the loop apart?
These options become elusive,
Until the elite becomes inclusive.
In this push and pull game of inordinate and sub-ordinates,
I am happy with the win of super-ordinate.
For I was born for a cause and let the cause be-cause.

7.2.3.3 Does the PA of Relationality Enable or Constrain the IVET4 Programme?

Like the PA of Informality and the PA of Range, the PA of Relationality can be either enabling or constraining depending on how the practices of love and the practices of management are enacted. In all instances, an enabling PA would also be a generative one resulting in transformative learning.

To add depth to this answer, I draw on the work of Mahon and Galloway on critical pedagogical praxis (in Mahon et al., 2016). The context of their work was in higher education in an Australian university, nevertheless, their ‘conditions of possibility’ have resonance with the overarching PA of Methodology and Methods. “Critical pedagogical praxis is a kind of social-justice orientated, critically reflexive, and informed teaching practice that is needed in universities [and IVET4] in these times of complexity and rapid change” (Mahon et al., 2016, p. 183). Critical pedagogical praxis emerges as “highly complex context-sensitive, idiosyncratic, multifarious, risky and [with] hard work” (Mahon et al., 2016, p. 187). The IVET4 educator could reflect on whether or not their application of the PA of Informality, the PA of Range and the PA of Relationality create ‘conditions of possibility’ or not. Mahon et al. (2016, p. 188) proposed that these conditions include:

1. Time (e.g., for interrogating practice, building relationships, engaging in critical debate);
2. Space for creativity;
3. Space for autonomy and flexibility;
4. Positive, productive, and trusting relationships;
5. Rigorous critical dialogue and reflexive conversations; and
6. Opportunity for engagement and experience.

I suggest that the PAs grouped under the PA of Methodology and Methods of IVET4 are “of particular importance in generating and maintaining these conditions of possibility” (Mahon et al., 2016, p. 188).

To bring the context of Education for Sustainability (cf. 2.2.2) into conversation with the PA of Relationality, I return to the TPA interpretation of Education for Sustainability expanded here by Kemmis and Edwards-Groves (2018, pp. 151–152 *emphasis mine*):

In the light of our theory of education, the metaphor of sustainability has uses beyond the idea of environmental sustainability. Through the lens of our theory, we might also consider what is needed for **cultural and linguistic (cultural-discursive) sustainability**, material and economic sustainability (where sustainable agriculture already stands as an example), and **sustainable social and political relationships between people and groups (social-political sustainability)**. And we must seek these kinds of sustainability at every level from the individual and the local community through to the conduct of nations and international relations and the sustainability of the planet. Seen against such a frame, **the work of education** (as something that profoundly informs the practices of teaching and learning) is a commitment to **human, cultural, economic, environmental and political sustainability**, in the interests of survival.

The finding iterated above of the importance of relationality, of practising a pedagogy of love which affirms the human, socio-political, individuals and communities as emphasised, in other words, relationality is vital ingredient of Education for Sustainability.

7.3 Theory and Data in Conversation to Answer Research Questions A-C

This section sets out to substantiate that this research has answered research questions A-C. Based upon these answers, in the next section, I explicate the first of two contributions which I am making to the broad field of VET.

I have answered the burning question I set out to answer (see Appendix 1).

At the start of this PhD I knew that I had led, in the company of others, a number of successful IVET4 interventions and that some of these had been the first of their kind in the industry and the country. What I did not know was *why* these IVET4 interventions had been either successful or not. In addition to this, I knew that I had built up the IVET4 personal knowledge and skills to reproduce and extend similar IVET4 programmes, but over the 25 years of doing this, I had not been able to create a ‘product’ which could be replicated, nor had I capacitated anyone else to do all I could do. I found this intensely limiting and frustrating as I was deeply aware of the need for IVET4 interventions in industry. I use the metaphor of building a single house to illuminate this pragmatic methodological contribution.

7.3.1 Answer to Research Question A

Question A: What IVET4 practices and practice architectures are evident in the Production Programme conducted over five years for I&J Limited sea-going staff in the South African commercial deep-sea trawl industry? I assert that I have uncovered the practices and PAs evident in

the PP – made the invisible, visible. In Chapters 1-2, I provided the background and context of the ‘informality’ in (Informal)VET4. In Chapter 6, I described and analysed the corpus of data in an iterative manner to explicate the practices (sayings/thinkings, doings and relatings) and practice arrangements of five practices evident in IVET4. These are the Practices of Courseware Creation, the Practices of Teaching and Learning; the Practices of Assessment; the Practices of the Pedagogy of Love; and the Practices of Management. The analytical process in Chapter 6 led to the revelation of the two overarching PAs elucidated in Chapters 7 and 8. I aver that there are two categories of PAs which contain four PAs between them. The first grouping is the PA of Methodology and Methods of IVET4 (cf. 7.2) which cover the PA of Informality (cf. 7.2.1), the PA of Range (cf. 7.2.2), and the PA of Relationality (cf. 7.2.3); and the second category is the PA of Maturing Ecologies of Practices of IVET4 which is elaborated in Chapter 8.

7.3.2 Answer to Research Question B

Question B: What IVET4 practices and practice architectures constrained or enabled learning in the Production Programme? The answer to this question differs for IVET4 PAs on one hand, and IVET4 practices and practice arrangements on the other. I tackle the latter first.

The answer is: It depends. There is neither a clean answer to this question, nor a formula which I can articulate to characterise *a practice or a practice arrangement* as confounding or enabling. The TPA embedded in Education Theory [refer to Figure 4.6: Theory of Education including TPA] shines an ontological lens onto education which means that a practice or practice arrangement may be confounding in one time-space-place and promoting in another. The IVET4 educator must constantly survey the IVET4 intervention in the particular time-space-place which is ever-changing. I draw the reader’s mind back to practices or practice arrangements being analogous to a river. To give substance to this uneasy ‘it depends’ answer I provide an illustration by way of explanation.

Same organisational need, different managerial teams: Despite the same needs existing in the company to improve ship-shore relationships, which would also improve profitability and decrease safety risks, the Mentorship Programme which successfully addressed these needs in 2003-2004 would not have been a viable IVET4 intervention in 2021. The practices of the Executive Senior Management Team in existence in the earlier years were supportive and *enabling* of IVET4 (viz. Programmes 3, 5, 7 and 8 described in Chapter 3). Some of the practices evident in the data (cf. Chapter 6 and Section 6.8.2) of the current cohort of the Executive Senior Management Team like the ‘culture of fear’, lack of recognition of the PP and staff achievements, and the lip-service paid to staff development are *constraining* practices and practice arrangements of the current Executive Senior Management Team.

Turning to IVET4 PAs, which are depicted as the banks of the river in the aforementioned analogy, are easier to determine as either confounding or enabling as they seem to be more enduring. But even so, this distinction is only as stable as the banks of a river which change over time as the river runs through

it. I definitively answer this question by providing a commentary on the enabling or constraining influence for the four PAs identified in the PP IVET4 programme in Section 7.2 (Three PAs of Methodology and Methods of IVET4) above; and Chapter 8 below (PA of Maturing Ecologies of Practices of IVET4.)

So what's the real answer? How does an IVET4 educator manage this entropic form of education? Where entropy "is simply a measure of disorder ... and left unchecked, disorder increases over time. Energy disperses, and systems dissolve into chaos ... [nevertheless] ... the Greek word for *entropy* is 'a turning towards transformation'".¹³⁵

I propose that the PA of Methodology and Methods of IVET4, discussed in this chapter, and the PA of Maturing Ecologies of Practices of IVET4, discussed in Chapter 8, respectively offer a pragmatic and conceptual contribution to critical pedagogical praxis. This enables the IVET4 educator to keep moving towards transformative learning and away from disorder and chaotic (non)learning even as the space-place-time is ever-changing. This *proposal* is elucidated below.

7.3.3 Answer to Research Question C

Question C: How can this deeper understanding of learning be used to improve similar informal IVET4 programmes? This question may be answered in a superficial sense in that if a practice is enabling it will improve the programme and if it is confounding, this will degrade the programme. I turn again to Mahon and Galloway (in Mahon et al., 2016) to guide IVET4 educators to reflect upon our critical pedagogical praxis especially when considering how to improve a programme. They offered 'four praxis themes' which I suggest could be (re)purposed as a diffractive lens for self-evaluation. These themes explicated by Mahon et al. (2016, p. 187. Italics in original.) could be asked as follows: In my praxis am I ...

1. *Endeavoring to understand* the pedagogical and academic landscape, the people we are working with, and our practice;
2. *Responding appropriately and being responsive* to the people, arrangements, and circumstances in any given situation;
3. *Creating conditions of possibility* for learning and praxis development, including our own learning and praxis development; and this includes creating architectures that can sustain the embodiment of critical pedagogical praxis despite challenging circumstances; and
4. *Embodying and evoking criticality?*

Notwithstanding, the deeper understanding gained by investigating and answering questions A and B gives rise to the first of two contributions which this study makes to the field i.e. the PA of Methodology and Methods. This also represents the more profound answer to Question C.

¹³⁵ Available at: <https://fs.blog/entropy/> [Accessed 25 February 2022]

7.4 Contribution to New Knowledge: The Provision of a Practical

Methodology and Methods for the Generation of Transformative IVET4

The PA of Methodology and Methods of IVET4 are added to the field of IVET4. This methodological approach offers three steps to IVET4 educators to build their own bespoke IVET4 programme. Figure 7.2 (below) is the *Education Complex of IVET4* and illustrates the three Practice Architectures (PA/s) which constitute the PA of Methodologies and Methods which are the PA of Informality (cf. 7.2.1), the PA of Range (cf. 7.2.2) and the PA of Relationality (7.2.3). Figure 7.2 also shows the relationships between these three PAs. It is an adaption of the *Education Complex* (cf. 4.3.9 and Figure 4.4).

A metaphor of building a single house on a single site is used in this chapter to amplify the explanation of the PA of Methodology and Methods and the three steps involved. This house-building metaphor is extended in Chapter 8 to illustrate the concept of transferring and scaling an IVET4 programme by likening this process to building many houses on many different sites.

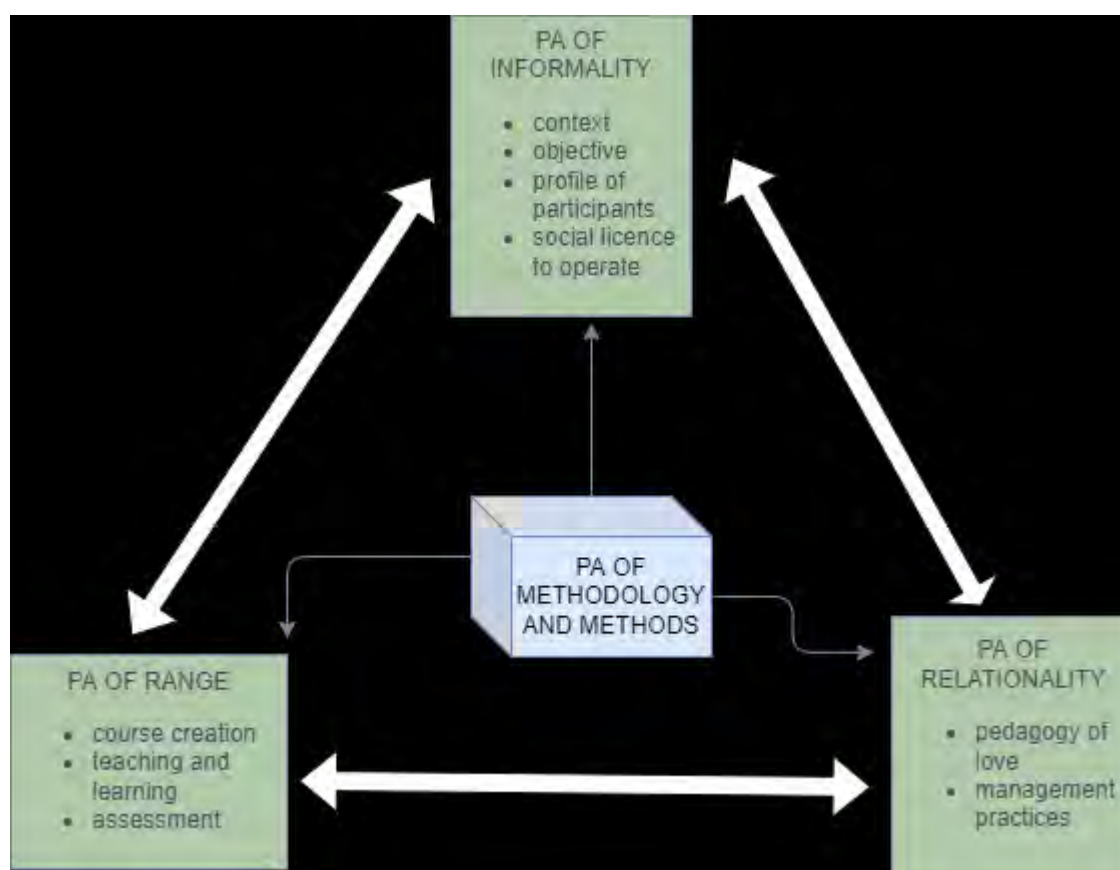


Figure 7.2: Education Complex of IVET4

The three steps referred to above are as follows:

Step One – Laying the Foundation (PA of Informality): This PA is a site-ontology approach and is constituted of four practices which determine the context and the objectives of the IVET4 programme; understand the profiles of the participants and stakeholders; and lastly establish a social licence to operate. For each practice a pragmatic set of questions and comments are provided that were useful in (re)establishing the PA of Informality in the I&J Limited context; and which may be useful to other IVET4 educators in similar contexts. If we use the metaphor of building a house, establishing the PA of Informality is analogous to laying the foundation of a house.

Step Two – Designing and Building the House (PA of Range in IVET4): Here three areas of practice are covered, namely courseware creation, teaching and learning, and assessment. For each practice, a ‘toolbox’ of tools was identified. The 42 tools in total were used by me and others in the PP; and examples of the use and affordances of these tools were given in Chapter 6. These practical activities are offered to educators in the broader VET community who wish to create, deliver and assess learning programmes as many of the tools mentioned could be used in a formal or informal VET programme e.g. active listening, simulations etc. I anticipate that others will add to, and refine, these toolboxes for application in the particular time-space-place context of their work. The PA of Range is analogous to the designing and building of a house to roof height upon the foundation laid by the PA of Informality.

Step Three – Setting the Roof (PA of Relationality in IVET4): In Chapter 6, the surprising and incontrovertible evidence in the PP case study was that the practices of the ‘pedagogy of love’ and the practices of management created a PA of Relationality which was disproportional in its influence upon the learning outcomes of the PP. Where the practices and practice arrangements led to love, trust and self-confidence, and where the practices of management were supportive of the PP and recognised the achievements of the learners and the financial benefits of the PP – then learning thrived. Where these practices were impeded, as seen in Generation Three of the PP, learning withered. The PA of Relationality could be seen as the all-important step of putting the roof on the house and maintaining it. Without a roof, a house is unliveable. If the roof is allowed to deteriorate, in time the whole house will crumble. So it is with the PA of Relationality.

This research project reveals the practical steps we took to accomplish the PP and the other IVET4 programmes completed at I&J Limited over 25 years. Should this methodology and/or methods be taken up by other formal or informal VET4 educators, I caution that it cannot be taken up as a ‘cookie-cutter’ recipe as the application of the practical offering of the PA of Methodologies and Methods is “highly complex context-sensitive, idiosyncratic, multifarious, [and will be] risky and hard work” (Mahon et al., 2016, p. 187).

Figure 7.2: Education Complex of IVET4 (above) was created to encapsulate the conception of the PA of Methodology and Methods and illustrates the portion of the Education Complex which is required to build and maintain an IVET4 programme. Based upon the PA of Methodology and Methods of IVET4,

we were able to create, deliver and assess the PP; and we were able to invigorate learning through the pedagogy of love. This first contribution to new knowledge gives a practical set of principles/steps and tools to other educators to build their own IVET4 programmes.

To return to the metaphor of house-building – the first contribution of this study is a methodological one and is encapsulated in the PA of Methodology and Methods. The explanation of the PA of Methodology and Methods in Chapter 7 answers Research Questions A-C and is analogous to the building of one house on one site. What this first contribution does not provide is an understanding of how to transfer and scale IVET4 programmes which is analogous to building many houses on many sites. The theoretical construct of the PA of Maturing Ecologies of Practices answers Research Question D, which concerns how to transfer and scale IVET4 programmes, and is the second contribution of this PhD. The PA of Maturing Ecologies of Practices is opened up in Chapter 8 which follows.

7.5 Conclusion to Chapter 7

Chapter 7 was built upon the empirical description of practices and practice arrangements of IVET4 which were covered in Chapter 6. The evidence proposed that two main categories of practice architectures had been identified in the data using the theoretical ‘apparatus’ of TPA. This chapter covered the description of the PAs of Methodology and Methods; provided answers to Research Questions A-C; and gave an explanation of the first claim to new knowledge which I make in this PhD.

To revisit the Quality Framework established in Chapter One, the quality characteristics (CHE, 2018) relevant to both Chapter 7 and 8 are: KNOWLEDGE: an original contribution to the field; and SKILLS: a) critical and analytical thinking for problem-solving; and b) reflection and autonomy. I comment only on the last-mentioned characteristic as this chapter and the next chapter bear testimony to the first two characteristics.

In terms of autonomy, although I worked alone to fit the ‘pieces of the jigsaw’ together, I had two helpers. One was the TPA framework, and the other was the data (as depicted in Chapter 6); and it was the lively and independent conversation between these helpers which provided me with insights and the capacity to build the puzzle. On reflection, the hardest part of writing both Chapter 7 and 8 was to pull down the conceptual cloud that was in my head and put it on paper in a way which made sense. These chapters were careful, slow work as piece by piece, the picture came together. During the course of writing these chapters, I participated in a doctoral week at Rhodes University where I had the opportunity to present my work to the Faculty and fellow PhD scholars which was encouraging. Chapter 8, as the ‘other side of the coin’, follows to cover my second claim to new knowledge.

CHAPTER 8: ILLUMINATION OF THE PRACTICE ARCHITECTURE OF THE MATURING ECOLOGIES OF PRACTICES

8.1 Introduction to Chapter 8

The concept of the Ecologies of Practices (cf. Section 4.3.9 in Chapter 4) and the evidence presented in Chapter 6 points to Ecologies of Practices of IVET4 which evolve and mature over time. These ecologies consist of practices and practice arrangements which hang together in the Practice Architecture of the Maturing Ecologies of Practices in IVET4.

As stated in the proceeding chapter, Chapter 7 and Chapter 8 are two sides of the same coin and ought to be read together. I will not repeat the remarks made in the Introduction of Chapter 7; however, they apply equally here. This chapter focusses on the answer to research question D; and provides the substantiation for the theoretical conception of *Practice Architecture of Maturing Ecologies of Practices of IVET4* which is the second contribution to new knowledge of this PhD. There is only one Practice Architecture which falls under the umbrella of PA of Ecologies of Practices of IVET4. However, it is constituted of three parts namely, Emerging IVET4 Ecologies of Practices; Transitioning IVET4 Ecologies of Practices; and Maturing IVET4 Ecologies of Practices. To bring to mind again the term ‘Ecologies of Practices’, first described in Chapter 4 (cf. Section 4.3.9), this term may refer to one ‘ecosystem’ or cluster of interrelated practices, for example the PP; or it may refer to more than one ‘ecosystem’ which may interact with each other, for example the mutual interaction of the PP, Skipper Development Programme and Chief Engineers Programme. At the end of this section, I draw into conversation the TPA conceptual framework and the empirical evidence to provide a view on how the PP could be transferred and scaled [Research Questions D]. Built upon this foundation, I explicate the conception of *Maturing Ecologies of IVET4 Practices* which is a contribution that I offer to the formal VET and IVET4 Community of Practice.

To reiterate a point made in Chapter 1, I suggest that this theoretical contribution benefits both the theoretical foundations of IVET4 and it enhances TPA. This theoretical addition to IVET4 puts a conceptual tool in the hand of an IVET4 researcher or practitioner wishing to scale or transfer IVET4 programmes. This contribution also enhances the conception of Ecologies of Practices by expanding the conception for use in IVET4.

8.2 Opening up the Conceptual Construct of Maturing Ecologies of Practices in IVET4

To sharpen the focus for this topic, I repeat the definition provided in Chapter 4 by Kemmis and Mutton (2012, p. 201) who defined Ecologies of Practices as:

Distinctive interconnected webs of human social activities (characteristic arrangements of sayings, doings and relatings) that are mutually necessary to order and sustain a practice as a practice of a particular kind and complexity (e.g. a progressive educational practice) ... Arguably, these practices form practice ecologies that are differentially hospitable to different kinds of teacher educational practices and student academic and social practices, in the localised and broader sites where they play out.

Nicolini (in Blue, 2019, p. 931) described the webs of connection found in Ecologies of Practices which is especially relevant to this chapter,

The zooming out of the texture of practice requires patiently following the trails of connections between practices; observing how these connections come to form entrenched nexuses or nets; how such nets of action produce effects; how such overarching or global practice nets manifest themselves in the local practising and how 'local' performances are in part constituted through the distant flows and motilities.

Should IVET4 ever be tamed or domesticated? On one hand, isn't it always on the move flowing with the changing needs of the learner and the organisation? On the other hand, if IVET4 is not solemnised, can it ever be transferred from one organisation to another, or taken to scale? The picture emerging from the data was of an *emerging or pioneering*¹³⁶ *Ecologies of Practices* moving through a *transitional Ecologies of Practices* to a *mature Ecologies of Practices* in IVET4 practices. The changing state of the ecologies of practices in IVET4 may lead to transgressive learning. I lean into the theoretical discussion of 'transgression – making TPA dangerous' explicated in Chapter 4 (cf. 4.4.8).

The verbs 'emerging', 'transitioning' and 'maturing' are in the present continuous tense because the Ecologies of Practices are both being and becoming. No normative judgement ought to be attached to emerging, transitioning, and maturing IVET4 Ecologies of Practices because one state is not better than another. A mature IVET4 Ecologies of Practices is not better than an emerging one, any more than an acorn or sapling is better than mighty oak tree because one state builds upon the other, and all are necessary for healthy growth. Rather the normative judgement should be reserved for the quality

¹³⁶ Pioneer work

This is the term used for the kind of work done when an informal VET programme is in its infancy.

Settler work

This is the term used for the kind of work done when an informal VET programme has matured.

assurance of the IVET4 programme and for assessing if an emerging, transitioning, or maturing IVET4 Ecologies of Practices is applicable to the time-space-place of the particular intervention.

The substantiating argument for the *Maturing of the Ecologies of IVET4 Practices* is laid out as follows: Firstly, with the aid of illustrative figures (cf. Figures 8.1, 8.2 and 8.3) the characteristics of the emerging, transitioning and maturing Ecologies of Practices are explicated; secondly, using a composite illustration (cf. 8.5), I describe the phases of the Ecologies of Practices for PP, Skipper Development Programme and Chief Engineers Programme. This argument is premised upon the corpus of data portrayed in Chapter 6. In summary, at the time I left the projects, the Ecologies of Practices of the PP had moved through the transition stage and was *maturing* but had not yet reached a mature IVET4 Ecologies of Practices; the Ecologies of Practices of Skipper Development Programme was moving through the *transition* stage when it was terminated; and the Ecologies of Practices of Chief Engineers Programme was *emerging*.

8.2.1 Emerging Ecologies of Practices of IVET4

From the data analysed in Chapter 6, I identified 20 practices which were in evidence across the three generations of the PP as well as discernible in the Skipper Development Programme and the Chief Engineers Programme. These practices are listed below and there is neither significance to the numbering nor the order in which these practices appear.

1. Assessment
2. Educator Teaching and Learning
3. Courseware Creation
4. Innovation
5. Evaluation, Reporting and Administration
6. Project Management
7. Organisational Change
8. Organisational Relationships at all levels
9. Pedagogy or Practices of Love
10. Mentoring and Coaching
11. Culture of the Organisation
12. Learner Learning and Teaching
13. Positional Leading
14. Contribution of Subject Matter Experts
15. Training Materials, Simulations, Practicals and Exercises
16. Online Platforms and Applications
17. Leverage Professional
18. Middle Leading

19. Time

20. Trellis of Practices which Support Learning

These practices were embodied in different ways through the passage of time and as the PP matured and became more institutionalised as a training programme. Figures 8.1, 8.2 and 8.3 illustrates how each practice was embodied and the relationships amongst the practices in the Emerging, Transitioning and Maturing Ecologies of Practices respectively. In all instances, the brown ovals represent the

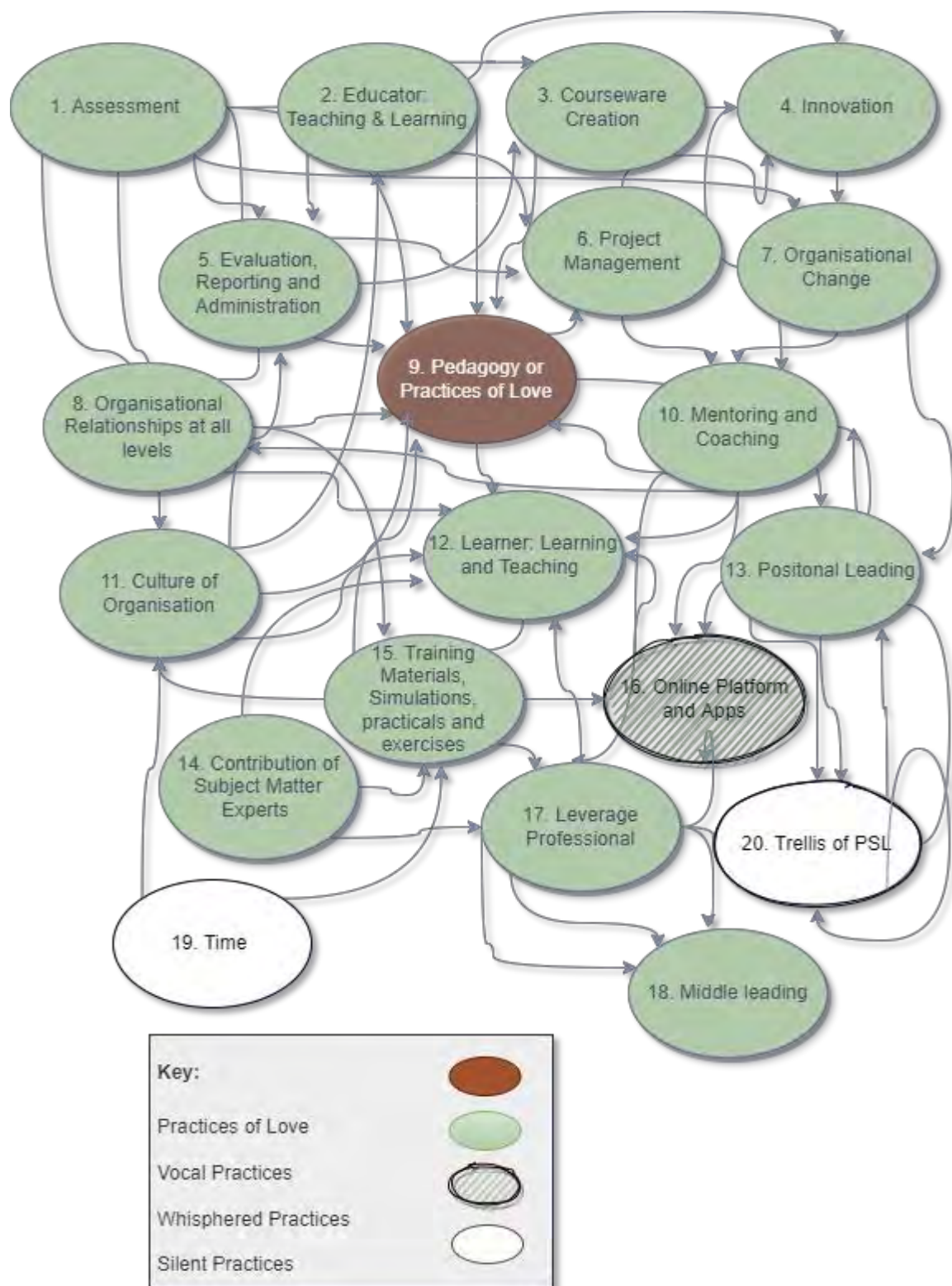


Figure 8.1: Emerging IVET4 Ecologies of Practices of the PP (Generation One) and the Chief Engineers Programme

Practices of Love which were central, the solid green ovals represent the ‘vocal’ practices, the striped ovals represent the ‘whispered’ practices, and the white ovals represent the ‘silent’ practices.¹³⁷ The connecting lines illustrate the relationship between the practices and the density of these relationships i.e. the more connecting lines between practices means more interaction between the practices. These ideas are elaborated further in Figure 8.1. Figure 8.1 below illustrates an *emerging Ecologies of Practices of IVET4* based upon the evidence presented for Generation One of the PP (cf. 6.2; 6.5.1 and 6.6.1) and the Chief Engineers Programme which was described in Generation Three of the PP (cf. 6.4; 6.5.3 and 6.6.3).

Kemmis and Mutton (2012, pp. 188–189) provided insights into *emergent practices* in their study concerning Education for Sustainability which are useful when considering the emergent properties of an IVET4 Ecologies of Practices. They described an emergent practice as:

One which is not long-established, not yet fully formed, not yet stable, routinised and institutionalised ... [it is a] practice which is ‘finding itself’ – rather fluid, taking a variety of shapes, perhaps ephemeral and perhaps contested ... we think we have much to learn from studying an emergent practice which may be on the road towards becoming established, rather than one whose purposes, form and content are long-established and second nature to those who participate in them.

8.2.1.1 Six Properties of an IVET4 Ecologies of Practices

In the emerging Ecologies of Practices 20 practices were identified and the ‘half-life’ of these practices are traced through the three states of Ecologies of Practices – emerging, transitioning and maturing. Six properties of any IVET4 Ecologies of Practices were identified across these different states: complexity; the relationship between practices; vocal practices; whispered practices; silent practices; and practices of love (relationality). In the instance of the Emerging Ecologies of Practices of IVET4 of the PP (cf. Figure 8.1), these properties were evident as follows:

- 1) **Complexity:** The Emerging Ecologies of Practices of IVET4 is complex and there is a high level of entropy as shown in Figure 8.1.
- 2) **Relationships between practices:** The relationships between the practices were dense and productive, yet unstable. The arrows in Figure 8.1 illustrate that all practices were interconnected.

¹³⁷ Silent practices	This is the term for informal VET practices which are not observable in a particular context.
Vocal practices	This is the term for informal VET practices which are clearly observable in a particular context.
Whispered practices	This is the term for informal VET practices which are only just observable in a particular context.

- 3) **Vocal practices:** Seventeen vocal practices (solid green ovals) were identified and all practices were active throughout the emergent phase of the Ecologies of Practices as indicated in Figure 8.1. The exceptions to this were Practices 16, 19 and 20.
- 4) **Whispered practices:** There was one whispered practice (striped oval) in the emergent Ecologies of Practices which was Practice 16 ‘online platform and apps’ as shown in Figure 8.1. The promise of Internet Computer Technology-mediated IVET4 lay like a mirage on the horizon which I kept reaching for, i.e. to figure out how to use the technology available in a low digital literacy and low connectivity environment.
- 5) **Silent practices:** Practices 19 and 20 (white ovals), Time as Practice and the Trellis of Practices which Support Learning respectively, were present but silent practices as seen in Figure 8.1.
- 6) **Relationality:** Practice 9, the Practices of Love or the Pedagogy of Love, was the beating heart of the Emerging Ecologies of Practices of IVET4 as illustrated in Figure 8.1. This is also true for the Transitioning and Maturing Ecologies of Practices of IVET4 (cf. Figures 8.2 and 8.3).

Although all these practices were in existence during the Emerging Ecologies of Practices of the PP, which could roughly be defined as the First Generation of the PP (cf. 6.2; 6.5.1 and 6.6.1), the clear identification and labelling of these practices are a result of this research, and particularly the use of TPA as a conceptual framework.

Three expressions of these practices were discernible and are ascribed particular attributes: *vocal practices* (green ovals) are more readily discernible as sayings/thinkings, doings or relatings, for example, Practice 1 Assessment; *whispered or whispering practices* (striped ovals) are those practices which may be waxing or waning, for example, Practice 16 Online Platform and Apps. This whispered practice became a vocal practice in the Emergent Ecologies of Practices of the Chief Engineers Programme when Future People Online-In-Person Learning Platform was deployed as described in Chapter 6 (cf. 6.4). *Silent practices* (white ovals) are harder to pick out as they happen ‘behind the scenes’, for example, Practice 19 (Time) and Practice 20 (Trellis of Practices which Support Learning). How a practice is embodied, in other words the *state* of a practice, may change depending upon the context. For example, a vocal practice may wane and even become silent, and whispered practices may become vocal practices for the first time (or again) if the IVET4 circumstances demand it. The changing state of practices is demonstrated in Figures 8.2. and 8.3, and further explicated in the discussions which follow (cf. 8.2.2 and 8.2.3).

Both the insights arising from the *silent* practices 19 and 20 of Time and the Trellis of Practices which Support Learning respectively, and suggestions for further research are elaborated under Recommendations in Chapter 9 (cf. 9.2.1). Both these practices existed in the Emerging, Transitioning

and Maturing Ecologies of Practices of IVET4. The literature on time (Blue, 2019; Blue et al., 2020; Southerton, 2003), and on the Trellis of Practices which Support Learning (Francisco, 2020), although developed outside the IVET4 context, bring practical tools and theoretical insights to informal education.

As a *vocal* practice, ‘leading’ in the Emerging Ecologies of Practices of IVET4, as illustrated in Figure 8.1, is split into Positional Leading (Practice 13) and Middle Leading (Practice 18) as they were two separate practices by different people. The former implies firstly, the formal leadership role assigned to the Internal Champion; and secondly, the role of the I&J Limited Training and Development Manager, who held reporting and budgeting responsibilities. The Middle Leading (Practice 18) fell to me, Kevin and the leverage professional (Practice 17) to lead ‘without permission’ towards the desired outcome of the PP, Skipper Development Programme and Chief Engineers Programme.

Not only leading, but all the practices are ‘distributed’ in some way. Applying a quote from Kemmis and Mutton (2012, p. 195),

It is remarkable, perhaps, that different participants in the Education for Sustainability [PP] initiatives we studied have such very different levels of understandings (sayings) of the discourse of sustainability [at-sea production], such different levels of skill (doing), and such different kinds of relationships to each other, to third parties, and to different aspects the environment [at-sea production] – yet the practice of Education for Sustainability [PP] ‘hangs together’. This appears to demonstrate the sociality of the practice: that it is collectively, and not just individually produced.

8.2.2 Transitioning Ecologies of Practices of IVET4

Figure 8.2 represents the Transitioning Ecologies of Practices of IVET4 and is constructed using the same key as Figure 8.1 above. The brown oval represents the Practices of Love or Pedagogy of Love which is central to the Transitioning Ecologies of Practices of IVET4. The solid green ovals represent the ‘vocal’ practices, the striped ovals represent the ‘whispered’ practices, and the white ovals represent the ‘silent’ practices. As for Figure 8.1, the connecting lines illustrate the relationship between the practices and the density of these relationships i.e. in Figure 8.2 the number of connections has decreased as shown by fewer connecting lines and arrows which mean less interaction between the practices. These ideas are elaborated further below Figure 8.2.

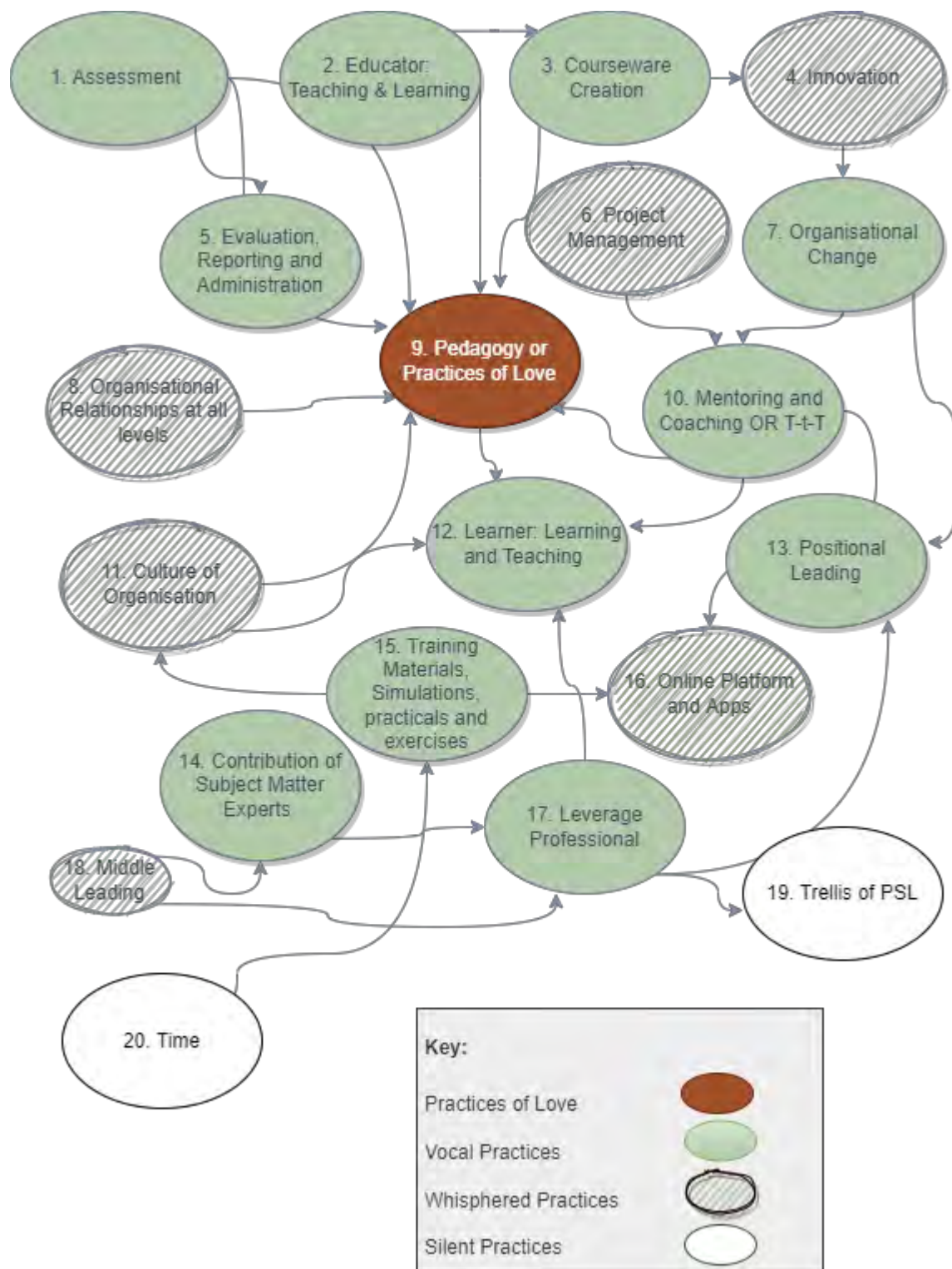


Figure 8.2 Transitioning IVET4 Ecologies of Practices of the PP (Generation Two) and the Skipper Development Programme

The boundaries between the Emerging, Transitioning and Maturing Ecologies of Practices are not set, but rather, there is a blurring or overlapping at the boundary lines as the Ecologies of Practices moves from one state to another, like ice melting to water in a glass. With the insight provided by the Kemmis and Mutton (2012) quote, one could say that the Transitioning Ecologies of Practices is representative of an IVET4 programme which is moving from a fluid, generative entity which is ‘finding itself’ to one which is more formed and routinised. The Transitioning Ecologies of Practices could roughly be equated with Generation Two of the PP (cf. 6.3; 6.5.2 and 6.6.2) and the latter stage of the Skipper Development Programme described in Chapter 3 (cf. 3.14). The six properties of IVET4 Ecologies of Practices identified above (cf. 8.2.1.1) also exist in the Transitioning Ecologies of Practices of the PP and the Skipper Development Programme and are further explicated below:

- 1) **Complexity:** The Transitioning Ecologies of Practices of IVET4 is less complex and there is a decreasing level of entropy as illustrated in Figure 8.2.
- 2) **Relationships between practices:** The relationships between the practices were less dense and less productive (at times), yet more stable and predictable. This is illustrated by fewer connecting lines and arrows amongst the practices in Figure 8.2.
- 3) **Vocal practices:** Twelve vocal practices were identified and these were Practices 1, 2, 3, 5, 7, 9, 10, 12, 13, 14, 15 and 17. This is a decrease of five vocal practices in comparison to the Emergent Ecologies of Practices.
- 4) **Whispered practices:** Six whispered practices were identified, namely the Practices of Innovation (4), Project Management (6), Organisational Relationships at all levels (8), Culture of the Organisation (11), Online Platform and Apps (16), and Middle Leading (18). As shown in Figure 8.2, this represents an increase of four whispered practices in comparison to the Emerging IVET4 Ecologies of Practices of the PP.
- 5) **Silent practices:** The white ovals of Trellis which Support Learning (19) and Time (20) remained silent as evidenced in Figure 8.2.
- 6) **Relationality:** The Practices of Love or the Pedagogy of Love remained the beating heart of the Transitioning Ecologies of Practices of IVET4 as represented by Figure 8.2.

The **vocal** Practice 10 included a train-the-trainer component as the courseware, teaching methodology and assessment were becoming routinised and can be replicated within the organisation. For example, the sea-going Production Leadership Team were taught by Kevin how to use the Production Manual at sea to train and assess their staff. This replication is site-specific and ought not be confused with transferability or scalability of the IVET4 programme to another site or multiple sites.

Less time was spent on innovation as the conceptual heavy lifting of the programme design and content was completed in the emerging phase. The transitional phase witnessed the working out of the founding concepts, for example, the production Standard Operating Procedures were written based on the

established production principles, processes and assessments during the emergent phase. Project management, crafting organisational relationships at all levels, attending to the culture of the organisation, and middle leading by the IVET4 educator also become **whispering** practices. The reason for this is that the programme was sufficiently well established to make use of institutional structures and reporting lines. For example, the Shore-based Production Manager at the time took more of a positional leadership role to get the Production Manual completed, although middle leading was still required from myself to keep the whole project on track. The relationship between the practices, although more predictable, become less productive at times as these relationships became entangled with the social-political arrangements on the site.

8.2.3 Maturing Ecologies of Practices of IVET4

Figure 8.3 represents the Maturing Ecologies of Practices of IVET4 and is constructed using the same key as Figure 8.1 and Figure 8.2 above. The brown oval represents the Practices of Love or Pedagogy of Love which has become a whispered practice in the Maturing Ecologies of Practices of IVET4. The solid green ovals represent the ‘vocal’ practices, the green striped ovals represent the ‘whispered’ practices, and the white ovals represent the ‘silent’ practices. As for Figure 8.1 and 8.2, the connecting lines illustrate the relationship between the practices and the density of these relationships. In Figure 8.3 the number of connections amongst practices are few in comparison to the number and complexity of connections illustrated in Figures 8.1 and 8.2 which means that there was less interaction between the practices. These ideas are elaborated further below Figure 8.3.

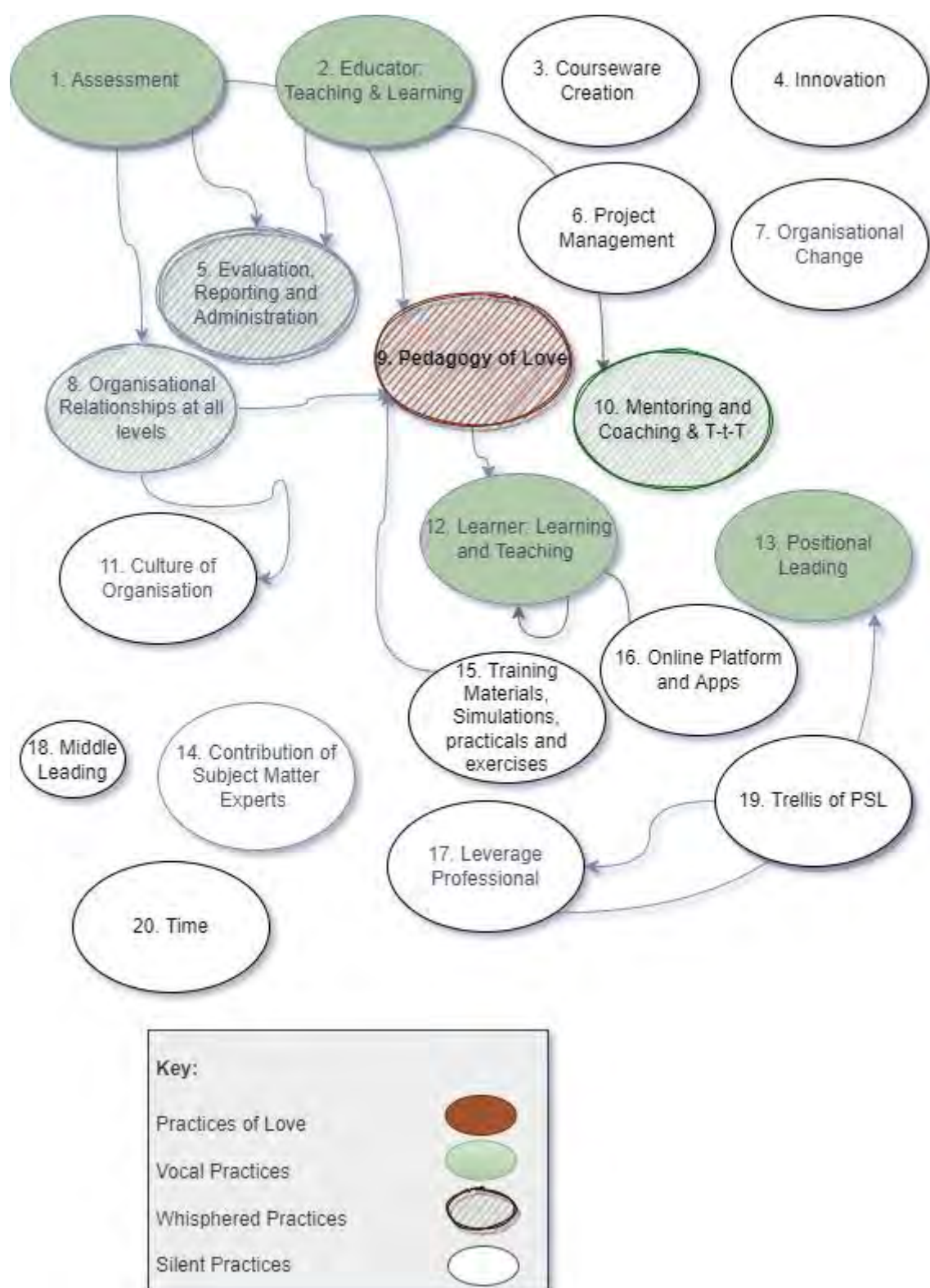


Figure 8.3 Maturing IVET4 Ecologies of Practices of the PP (Generation Two)

A maturing Ecologies of Practices is the end state of a developing IVET4 programme bearing in mind the comment made earlier about suspending normative judgement, as one state is not better than another, because what is best is context specific. A maturing Ecologies of Practices is the most institutionalised form of an IVET4 programme, and as such, is the closest in substance to formal VET which is accredited by the South African National Qualifications Framework. It is at this nexus that I suggest that generative work may be done to articulate IVET4 and formal VET4 into one Post School Education and Training System and move away from the binary system which currently exists. I explore this thought further in my recommendations (cf. 9.2.3). The maturing Ecologies of Practices as it presented itself in the data could roughly be equated with the end point of Generation Two of the PP. Six properties of IVET4 Ecologies of Practices were identified (cf. 8.2.1.1) and in the Maturing IVET4 Ecologies of Practices these properties were identified as shown below:

- **Complexity:** Figure 8.3 illustrates that the Ecologies of Practices is simple and there is a low level of entropy.
- **Relationality:** As shown in Figure 8.3, there were fewer relationships between practices, and these became routine because the PP was institutionalised, and practices for example, teaching and learning or assessment, became repeated practices as the PP was rolled out to different groups of learners.
- **Vocal practices:** Figure 8.3 illustrates that four visible practices were identified in the Maturing Ecologies of Practices. This is a decrease of eight practices from the 12 practices of the transitional Ecologies of Practices; and a decrease of 13 practices from the 17 practices of emergent Ecologies of Practices. These practices were (1) Assessment; (2) Educator: Teaching and Learning; (12) Learner: Learning and Teaching; and (13) Positional Leading.
- **Whispered practices:** Four whispered practices were identified including the pedagogy of love as shown in Figure 8.3.
- **Silent practices:** As represented in Figure 8.3, the remaining 12 practices were silent including practices (19) Time, and (20) Trellis of Practices which Support Learning.
- **Relationships between practices:** As demonstrated in Figure 8.3, the relationships between the practices were sparse but institutionalised, stable and potentially productive. A number of the practices become untethered entirely.

As mentioned above, the **vocal** practices which were evident in the maturing Ecologies of Practices of the PP were *assessment of learners*, *educator practices*, *learner practices*, and *positional leading*. It is evident that there is overlap (illustrated in italics) with the formal Education Complex proffered by Kemmis et al. (2014a, p. 52) which have five practices namely, *students' practices*; *teaching practices*, professional learning practices, *leading practices* and researching, reflecting and *evaluating practices*. This Education Complex is explained above under the Ecologies of Practices (cf. 4.3.9). This overlap

is indicative of a formalisation of an IVET4 programme and pertains to the comment above concerning the potential association between formal and informal VET.

Three of the **whispered** practices were subsumed into other practices and became ‘business as usual’, i.e. Practice 5, evaluation, reporting and administration, was absorbed into Practice 13 as is it became the leadership responsibility of the I&J Limited Training and Development Department; as did Practice 10, mentoring, coaching and train-the-trainer. Practice 8, the crafting of organisation relationships, settled into Practice 11, culture of the organisation, by assimilating into the official and non-official reporting lines. It should be noted that Practice 11 is silent in the PP IVET4 context but not in the organisational sense where culture will always be in evidence.

During the handover of the PP to I&J Limited Training and Development Department, it appeared to those of us who had birthed the PP over five years that the pedagogy of love was going to become diluted to the detriment of the intended learning outcomes. It would be rendered a whispered practice. The reason for this is that the PP had become sufficiently regimented that it could be delivered in a ‘paint by numbers’ manner which is a mechanical (head and hands) pedagogical process devoid of the affective dimension (heart). A practical out working of this, which seemed likely at the time, may be that the shore-based trainer would not go out to sea as Kevin and I had done which was a strong relationship building activity and/or that the teamwork module would be overlooked. Nevertheless, any sayings/thinkings about the future of the PP are conjecture, and perhaps come from a place of finding it hard to ‘let go’ after five years of building a successful programme and enduring relationships.

Practice 16, online platform and apps, is a good example of how one practice may be vocal, whispered or silent as the IVET4 programme progresses over time. Practice 16 was a vocal practice in the emergent Ecologies of Practices, where Future People Online-In-Person Learning Platform was adopted; and a whispered practice in the transitioning Ecologies of Practices where the pilot for I&J TV was successfully completed. Ultimately there proved to be no social-political will to continue the Earning and Learning model which used Internet Computer Technology as a mediation tool. This silenced the practice of online and blended IVET4.

The remaining **silent** practices became obsolete in the ‘mature-maturing’ Ecologies of Practices of the PP. These practices had played their part in the generation and establishment of the programme, for example, courseware creation and innovation and were no longer needed for the mid-term maintenance and delivery of the programme. Concomitantly the relationships between silent practices dwindled. The reason for this is that the course content, the teaching and assessment practices were well established and had been bolted into the organisation through the train-the-trainer courses, as well as the extensive project documentation like the Production Manual which included assessment tools. The sheer numbers of production staff who had been trained, and had the course certificates in their seaman’s books, were also a ‘tipping point’ in the establishment of ‘the way things get done around here’.

The PP was no longer new or in a pioneering phase and its appearance was more akin to formal VET. This insulated the PP and its learners from the constraining activities of the Executive Senior Management Team, because they too were getting what they wanted in terms of more traditional training reports. The Executive Senior Management Team in place at the time of this research were excellent at settler work, which is neat, predictable, linear and easily reportable in spreadsheet format. The mature Ecologies of Practices of the PP is a ‘settler’ programme as it could be managed performatively at arm’s length with corporate tools like individual performance assessments and daily sea-going production statistics.

The PP is becoming routinised and institutionalised. There is neither respect, trust nor love required to facilitate the IVET4 PP the work in a mechanical way. This may, over time, hollow out the pedagogy of love practice or ‘flywheel’ of the PP mentioned above (cf. 6.7.1 and 7.2.3), which generated learning, team work on the vessels and improved production results. Unless there is vigilance on the quality assurance of running the PP, it is likely to become a cyclical pattern which may lead to a return to an emerging or transitional phase of the PP to repair, regain and revitalise the programme. Evidence presented in Chapter 6 shows that this cyclical nature of returning to, redoing IVET4 is also borne out in the Reflective Historical Narrative in Chapter 3. Blue’s concept opened up, in Chapter 4, Section 4.4.6, a ‘rhythmic ontology of practice’, which addresses the institutionalisation of practices in organisations, provides a rich theoretical toolset to understand the cyclical nature of IVET4; further recommendations are made in this regard in the next chapter.

8.2.4 The State of the Ecologies of Practices of the PP, Skipper Development Programme and the Chief Engineers Programme IVET4 Programmes

In this section the ‘final state,’ emerging, transitioning and maturing, of the Ecologies of Practices of the Chief Engineers Programme, the Skipper Development Programme and the PP are illuminated. During the five-year period from 2016 - 2021, the PP, Skipper Development Programme, and the Chief Engineers Programme IVET4 Programmes were developed and deployed to different degrees. All the programmes commenced as Emergent Ecologies of Practices (cf. 3.13, 3.14 and 3.16) and matured over the time period as was befitting to the particular context of each programme. The infographic in Figure 8.4 indicates the extent of advancement of each programme over the five-year period explored in this research project.

The images on the left in Figure 8.4 represent the different Ecologies of Practices: the colourful web represents the diverse and complex nature of Emergent Ecologies of Practices; the second image shows a messy pile of string which is being wound into a neat ball of string and this represents the Transitioning Ecologies of Practices; and the three neat balls of string represent the Maturing Ecologies of Practices indicating that the IVET4 programme could be transferred and scaled.

The white arrows in the middle of in Figure 8.4 indicate the ‘end state’ of the Chief Engineers Programme, the Skipper Development Programme and PP. The ‘end state’ in parenthesis indicates that it is the end as far of the PhD research project; however, the programmes may go on under the baton of I&J Limited and they may mature or regress as time goes on.

The solid blue arrow in Figure 8.4 shows a few key characteristics of Ecologies of Practices as they move from an emergent state to a mature state.

Emerging Ecologies of Practice

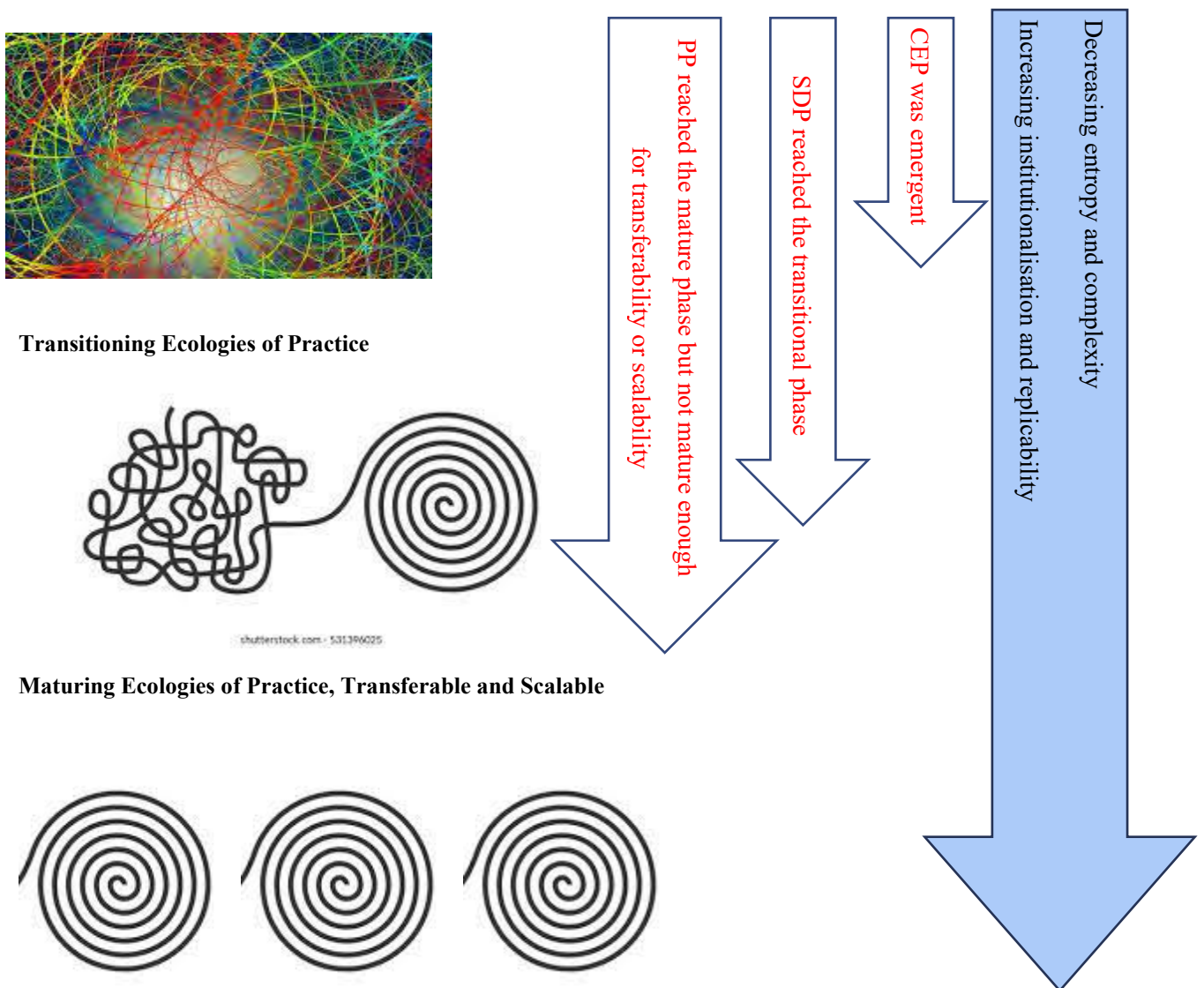


Figure 8.4: Composite Illustration of Ecologies of Practices for PP, Skipper Development Programme, and the Chief Engineers Programme

Figure 8.4 demonstrates the ‘state’ i.e., emerging, transitioning or maturing of the Ecologies of Practices in the three IVET4 programmes by May 2021. The sections (cf. 8.2.4.1, 8.2.4.2, 8.2.4.3) which follow this figure provide an explanation of the implications of these ‘states’ (as indicated by the white arrows).

8.2.4.1 Chief Engineers Programme as an Emerging IVET4 Ecologies of Practices

The ten IVET4 programmes described in Chapter 3 were all in the emergent phase at the inception of the particular programmes. All programmes were built in flight, and therefore, remained in the emergent phase until the course had been delivered to completion for the first time. For the IVET4 programmes under discussion, the Chief Engineers Programme did not reach beyond an emerging Ecologies of Practices. The emergent Ecologies of Practices is illustrated in Figure 8.4 by a vibrant web of connecting lines. The Chief Engineers Programme had all the practices and properties of an emerging Ecologies of Practices. It was a programme of firsts:

- First IVET4 in I&J Limited to include Chief Engineers and their staff;
- First programme with the objective of teaching engineering auxiliary skills;
- First programme to fully adopt a blended online approach;
- First programme to offer a learner-driven programme with formative and summative assessment; and
- First (along with the PP) to receive IVET4 in their workplace which increased inclusivity and access for learners.

Because of the ‘firsts’ listed above; an Emerging Ecologies of Practices was the most suitable Ecologies of Practices for the Chief Engineers Programme. This is because the Emerging Ecologies of Practices provided an expansive, generative and agile space to form this programme from its genesis to completion of the first delivery. All 20 practices were present, related and active as shown in Figure 8.1. As referenced earlier the Chief Engineers Programme was halted during the delivery of Module 2. The degree of activity towards institutionalisation which had been achieved by this point included: the course content for three modules was complete; the Earning and Learning model mediated by Future People Online-In-Person Learning Platform had been eagerly adopted by the Engineers; the work of the leverage professional was established and effective; middle leading by me was the dominant form of leadership and provided the impetus to keep moving forward; the design and funds had been approved to build a large-scale refrigeration and electrical simulator; monthly reports were submitted to I&J Limited and quarterly reports to the Anglovaal Industries Ltd Board; highly experienced engineers and administrators were willing subject matter experts; and the ‘culture’ of the programme was one of excitement and joy.

The Earning and Learning model was my initiative birthed from my absolute determination to bring IVET4 to the learners on the vessels – it was thus the starkest example of practising the pedagogy of love. Motivating for Chief Engineers Programme, doing the ‘Saturday work’ required to get Future People Online-In-Person Learning Platform operational; and beginning the Chief Engineers Programme under Covid-19 conditions was an ‘ethico-political practice’; it embodied Freire’s concept of an ‘armed love’. This was also true of Rick Achmat who firmly stood at his post as the leverage professional and

involved the learners one at a time on Zoom and WhatsApp and commenced the task of teaching Word, Excel and Outlook to the engineers.

What would it have taken to move Chief Engineers Programme to the transitional phase? Chief Engineers Programme would have had to run to completion over the 18-month course of the programme to form a completed ‘minimal viable product’; and crucially the programme would have attained a transitional Ecologies of Practices if the programme had been afforded the same support by the incoming Executive Senior Management Team, as it had by the outgoing Executive Senior Management Team. In retrospect if I had had the understanding and language of the pioneer-settler maturing Ecologies of Practices, and I had been given the opportunity to discuss the Chief Engineers Programme with the Executive Senior Management Team, we may have convinced the new Executive Senior Management Team to stay the course.

8.2.4.2 PP (Generation Two) and the Skipper Development Programme as Transitioning IVET4 Ecologies of Practices

Both the PP (Generation Two) and the Skipper Development Programme are good examples of IVET4 transitioning Ecologies of Practices. This is represented in Figure 8.4 as the unravelling of the lines and the creation of an ordered structure. The practices, and the properties thereof (vocal, whispered or silent) were evident in both programmes. To highlight a few, the courseware design and content creation were complete; the teaching methodology was well established, assessments were routine; and reporting to I&J Limited and to the Anglovaal Industries Ltd Board were routine albeit only partially successful. Through the practice of the pedagogy of love, strong relational bonds had been formed amongst the teams on the vessels and between ship and shore staff. There was a tangible culture of two-way communication, respect and trust. Both programmes had run to completion. Returning to the description in Chapter 7 on the PA of Methodology and Methods (cf.7.2), and returning to the metaphor of house building, one could definitely say we had successfully built a ‘single house’, one house for the PP and one house for the Skipper Development Programme.

8.2.4.3 A Maturing and Matured IVET4 Ecologies of Practices

Returning to the analogy of house building to illustrate this point, what would it take to build many houses on different sites i.e., to transfer and scale the PP or the Skipper Development Programme, in other words, to move from a Maturing to a Matured IVET4 Ecologies of Practices? The PP had matured further than the Skipper Development Programme by the end of the Transitioning Ecologies of Practices ‘state’.

8.2.4.3.1 Seven Steps to the Full Maturity of an IVET4 Ecologies of Practices

For the PP to become a mature IVET4 Ecologies of Practices the following steps were identified:

- i. Distribute the Production Manual amongst shore-based production personnel so that the processes, procedures and standards could be universally understood and accepted by all; and so that sea-going production becomes a ‘shared language’.
- ii. Ensure that this document is stored on the I&J Limited data repository and is updated regularly as it is the basis of the ongoing production training and the source of sea-going production protocols.
- iii. Consideration could be given to making the Standard Operating Procedures of the Production Manual compliant for International Organisation for Standardisation (ISO) which is a body already entrenched in I&J Limited; and this would imply external oversight.
- iv. In addition to, and in line with the point above, a Quality Assurance Framework could be developed to ensure that the standards of the Production Programme training and Assessment are maintained to the levels reached or surpassed at the end of the transition stage. This could be an internal self-audit unless I&J Limited decided to accredit the programme with the relevant Sector Education and Training Authority and get a formal qualification or learnership registered. To accredit a programme of this nature with a Sector Education and Training Authority is not an easy decision. The drawbacks are that it is a very time-consuming process; the sea-going production manual currently in the heartland of I&J Limited intellectual property would become available in the public domain to competitors once accredited; any changes to production processes would take a long time to effect; and ongoing Sector Education and Training Authority administration is burdensome. The benefits are that the company would attract more grant funding; individuals would get a qualification which is recognised beyond I&J Limited; and the delivery of the training is regimented and could be taught by any appropriately equipped registered assessor. In addition, external audits of the programme would be done by the relevant National Qualifications Framework authorities which implies that there is an external quality assurance process.
- v. Production Programme train-the-trainer by a master trainer for onboard and shore-based trainers would need to be ongoing.
- vi. More comprehensive Facilitator’s Guide, Assessment Guide (cf. Appendix 5) and Assessment Matrix, Portfolio of Evidence and Learner’s Guide would need to be developed.
- vii. Leadership to drive and administrate the IVET4 Training Programme. This is likely to be internal positional leadership from the Training and Development Department and could include the active appointment of a leverage professional to augment the training outcome.

The same seven steps would apply to the Skipper Development Programme. The PP and Skipper Development Programme reached sufficient maturity for the courses to be repeated within the I&J Limited context i.e. returning to the house building metaphor, we could build the same house in the same place. The implication of this is the PP and Skipper Development Programme could be repeated

or scaled up to include other I&J Limited learners at Trawlers or on the vessels. These programmes had not reached sufficient maturity to be transferred to other sites of practice. The synthesised data in Chapter 6 (cf. 6.9 and Table of Invention 8) points to four characteristics of Mature Ecologies of Practices.

8.2.4.3.2 Four Characteristics of Matured Ecologies of Practices for an IVET4 Programme

Four characteristics of a mature IVET4 programme which could be transferred and scaled i.e. building many houses on different sites, were identified:

- i. A set of courseware which is constituted of a Learner's Guide, Facilitator's Guide, Assessment Guide and Assessment Matrix (cf. Appendix 5), and a Portfolio of Evidence.
- ii. An internal or external Quality Assurance Framework which includes the certification of learners and a mechanism for updating courseware.
- iii. An active Master Trainer to continue 'sharpening the saw' through a train-the-trainer system.
- iv. Leadership to drive and administrate the IVET4 Programme.

It is hard not to notice how similar a mature IVET4 Ecologies of Practices is to a formal National Qualifications Framework-accredited programme. And here lies the bridge or opportunity to consider the articulation of the two systems where articulation means " ... connect by joints ... with flexibly connected sections ..." (Concise Oxford Dictionary, 1983, p. 49). This is an idea which is picked up in the Recommendations.

8.2.5 Does the PA of Maturing Ecologies of Practices Enable or Constrain IVET4?

The PA of Maturing Ecologies of Practices is neither enabling nor confounding. It is in the recognition of the Ecologies of Practices that the power lies. The key is recognising *which* Ecologies of Practices a specific time-space-place IVET4 programme may fall within; and deciding whether or not this course is in the optimal Ecologies of Practices or not; and working out how to move the programme into the next Ecologies of Practices if appropriate. It is in the mind and decision-making abilities of the IVET4 educator where the constraining or enabling power of the conception of Maturing Ecologies lies. I illustrate this point with examples from this study.

Emerging Ecologies of Practices – successful: The PP and the Skipper Development Programme successfully moved through the emerging Ecologies of Practices phase into the transitional phase. The Chief Engineers Programme was in the emerging phase when the project stopped. The emerging Ecologies of Practices was the optimal state for the Chief Engineers Programme as there was room to find our footing with the blended online model and delivering IVET4 at sea. The Chief Engineers Programme in the emerging Ecologies of Practices was an enabling practice arrangement.

Recent Transitional Ecologies of Practices – successful: The management at Trawlers, spurred on by the Executive Senior Management Team, instructed the Resource Manager and me to develop and

deliver a wetfish and a freezer production course to improve the skills of the factory staff which would increase the profitability of the division. As has been described we set about doing this and we achieved the objective. At the time of handing over the PP to I&J Limited, the IVET4 programme had moved through the emerging and transitional Ecologies of Practices phases and was poised to become a mature IVET4 programme. Looking at the PP through the lens of Maturing Ecologies of Practices, one can observe that the PP had matured to the point where it could be replicated within the Trawlers division, but it was not ready to be transferred to another organisation nor taken to scale. It was never the intention of the Trawlers operational managers nor the Executive Senior Management Team to move this course beyond the borders of the division. This was for two reasons: firstly, the primary aim was to improve the knowledge and skills of I&J Limited staff; and secondly, the content of the course was sensitive intellectual property which they had no wish to share with the rest of the industry, especially as the PP was a first in industry and had delivered a competitive advantage. One can conclude that reaching the end of the transitional phase was the optimum Ecologies of Practices to serve the purposes of the company; and that there was no need to move the PP into a maturing Ecologies of Practices. Reaching the end of the transitional Ecologies of Practices and not moving into the maturing Ecologies of Practices space was an enabling practice arrangement.

Historical transitional Ecologies of Practices – successful: Another successful example of an IVET4 course which reached the end of the transitional phase and could be replicated within the business were the Labour Relations Programmes (1 and 2 and 3), Project Butterfly and Project Safari (7 and 8), and the Full Fleet Mentorship Programme (5). These programmes had reached the optimal Ecologies of Practices which was the end of the transitional phase and could be regarded as enabling practice arrangements.

Transitional Ecologies of Practices – unsuccessful: For the Skipper Development Programme to complete the transitional phase, more work would need to be done on formalisation of the Facilitator's Guide, Assessment Guide and Assessment Matrix (cf. Appendix 5), Portfolio of Evidence and Learner's Guide. The pedagogical method of delivery also required strengthening as the next iteration of the Skipper Development Programme would have been to train the vessel management teams comprising of First and Second Mates, Chief Engineers and the Production Managers. Like the PP, there was no intention to scale or transfer this course beyond the I&J Limited Fleet. That said, if the work had been done to complete the transitional phase, the company would have had a viable training course to run in-house whenever the need arose. Because the Executive Senior Management Team stopped work on the Skipper Development Programme, the course was reduced to a 'once-off' event. This struck me as a waste as so much work, time and money had been put into the development of the Skipper Development Programme, not to finish the job so that the course could be repeated for upcoming sea going leaders. This is an example where the IVET4 did not reach the optimal state by completing the work required to reach the end of the transitional Ecologies of Practices. Not completing the transitional phase was

confounding as the Skipper Development Programme could not be replicated within the company, one could say a house had been half built. One of the consequences of the stalled progress towards maturation of the Skipper Development Programme was that the performative aspects of the programme were maintained because these were embedded in the annual practice of individual performance reviews. However, the relational gains of the programme ebbed away even though the evidence presented in Chapter 6 indicated that the increase in relationality was one of the most successful outcomes of the programme. The regular meetings which had generated the improved communication and trust were not sufficiently institutionalised.

Mature: I&J Limited used many ‘mature’ programmes which were formal, National Qualifications Framework accredited learnerships and qualifications, for example, the Skipper’s Ticket, or the food safety courses. Over the 25 years of my involvement with the company I was not aware of any IVET4 ‘mature’ courses in use.

Cyclical: The conception of Maturing Ecologies of Practices is not a linear one. A IVET4 programme may go ‘backwards’ to go forwards. Hypothetically, if the vision for the second generation of the Skipper Development Programme was to deliver a blended online course mediated by Future People Online-In-Person Learning Platform; the original Skipper Development Programme would have reverted to an emerging Ecologies of Practices to provide the space to experiment with a new mode of mediation.

8.3 Theory and Data in Conversation to Answer the Research Question D

Research Question D: How can this work be transferred and scaled to contribute to the emerging IVET4 theory and praxis?

I assert that I have answered this question by introducing the concept of the PA of the Maturing IVET4 Ecologies of Practices which is the second claim I make to new knowledge and is expanded in the next section.

The theoretical concepts from TPA which I have brought into play are the Ecologies of Practices (Kemmis et al., 2020; Kemmis & Mutton, 2012); the Education Complex (Kemmis et al., 2014); and Travelling Practices (Wilkinson et al., 2013). These theoretical constructs were explicated in Chapter 4 and have served two purposes which enabled me to answer Research Question D. The first was to provide me with tools to ‘open up’ the data; and the second was to provide me with a springboard from which I could enhance the theory of the Ecologies of Practices by developing the Maturing Ecologies of Practices concept for application in IVET4. I highlight examples of where I have applied these theoretical concepts to develop the conception of Maturing IVET4 Ecologies of Practices.

Ecologies of Practices as a living system: Based upon inspiration arising from *eco-literacy* literature (Capra, 2005 in Kemmis et al., 2014, p. 49), I list the features of a natural ecosystem: networks, nested systems, interdependence, diversity, cycles, flows, development and dynamic balance; and further suggest that one can interrogate a potential educational Ecologies of Practices using these natural features of an ecosystem to determine if indeed the group of pedagogical practices form an Ecologies of Practices or not (Refer to Table 4.1). The ten questions were mooted by Kemmis et al. (2014, pp. 43–54) to help the educator determine the nature of the relationship/s amongst educational practices and also helped me to identify the Ecologies of Practices in the PP, Skipper Development Programme and Chief Engineers Programme (cf. 4.3.9). I suggest that the evidence presented in Chapter 6, on the five practices of the creation of courseware, teaching and learning, assessment, the practices of love and management, exhibit the different features of the ecosystem, and taken in sum they form an Ecologies of Practices. The PP, Skipper Development Programme and Chief Engineers Programme each had a unique ecosystem footprint, that incorporated different practices in different relationships, which was the inspiration for the conception of Maturing IVET4 Ecologies of Practices.

Education Complex: In an attempt to look beyond the obvious, and to uncover a systemic forcefield holding the Complex(es) of Education in place, I placed three different renditions of the Complex of Education side by side in Table 8.1 below. This is not a comparison, as one is not comparing apples with apples, but a juxtapositioning to highlight insights by looking at the Complex of Education from a different angle.

Column 1 is the Education Complex as proposed in the TPA literature which represents the key practices involved in formal education in particular contexts (Kemmis et al., 2014a). Column 2 is the key practices of a Complex of Education of a Mature IVET4 Ecologies of Practices rendered from the ideation of the PA of the of the Maturing Ecologies of Practices. Column 3 is the Complex of IVET4 Education (cf. Chapter 7, 7.4 and Figure 7.2) rendered from the notion of the PA of Methodology and Methods which represents a generic Complex of Education of an IVET4 programme.

It is my view that these three education complexes cannot be shoe-horned into a neat model or representation. I suggest that this table shows us that IVET4 could be enhanced by deliberate inclusion of IVET4 professional learning practices which would promote researching, reflecting and evaluating practices by the IVET4 educator. Both these practices happen haphazardly if one considers my own ontological and epistemological growth as recorded in the Reflective Historical Narrative, however, this growth remains lonely and self-driven. I make recommendations in Chapter 9 (cf. 9.3.1) towards the formalisation of professional learning practices which would promote research, reflection and evaluation of IVET4 educators' practices-praxis.

Table 8.1: Side by Side perspective of Formal and Informal Complexes of Education

Column 1	Column 2	Column 3
Education Complex of Formal Education	Education Complex of a Mature IVET4 Ecologies of Practices [PA of Maturing Ecologies of Practices]	Generic Complex of Education of an IVET4 programme [PA of Methodology and Methods]
Student practices	Learner: teaching and learning practices	PA of Range and PA of Relationality
Teaching practices	Educator: teaching and learning	PA of Range and PA of Relationality
Professional learning practices	<i>Potential for growth for IVET4 through inclusion of practices</i>	<i>potential for growth for IVET4 through inclusion of practices</i>
Leading practices	Positional leading practices	PA of Informality
Researching, reflecting and evaluating practices	<i>Potential for growth for IVET4 through inclusion of practices</i>	<i>potential for growth for IVET4 through inclusion of practices</i>
Assessment is included under teaching or student practices	Assessment practices	PA of range

Travelling Practices: In part answer to the research question on the scalability and transferability of IVET4 programmes, I draw on the idea of *travelling practices* (Wilkinson et al., 2013). I repeat a quote from Chapter 4 (cf. 4.4.5) to bring into dialogue the conceptions of travelling practices and maturing-matured IVET Ecologies of Practices:

In order for a practice/idea/object to travel, it must first become separated or ‘dis-embedded’ from its original institutional environment and then: ‘Translated into an object such as a text, picture, or **prototype** ... travel through the relevant fields of organizations to another time and place, where it is translated to fit the new context (unpacked). Finally, the object is translated locally into a new practice (re-embedded), and with time, the black box of the institution may close itself around the idea.’ (Erlingsdottir and Lindberg, 2005 in Wilkinson et al., 2013, p. 227. Emphasis in bold mine)

In discussing the maturing and matured IVET4 Ecologies of Practices above (cf. 8.2.4.3), I outlined seven steps which would be necessary to take the PP from a maturing IVET4 Ecologies of Practices to a mature one. I also provided four characteristics of a mature IVET4 Ecologies of Practices which are related to courseware, a quality assurance framework, master trainer capacity and leadership. I propose that the object to be transferred is an IVET4 programme which exhibits the characteristics of a matured IVET4 Ecologies of Practices. Based upon the synthesised evidence presented in Chapter 6 (cf. 6.9) and Table of Invention 8) on the practices and practice architectures of IVET4 Programmes as they move through time, it appears that an IVET4 programme, that does not have the characteristics of a matured IVET4 Ecologies of Practices, is unlikely to scale or transfer to other contexts well. There are four elements which may enable or constrain the travel or transfer of a mature IVET4 programme from

one context to another. These elements were elucidated in Chapter 4 (cf. 4.4.5) and they are the *carrier*, the *context*, the *'fit' of the object [aka the IVET4 Programme]*, and the *contact* (Wilkinson et al., 2013, pp. 227–228).

It is again worth noting the touchpoint between informal and formal VET when considering travelling practices of vocational programmes: Formal, accredited VET courses are fit to transfer and scale precisely *because* these courses have the four properties of a mature IVET4 Ecologies of Practices, which I am proposing are necessary for IVET4 courses to reproduce and migrate.

In closing, I acknowledge that I was able to bring the data into conversation with theory because of the depth of work over time which the PEP Community has done to provide a generative theory and the heuristics to interrogate empirical data. This has not only enabled me to find answers to the four research questions raised but has promoted an internal coherence for this thesis. I further substantiate the answer to Research Question D by explicating my second claim to new knowledge below.

8.4 Contribution to New Knowledge: The Provision of the Theoretical Concept of Maturing Ecologies of Practices for IVET4 which enables the Transfer and Scaling of IVET4 Programmes

Kemmis et al. (2014a, p. 50) stated that “our notion of ‘ecologies of practices’ encompasses the ideas that the form and content of one practice may change the form and content of another and that practices can travel from site to site”. This notion is found in this study of IVET4 programmes in the commercial fishing industry of South Africa too as explicated above (cf. 8.2 and 8.3).

The preceding sections of this chapter provide the substantiation for the second claim to new knowledge which is the *theoretical conception of the PA of Maturing of IVET4 Ecologies of Practices*. This enhancement of the IVET4 theorisation with TPA Ecologies of Practices is based on the empirical data arising from the PP case study and I make no claim beyond this boundary. Any generalisation beyond this case study is a ‘fuzzy prediction’ (Bassey, 2001); and this generalisation is that the ideation of Maturing IVET4 Ecologies of Practices may be relevant to other IVET4 programmes in South Africa.

Based upon Ecologies of Practices (Kemmis et al., 2020; Kemmis & Mutton, 2012), I observed:

- **Firstly**, that the configuration and use of practices in the first, second and third generations of the PP were different to one another;
- **Secondly**, that the constellation of practices had the characteristics of an ecosystem, as elaborated by Kemmis et al. (2014a), and which implies that they form an Ecologies of Practices;

- **Thirdly**, that the practices presented themselves in different states in the different Ecologies of Practices;
- **Fourthly**, that the phase of Ecologies of Practices was not static but seemed to mature over time; and
- **Fifthly**, that there were six common properties of Ecologies of Practices which evolved in lock step with the maturation process of the Ecologies of Practices.

I employed systematic reasoning to apply the TPA Ecologies of Practices to the PP data; and it was abductive logic which led me to the ideation of the Maturing IVET4 Ecologies of Practices. I have explicated these five observations made above through discussion and illustration of the emerging, transitioning and maturing Ecologies of Practices observed in the PP case study.

A formal VET programme could be considered as similar, but not the same, as a mature IVET4 Ecologies of Practices. This is a similarity which has already been observed in the text above; thus, the notion of Maturing IVET4 Ecologies of Practices is not useful for formal VET. The power of this idea lies in its peculiarity for IVET4 programmes as an IVET4 programme moves (or not) from pioneer to settler. The theorisation of Maturing IVET4 Ecologies of Practices allows one to:

- Identify the state (silent, whispered, vocal) of a practice;
- Identify the interrelationships amongst the practices;
- Identify when these practices or the relationships amongst them are evolving into a different phase from emergent, to transitional, to mature in a potentially non-linear pattern; and
- Based upon this power, to identify these elements of the practices and practice architectures of an IVET4 programme (Research Question A); one then has levers to pull to promote or confound these practices (Research Question B), to improve the IVET4 programme (Research Question C).

I wish to be explicit that the expansion of the Ecologies of Practices through the theorisation of Maturing IVET4 Ecologies of Practices is grafted deeply into the foundational building blocks of TPA. This expansion relies upon the identification of practices (sayings/thinkings, doings and relatings), and the practice arrangements (cultural-discursive, material-economic and social-political); their interrelationships; and the conditions or practice architectures which enable or confound the practices in a particular project in a space-time-place context. Without this understanding it would not have been, nor would it be, possible to identify the IVET4 Ecologies of Practices in the first place, or to detect changes in the state of a practice, or to determine the interrelationships between practices.

It would be counterproductive to provide a ‘one-size-fits-all’ or a recipe for determining the Ecologies of Practices of an IVET4 programme as each one is different; however, in the course of this chapter I have provided six properties of an IVET4 Ecologies of Practices for IVET4 educators to consider. These are the complexity (density) of the ecosystem, the silent, whispered or vocal state of each practice, the

interrelationships amongst practices; and the affective practice of ‘love’ which is central. To support this theorisation I detailed the *seven steps* which are required to move the PP towards a mature IVET4 Ecologies of Practices and listed the *four characteristics* of a mature IVET4. These properties, steps and characteristics are highlighted because this is what it takes to transfer and scale an IVET4 programme (Research Question D).

In summary and towards transgressive IVET4: I suggest that the evolving concept of IVET4 Maturing Ecologies of Practices could provide a theoretical tool to ‘open up’ *critical pedagogical praxis* “which is manifested in teaching practices that aim not only towards the good, but also to overcome or ameliorate unreasonable, unproductive, unsustainable, and unjust conditions in educational institutions and communities and the wider societies in which they exist” (Kemmis et al., 2020, p. 109).

It does this by providing a mechanism to identify the practices of an IVET4 Programme at a systemic level (ecosystem) and provides avenues of thinking for the IVET4 educator to determine: a) which phase of Ecologies of Practices the IVET4 is manifesting; b) whether this is optimal or not; and c) which tasks are required to move the IVET4 programme towards an optimal Ecologies of Practices to best serve the twin objectives of learning which are an “Education for the good for each person. **Education for living well**” and to provide an “Education for the good for the community of life on Earth. **Education for a world worth living in**” (Kemmis & Edwards-Groves, 2018, p. 134. Emphasis in original).

8.5 Conclusion to Chapter 8

This chapter has covered the description of the PA of Maturing IVET4 Ecologies of Practices; addresses Research Question D; and set up the substantiation for the second claim to new knowledge which I make in this PhD. As noted, Chapter 7 and Chapter 8 are two sides of the same coin. The remarks I made in the conclusion of Chapter 7 regarding the Quality Framework and autonomous working are the same for Chapter 8 and do not bear repeating. Instead, I will use this space to *lamine* the PA of Methodologies and the PA of Maturing Ecologies of Practices by way of an illustration i.e. putting the two sides of the coin together. Although I laid out my contribution as two separate claims, as stated at the beginning, they are deeply intertwined as each amplifies the other. The lamination of the two claims, one practical and one theoretical shown in Figure 8.5 offers insight into the fullness of the contribution I am making to new knowledge in the IVET4 space.

As for any coin the two sides are different but related, there is a ‘head’ and a ‘tail’. It is also so with the two claims which I make: on the lefthand side is the practical contribution of the PA of Methodology and Methods, and on the righthand side is the theoretical contribution of the PA of Ecologies of Practices. In the blue block, the PA of Informality would inform the characteristics of complexity and

the interrelationship between practices of the IVET4 Ecologies of Practices; and the latter would provide a feedback loop to the former. The labour done in the blue blocks is mostly **head** work, practices of ‘sayings’ and ‘thinkings’ which move through the intersubjective semantic space in the medium of language to form cultural-discursive arrangements.

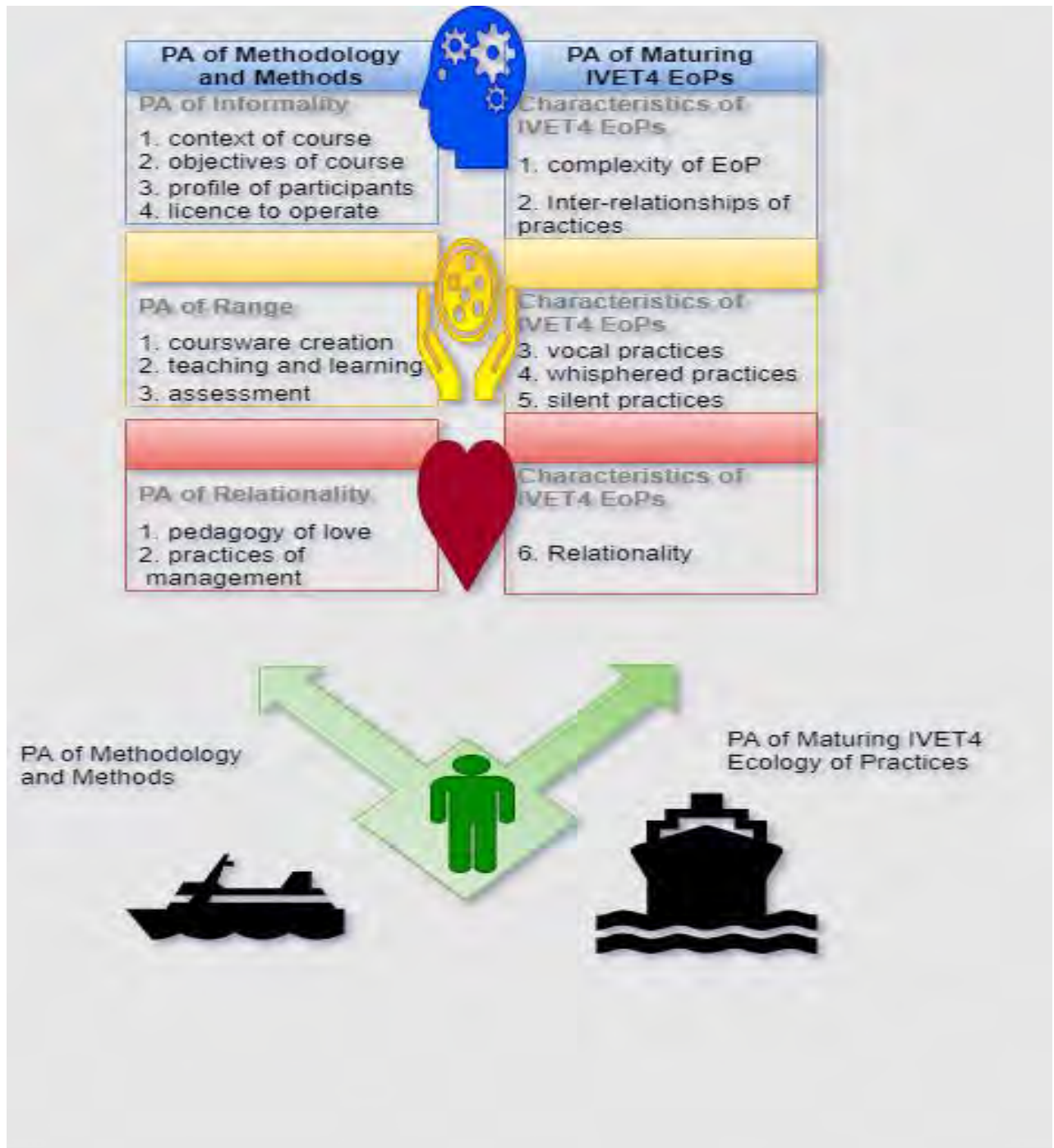


Figure 8.5: Illustration of Laminated Contribution of Practical and Theoretical Claims

In the yellow block the 42 tools offered in the three toolboxes of course creation, teaching and learning, and assessment have a symbiotic relationship with the IVET4 Ecologies of Practices characteristics of vocal, whispered and silent practices. This is mostly labour of the **hands**, practices of ‘doings’ in the physical time-space in the medium of activity and work and creates material-economic arrangements. In the red block, the PA of Relationality informs the IVET4 Ecologies of Practices characteristic of Relationality which in turn provides a feedback loop to the former. This labour is mostly **heart** work, ‘practices of relatings’ which move through the intersubjective social space of power and solidarity to form social-political arrangements.

Intellectually one can separate the practical and theoretical claims, but in the cut and thrust of business and delivering IVET4 programmes, the PA of Methodology and Methods work hand-in-hand with the PA of Maturing IVET4 Ecologies of Practices.

This chapter is followed by Chapter 9 where I proffer a number of recommendations and summarise key elements of this research project.

CHAPTER 9: RECOMMENDATIONS, SUMMARY AND CONCLUSION OF STUDY

We've got 21st century technology and speed colliding head-on with 20th and 19th century institutions, rules and cultures – Amory Lovins (Uhl-Bien & Arena, 2017)

9.1 Introduction to Chapter 9

This final chapter begins with the theoretical (mind), practical (hands), and networking (heart) recommendations I wish to make as a consequence of this study. In recognition of what the TPA theoretical lens has enabled in this thesis, I have categorised these recommendations under three themes namely, thinkings/sayings; doings; and relating. As we know from TPA, these themes cannot be regarded as distinct but are rather interrelated and feed off each other. These recommendations are both horizontal, working at a programmatic level; and vertical, working at a systemic level. Acting on these recommendations could enable the practices, practice arrangements and practice architectures for improving, scaling, and transferring of IVET4 programmes. Following the recommendations, I provide a summary of this doctoral work which includes a piece on my own onto-epistemological growth. I conclude this chapter by affirming my intended contribution to new knowledge.

9.2 Recommendations: Theme 1 – Thinkings and Sayings

Thinking/sayings: These are theoretical recommendations which would mostly develop in the semantic space and be realised in the medium of language and result in cultural-discursive arrangements.

9.2.1 Giving Voice to the Silent Practice of IVET4

I wish to give voice to two important practices which were designated as silent in the depiction of the emerging (Figure 8.1), transitioning (Figure 8.2) and maturing ecologies of practices (Figure 8.3). These are the Trellis of Practices which Support Learning (Francisco, 2020) and Time as Practice (Blue, 2019). Evidence of both these practices was discernible in the corpus of data; however, in my review there was neither sufficient data to adequately describe the contours of the practices, nor adequate evidence to substantiate any further claims, nor enough focus on these practices in the case study to do justice to these bodies of work. The reason for this is that these practices only became known to me late into the PhD process after the research design had been established and the data collected. Nonetheless, enough evidence points to the usefulness and rich contributions which these practices could bring to IVET4 and indicates they warrant targeted research in the future.

9.2.1.1 PA of the Trellis of Practices which Support Learning

The theoretical underpinning for Trellis of Practices which Support Learning is provided in Chapter 4, Section 4.4.1. This description also includes an explanation of the relevance of Trellis of Practices which Support Learning for the PP. Further research could test the three empirical observations which I make concerning IVET4 and Trellis of Practices which Support Learning, i.e.

- I have deduced that on a site where there are IVET4 practices underway which form a Complex of Education (or a similar project-specific complex of education practices), then Trellis of Practices which Support Learning is likely to exist at some level of efficacy.
- If Ecologies of Practices foreshadow the Trellis of Practices which Support Learning in a workplace, I tentatively suggest that the trellis in an IVET4 setting could be seen as a ‘personalised’ Ecologies of Practices.
- As much as IVET4 Ecologies of Practices mature, as elucidated above in the PA of Maturing Ecologies of Practices, I contend that the Trellis of Practices which Support Learning may also mature in lock-step with the maturing IVET4 Ecologies of Practices.

Based upon the evidence collected I suggest that a Trellis of Practices which Support Learning for a PP Learner or a PP educator (myself) may have looked something like the illustration provided below in Figure 9.1. These Trellis of Practices which Support Learning would be regarded as meagre and not that effective in promoting and sustaining learning because there are few supporting practices offered and limited connections between them. These Trellis of Practices which Support Learning all rely on the voluntary practices of specific people rather than set practice traditions, for example, meeting in the tearoom.

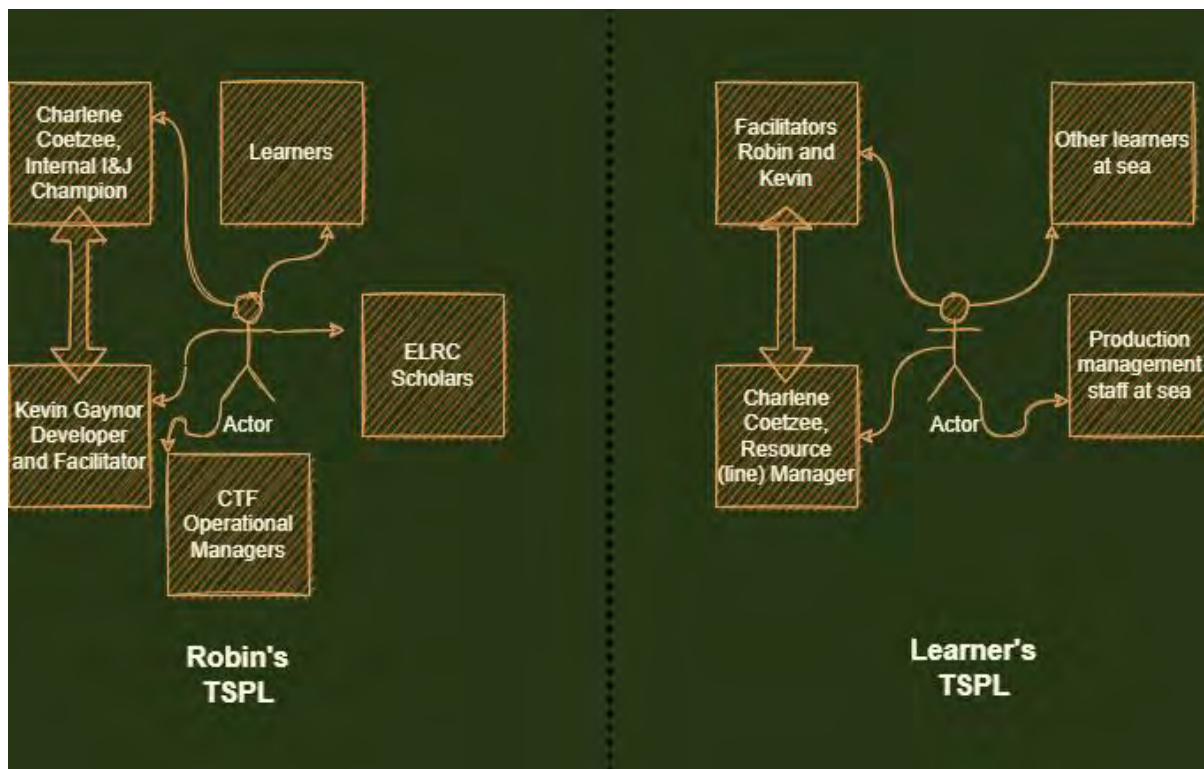


Figure 9.1: Trellis of Practices which Support Learning for IVET4 Educator and Learner

The reason that further research on Trellis of Practices which Support Learning in the IVET4 context is important is that if this is understood and has the conscious support of the management teams, it will enhance the outcome of IVET4 by deliberately creating practices and practice architectures which promote the Trellis of Practices which Support Learning at a particular site. As discussed before, IVET4 does not enjoy the same level of protection that formal VET does; however, a robust Trellis of Practices which Support Learning could buttress the status of a IVET4 programme. This would happen because there would be a legitimised interconnected Trellis of Practices which Support Learning which would be grafted into the day to day practice of the organisation and its culture. This PhD indicates which practices and practice arrangements promote or confound IVET4, therefore this work provides a solid springboard into further research on the Trellis of Practices which Support Learning.

9.2.1.2 Leadership

The function, knowledge and skill required by an IVET4 educator or a leverage professional have been explored in formal VET (Charteris, Smardon, & Kemmis, 2021; Grice, 2019; Jenkin, 2020; Wilkinson, 2021). This is not the case for IVET4 where the IVET4 educator is likely to have less or no institutional authority to lead. I suggest that there are productive research opportunities to investigate middle leading in the IVET4 Southern African context. Advancements in understanding this element of an IVET4 educator's role would further enable IVET4 practices and potentially even advance practice architecture/s which would create more favourable set-ups for IVET4 leadership. Leadership in IVET4

can be approached in many ways and I present just two ideas in brief as ‘thought-starters’ for future research. One is from the TPA stable, and the other is not. The first comes from leadership studies and is the Heifetz Adaptive Leadership Principles (Heifetz, 1994; Roush, 1997); and the TPA contribution is found amongst work with medical teams concerning professional brilliance (Hopwood et al., 2021a). I have chosen these two contributions because as the five practices and two overarching PAs arose from the data, there seemed to be many commonalities with IVET4 to be found in Heifetz and Hopwood’s work.

Adaptive Leadership

There are seven steps or principles to Adaptive Leadership. Table 9.1 below lists these steps and the actions which characterise each step.

Table 9.1: Adaptive Leadership and Characteristics

Table synthesised from Heifetz in Benington & Turbitt 2007, pp. 383-384 (Heifetz, 1994; Roush, 1997)

STEP	CHARACTERISTICS
1. Identify the adaptive challenge	✓ test behaviours, attitudes, thinking ✓ especially self – take responsibility for own mess ✓ techniques could include appreciative enquiry and open spaces ✓ acknowledge loss
2. Give the work back to the people faced by the problem	✓ avoid rescue, ensure people take responsibility ✓ short, simple interventions build success
3. Regulate the distress necessary for adaptive work	✓ sufficient heat to produce results, not destroy ✓ create capacity for disequilibrium ✓ focus on the issue, let it ripen ✓ avoid solving issues prematurely
4. Create a ‘holding’ environment	✓ provide a safe yet stretching physical and psychological environment ✓ think politically – partners, allies
5. Maintain disciplined attention	✓ keep focussed on the issue ✓ tackle avoidance behaviour ✓ point to the future ✓ model the behaviour
6. Protect voices from below or outside	✓ ensure minority voices heard ✓ question what you are most sure of ✓ hear the ‘no’ voices ✓ keep opposition close ✓ fetch the casualties to avoid future terrorists
7. Move continuously between balcony and battlefield	✓ keep both strategy and frontline in mind ✓ ‘hear the song below the words’ ✓ read authority figure for clues ✓ look beyond the obvious

Practices of Brilliance

Hopwood et al. (2021a) investigated the practices of brilliance amongst medical professionals; and went beyond defining these to understanding how these characteristics are inculcated in individuals and teams using TPA as a lens. Their research focussed on searching for ‘good’ qualities which I found resonated with my work as I discovered the practices and PAs which promoted IVET4. The iterative methodology of this work and the results would both be of interest to future researchers. Listed below are the practices of brilliance identified (Hopwood et al., 2021a):

▪ Repetition	help more. Short interjections for clarity. Listener and speaker are relaxed.
▪ Learner (parent) – friendly	
▪ Taking circumstances into account	▪ Problem-solving together
▪ Relaxed atmosphere – all participants feel comfortable	▪ Provide reassurance – Am I OK? Am I doing the right thing?
▪ Engaged and active listening: clarifying and confirming	▪ Strong relationships of trust. Also generates receptiveness to new ideas.
▪ Information presented in an appropriate way for the patients e.g., in pictures	▪ Patience
▪ Taking time e.g. helps with problem solving, realisations of misunderstandings	▪ Rapport – feeling comfortable in the space
▪ Space for patient to download – listener gets more information and can	▪ Maintaining calm and normalcy when child is ‘playing up’
	▪ Trust to open up is met with receptiveness

Hopwood et al. (2021a) and McGarry (2022) both encouraged looking for what is behind the obvious and familiar in our practices.

9.2.1.3 Time as Practice

Figure 9.2 below illustrates the value of deepening an understanding of ‘time as practice’ for IVET4. Time provides the practice theorist with another lens to evaluate a practice, practice arrangements and practice architectures. There is a renewed interest by practice theorists to undertake practice-based empirical research on ‘time’ (Blue, 2019; Blue et al., 2020; Karger, 2021). The theoretical basis for ‘time as practice’ is provided in Chapter 4, Section 4.4.6. This figure represents an application of Blue’s (2019) research, which combines Schatzkian practice theory with rhythmanalysis, in the IVET4 context of I&J Limited. This figure is also a way of representing my own onto-epistemological growth over time.

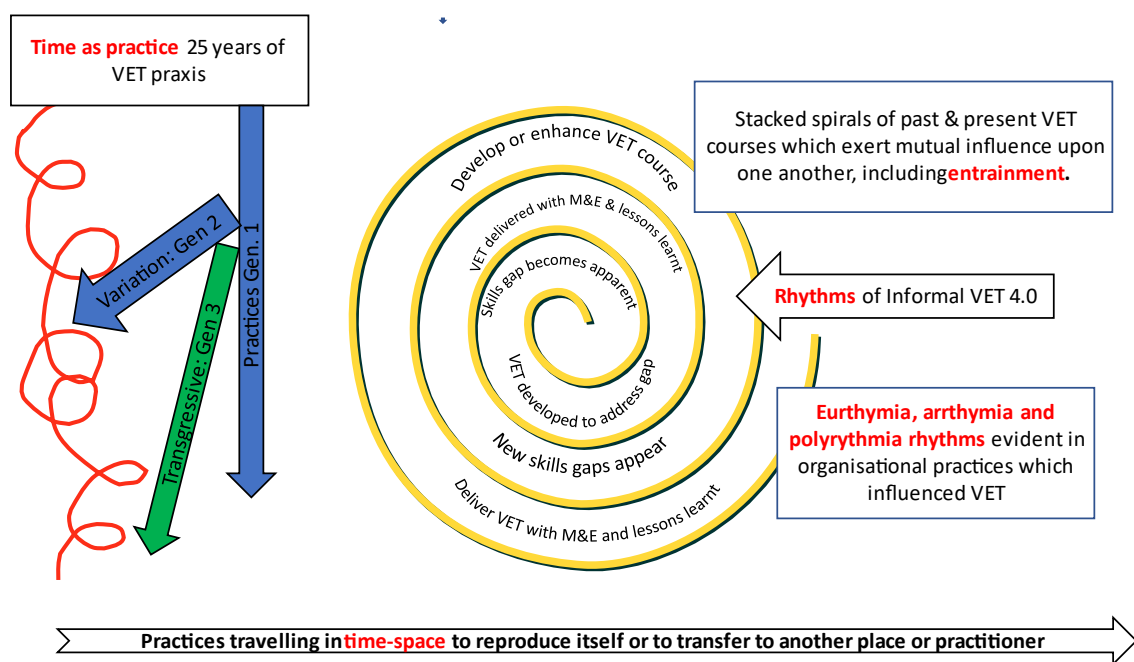


Figure 9.2 Time as Practice and Rhythmanalysis for the Three Generations of the PP

The figure above represents *time* as a constituent element in all practices.

- i. The cascading red line represents *time as practice* and demonstrates my own growth as an IVET4 educator over 25 years of practice-praxis.
- ii. The long blue arrow represents the practices and practice architectures of Generation One which occurred in t^1 and the shorter blue arrow practices and practice architectures of Generation Two which occurred in t^2 . The green arrow shows a move towards transgressive VET 4.0 in Generation t^3 . These timeframes ($t^1 - t^3$) are the same time intervals used in the Table of Invention 8: Synthesis of Data in Chapter 6.
- iii. The layered yellow-on-black spiral represents the rhythms of informal VET 4.0 as experienced at I&J Limited as the activities written within the spiral were repeated in every IVET4 intervention regardless of the content of the programme.
- iv. The arrow at the bottom indicates the potential travel of IVET4 practices over time to different sites through the processes of scaling and transferring as elucidate in Chapter 8.
- v. The two rectangles on the right contain the concepts of entrainment (the influence of one IVET4 programme upon another); and euthymia, arrhythmia and polyrhythmia which speak to the institutionalisation of practices in organisations.

Figure 9.2 curates all the above-mentioned elements of time as practice for long-term IVET4. I suggest all elements are worthy of deeper research because using the lens of time in a sense reduces the intervention to a ‘time capsule’ which can be ‘held’ and viewed from any angle. Point (v) offers the

promise of particularly productive future research on *how* practices become entrenched. Reading Trellis of Practices which Support Learning through rhythmanalysis would help the researcher to identify whether or not the PA surrounding the Trellis of Practices which Support Learning was enabling or confounding. There would be many such examples as any element of TPA could be viewed through the lens of ‘time as practices’.

9.2.2 Methodological Opportunities of TPA

There are opportunities for future researchers in education to experiment with the TPA in their research design and methods in a Southern African context. Should scholars be attracted to apply TPA, in any stage of the education process, they will find themselves amongst a large and generous international community. Kemmis (2019, pp. 1–2) reflected on his decades of work with practice theory:

We live our lives in practices [and he encourages educators and scholars alike] to awaken or refresh a sensibility ... to how we live our lives in practices, and what that means in terms of our relationships with each other and the world – as well as our relationships within the community of life on Planet Earth and with the Cosmos.

The application of TPA as a framework and the use of Tables of Invention as a device to analyse and synthesise the data enabled me to a) deconstruct and ‘unweave’ the data to discover the five IVET4 practices; b) to identify and illuminate the two overarching Practice Architectures; c) and finally to laminate a theoretical insight and a practical one into a two-fold contribution to new knowledge in service of IVET4. TPA made practices and practice architectures which were previously invisible, visible to me and rendered these practices ready for scholastic interrogation. The Table of Invention can be used in journal/diary form as a tool of self-reflection for one’s own practice-praxis.

Recent TPA contributions concerning the Theory of Education (cf. 4.4.7) encourage us to take up this call (Grice, 2019; Kemmis, 2019; Kemmis & Edwards-Groves, 2018; Kemmis et al., 2020; Mahon et al., 2016).

The challenge for you as a reader is to ... see how the concepts lead into each [your] example—to see where your thinking is taken by the use of this concept, and by using the concepts together as a conceptual framework [Theory of Education]. To use the framework this way is to use it as ‘a table of invention’ – a kind of tool to guide thinking and analysis (and used since the time of Aristotle, and through the scholastic period in the middle ages). (Kemmis & Edwards-Groves, 2018, p. 135)

Stepping into using TPA as tool for the analysis and synthesis of data is made accessible through the recent publication on heuristics and practical examples for TPA scholars (Kemmis, 2021).

9.2.3 Joining the Conversation on Informal and Formal VET 4.0 Africa

Joining a long conversation ...

In Chapter 1 (cf. 1.2.5) one of the reasons advanced for the value of this research project was that of the South Africans between the ages of 18 and 24-years-old, only 10-20 % are receiving education in the Post School Education and Training sector (Southafricami, 2020), and therefore, the majority of South Africans only receive some form of informal education. Nonetheless, there is a vital need for the Post School Education and Training System, which represents formal VET and higher education, to address the education and skills gap for many South Africans as reported by Khuluvhe and Negogogo (2021, p. 14),

The analysis in this Fact Sheet also showed that the majority of people who are NEET (Not Employed or in Education or Training) in South Africa have education levels below matric. This suggest an important role to be played by Community Education and Training Colleges and Technical Vocational Training and Education colleges. Community Education and Training Colleges, in particular, are viewed as best positioned to offer training to youth who are not in employment, education or training by providing opportunities to improve levels of education and adult literacy as well as skills for self-employment. Overall, the Post School Education and Training system has a crucial role to play in enabling the attainment of basic skills, including reskilling and upskilling.

I would like to join a conversation, which is already well underway amongst informal and formal VET Scholars nationally and worldwide, concerning boundary crossing between informal and formal VET modes which is aimed at addressing duality in the post-school education and training system, improving access to and the quality of post-school education.

I make the recommendation below with a strong caveat: My research has been at an *intra-programmatic* level where my reading and inquiry has been focussed, and not at a national or *systemic* level. In my comments I may reveal my ignorance of the scholarly work at this aggregated, systemic level. I allude to this particular recommendation in discussion of the VET 4.0 Africa Collective in Chapter 2 (cf. 2.3.5) and I develop it further in the paragraphs below.

I am aware of the body of work emanating from the deep and strong foundation of VET research centres in South Africa and abroad. This work is ongoing and gathering momentum, for example, the South African Research Chairs Initiative of the National Research Foundation Chair: Skills Development at the Centre for Researching Education and Labor, University of Witwatersrand; the Institute for Post School Studies, University of the Western Cape; the South African Research Chairs Initiative of the National Research Foundation Chair: Global Change and Social Learning Systems and South African Research Chairs Initiative of the National Research Foundation Chair: Monitoring and Evaluation in a Sector Education and Training Authority Environment at the Environmental Learning and Research Center, Rhodes University; and Research Chair – Youth Unemployment, Employability and

Empowerment at Nelson Mandela University; and the Centre for International Education Research, University of Nottingham, amongst others.

As described above (cf. 2.3.2.3 and 4.4.8.4.2) the contribution of Southern African CHAT scholars who have made contributions to formal VET through their work on informal VET in agriculture and fishing are substantial (Kachilonda, 2014; Lotz-Sisitka et al., 2017; Mphepo, 2020; Mukute, 2010; Mukwambo, 2021; Pesanayi, 2018). I would explicitly like to explore the ‘agora’ of informal education in Southern Africa opened up by these authors. This could be realised under the recommendation for further desk-top research made below (cf. i). Pesanayi’s (2019) seminal study provides an example of where research in informal VET contributes to formal VET. His research context was informal VET and expansive learning in agricultural learning activity systems using nested case studies in Zimbabwe and South Africa; and one of the objectives, and outcomes, of the study was to feed back his findings into formal agricultural curriculums to enrich the latter (Pesanayi, 2019, p. i).

Recommended Contribution of this PhD to formal VET ...

The recommended contribution of this PhD to formal VET is to provide insight into the practices and the practice architectures which confound or enable IVET4 programmes; a methodology for developing, teaching, and assessing IVET4; and a mechanism for transferring and scaling IVET4 programmes. I propose that the elucidation of the PA of Ecologies of Practices in Chapter 8 provides the mechanism (cf. 8.2.4.3) for an IVET4 programme to transfer or convert to a formal VET programme if this is desirable in the particular space-time context. The steps towards maturity of ecologies of practices (cf. 8.2.4.3.2) and the characteristics of a matured ecologies of practices of an IVET4 programme (cf. 8.2.4.3.2) are explained. The characteristics indicate the readiness of an IVET4 programme to transfer or transform into an accredited, formal VET programme.

This thesis also offers a degree of experimentation with providing online education, without a Learner Management System, to people who have similar struggles to those who fall shy of the Post School Education and Training system and/or the Persons who are not in Employment, Education or Training who have low levels of literacies and no/low connectivity.

I propose that this recommendation, which links back to the discussion in the contextual chapter on the VET 4.0 Collective (cf. 2.3.5), commences with empirical and desk-top studies which cover the following research topics:

- i. Comparative national and international IVET4 studies, for example, a comparative study of formal-informal VET 4.0 systems in South Africa; or a comparative study of formal-informal VET 4.0 systems in other Southern African countries.
- ii. Implications for IVET4 in Southern Africa
- iii. Implications of IVET4 for teaching and learning in Education for Sustainability

Such research may reveal overlaps and synergies amongst the VET modes; and opportunities may present themselves to adopt the best practices between VET modes.

I propose that the contribution of my thesis may contribute some element to highlighted phrases in two (of five) components identified by the VET 4.0 Africa Collective (2023, in press, in Chapter 1, p. 11. Emphasis mine.):

- Further development of the internal dynamics of the expanded social ecosystem for skills model such as mediation work and resources (for example, **informal learning approaches that complement formal learning**), mediating institutions (for example, learning institutions and learning networks), mediating partners (for example, VET colleges) **and mediating actors (for example, lecturers)**.
- **Further development of an account of vocational education that incorporates the variety of sites and modes of learning and teaching that exist.**

Remarks concerning the importance of this recommendation from an IVET4 perspective ...

In concluding this recommendation that this IVET4 research project could contribute to the formal VET system, I make a few observations from the vantage point of an IVET4 educator. Firstly, both formal and IVET4 are needed for the continuity of IVET4. The reason for this is that the impact of the failure to convert an IVET4 programme to a formal VET, National Qualifications Framework-accredited programme can mean that the benefits of the IVET4 intervention may dissipate. This happens because there is not an institutionalised, nor sufficiently incentivised mechanism of providing refresher courses, nor ‘rolling a course down’ to the next level of management or a new cohort of employees. I observed this with the Skipper Development Programme where only the performative elements were retained, and the relational gains were allowed to erode despite being the biggest benefit of the training.

Secondly, it would be an advantage for IVET4 programmes and learners to have some status or credibility afforded to them by the formal VET sector. This may mean creating a different form of accreditation which is sensitive to the particularities of IVET4. The reason for this is that it is not always desirable for a company to accredit a programme for intellectual property purposes, for example the Production Process which holds the secrets of producing I&J Limited’s internationally recognised high quality hake products at sea. Nonetheless, the I&J Limited learners developed sustained and measurable skills which are transferable in the food processing industry ashore and at sea, yet they did not receive State certification which would increase worker mobility and growth pathways.

9.3 Recommendations: Theme 2 – Doings

Doings: These are practical recommendations which would mostly develop in the material-economic space and are realised in the medium of work and activity.

Perhaps the starkest difference between formal and informal VET 4.0 is that for the former, the process is linear and finite, and for the latter, it is circular and iterative (neither in absolute terms). The conundrum then arises of how to *reliably* repeat IVET4 programmes which do not benefit from the set structure of formal VET programmes, but are organic and dynamic by design?

As previously written, in part answer to this question on the scalability and transferability, I drew on the idea of *travelling practices* (Wilkinson et al., 2013). Using the example of WhatsApp messages: a message is written by the sender, then encrypted, then sent to the receiver and lastly decoded. So it can be imagined with the transfer of the practices or practice architectures of an IVET4 programme from one site to another. A practice from one site is encoded or ‘boxed’ and taken by a carrier to another site and then decoded or unpacked (Wilkinson et al., 2013, p. 227).

The conundrum is how to *practically land* the PA of Methodology and Methods and the PA of Ecologies of Practices elucidated above. This research has focussed on the pedagogical mechanisms of IVET4 of the PP. Can these mechanisms be ‘boxed’ and transferred to another site? In the transfer process it is important to consider the Ecologies of Practices at the sender site, the carrier (IVET4 educator), and the Ecologies of Practices at the receiver site. The plural ‘ecologies’ is emphasised in this instance as the IVET4 educator would need to evaluate intersecting Ecologies of Practices at more than one site. Examples of other Ecologies of Practices for evaluation by the IVET4 educator are the practices of the executive and senior management team, the practices of the organisation’s culture and practices of change management; practices of assessment and reporting; practices of relationality vertically and horizontally within the organisation – as all these practices, and the resulting practice arrangements, influence the outcome and consequences of an IVET4 Programme. It is likely that the Ecologies of Practices of the receiving organisation may be different to the sending one. Meticulous examination of the ecologies of practices of the sender’s context and the receiver’s context must be undertaken to identify similarities and differences and to take adaptive or mitigating steps to boost the chances of a successful transfer of an IVET4 programme.

I suggest and recommend the further development of three options to build capacity amongst VET educators to transfer and take IVET4 programmes to scale. These are to develop an IVET4 Educators Course; to develop a Handbook of IVET4 Tools for use by IVET4 educators; and lastly, to commence a pilot IVET4 programme to test the claims which this thesis makes in different spaces and places.

9.3.1 IVET4 Educators’ Course

The professional development of formal VET educators is well supported in the literature abroad (Francisco, 2020; Hopwood, 2014a; Hopwood et al., 2021a; Olin et al., 2020; Sjølie et al., 2020). This literature also points to not only the academic professional development of VET educators, but also to the mentorship of young VET professional and the trellis of practices which support their learning (Francisco, 2020). Professional development of formal VET educators is supported locally through the

South African institutions and scholars mentioned in Section 9.2.1 above; and the mandatory courses offered by the National Qualifications Framework and relevant SETAs, which are required to teach and assess formal VET courses, for example the Facilitator, Assessor and Moderator courses.

Equivalent support for IVET4 educators does not appear to exist in South Africa, and I have not come across professional development for IVET4 educators in the literature. Although Hopwood (Hopwood et al., 2021a; Hopwood et al., 2021b) conducted IVET4 training, this research was aimed at medical professionals rather than IVET4 educators. I am therefore proposing the development of an IVET4 Educators' Course to fill this gap. The content of such a course would cover the philosophy, principles, and practice of IVET4 programmes, and needs to be considered from a theoretical, practical and systemic angle.

Theoretical:

Understanding the *why* of IVET4 could be achieved by unpacking the five practices of Courseware Creation; Teaching and Learning; Assessment; Relationality; and the practices of Management. The PP could provide a useful case study for students to understand *why* IVET4 is different to formal VET, and *why* these five practices matter.

Assessment could be theoretical in an exam or essay format.

Practical:

The PA of Methodology and Methods could be taught to students so that they gain the practical skills of *how* to develop, teach and assess an IVET4 programme. This practical application would be scaffolded upon the theoretical understanding of the five practices. This would ensure that students understood that IVET4 cannot be taught as a rigid set of pedagogical processes but must be site-specific and must retain its agility and quick responsiveness to meet the demands of this kind of training. In this part of the course the 42 tools identified in Chapter 6, under the practices of course creation, teaching and learning, and assessment, would be explained.

Assessment would be practical based on the student's development, teaching and assessment of an IVET4 course. This assessment would run throughout the course; and hopefully the courses developed by the students could be orchestrated by the institution or the student to make a real-world contribution.

Systemic:

The '*what next?*' of the course would cover the PA of Ecologies of Practices. The students would learn how to assess whether or not an IVET4 programme was in an emerging, transitioning or maturing Ecologies of Practices state; and then most importantly, based upon the context, they would consider what to do next. The next step may be to formalise the IVET4 course through the National Qualifications Framework accreditation process. It is in this section of the course that an elegant

crossover to formal VET professional development could occur. For example, the student could take the Skills Development Facilitators Course as well as the Assessors and Moderators Courses to understand the accreditation process; make a start on the accreditation procedure of the IVET4 course; and register as an accredited facilitator with the relevant Sector Education and Training Authority .

The assessment could be the results of the formal accredited courses mentioned above.

The explanation of a potential course outline and content makes apparent that an IVET4 Educators' Course does not have to be a stand-alone course or qualification but could be paired most productively with any formal VET professional development course. The National Qualifications Framework and Sector Education and Training Authority structure does accommodate this kind of synergy currently; however, room may be made by the inclusion of the IVET4 module by a private or public institution of higher learning. Gaining the knowledge and skills that both the formal and informal VET courses offer would be advantageous to the student as such knowledge and skills are complimentary rather than contradictory. Both the fields of formal and IVET4 would be beneficiaries of this approach. In fact, envisioning an amalgamated course could be one way of proactively breaking down the dualism which exists in the system.

An IVET4 Educators' Course could be conducted online, in person or using a blended approach.

9.3.2 A Book: The Toolbox of 41 Tools

A toolbox could be helpful and would need to be developed. Although understanding and applying the 41 tools mentioned would form a large part of the course visualised above, there may be IVET4 professionals who do not wish to take a formal qualification but would like access to the Methodology and Methods for the development, delivery and assessment of IVET4 programmes. They may see this as an opportunity to 'sharpen their own saw' whether they are scholars or practitioners of formal or informal VET.

I suggest that this toolbox be made relevant for the education of Persons who are not in Employment, Education or Training and employees within commercial enterprises, NGOs, or public and private educational institutions. This toolbox should be tailor-made for learners who are spatially distributed, diverse in language, educational level, ethnicity and operate in a low-no connectivity environment. This would take into account the approximately 85% of South Africans who find themselves in a double-bind because they received inadequate schooling and, in adulthood, they have been excluded from formal Post School Education and Training for multifarious reasons (DHET, 2022; Southafricami, 2020).

Building the toolbox would require detailed descriptions of each tool as well as the appropriate mediation devices. Perhaps a theoretical and practical book could be written to convey this knowledge and these skills. This would equip an educator (or 'carrier' of practices) to use the toolbox and to build

IVET4 programmes fit-for-purpose for their own space and place. An exemplar of topics for this book are listed below.

A few of the topics for the book ... to provoke a start

I have considered the content of an IVET4 Educators' Course under three headings: theoretical, practical and systemic as I think this one way of scaffolding the learning effectively, and for potentially integrating formal VET and IVET4. I would approach a book in a different way, I would present the content in chronological order i.e. if one was intending to implement an IVET4 course, then this is the likely progression of steps one may take. This list is not exhaustive but could be seen as a start.

- i. Organisational Requirements and Commitments
- ii. Love, Trust and Confidence
- iii. Building the Curriculum and Mediation Tools Together
- iv. Turners: Teachers and Learners, teaching and learning
- v. Assessments: Group and individual
- vi. Leadership
- vii. Site Specific: Space and Place
- viii. Time
- ix. Organisational Change
- x. Making Moves Towards Transgression VET 4.0
- xi. Moving from IVET4 to formal VET
- xii. Appendices:
 - Conducting a Pilot VET 4.0 Project
 - Selection and Train-the-Trainers
 - Using Tables of Invention as a Self-Reflection Tool
 -

9.3.3 A Pilot: An IVET4 Testing Site

This is a simple recommendation to take this thesis from the academy to the field and put the theoretical and practical claims, made in this PhD, to the test. I recommend that a pilot IVET4 programme is run in the field of Education for Sustainability and that this pilot course is entrenched by following the learner training session/s with a Training-the-Trainers Course for potential facilitators. A number of interested parties have shown an interest in a pilot IVET4 programme with Future People (Pty) Ltd: one was in the field of teaching nurse aids the skills required to treat tuberculosis patients in the broader Cape Town area; another is the education of women in savings groups on the role of banks in West Africa and South Africa; and there was a commercial interest by a maritime attorney in New Zealand who recognised the value that the PP added to I&J Trawling, and suggested that this IVET4 programme could be replicated for the New Zealand commercial fishing industry context.

9.4 Recommendations: Theme 3 – Relatings

Relatings: These are relational recommendations which would mostly develop in the social space and be realised in the medium of power and solidarity and result in social-political arrangements.

During the course of my PhD process, I have been fortunate to build up relationships with a number of scholars and research groups. I would like to see a continuation and deepening of these connections and to this end I recommend the following potential avenues.

At a local level ...

To maintain valuable connections, it seems wise to support what is already happening so successfully in South Africa, for example, the work of the Environmental Education Association of South Africa and their publication *South African Journal of Environmental Education* (SAJEE); the seminar series of Centre for Researching Education and Labour; the *Journal of Vocational, Adult and Continuing Education and Training* (JOVACET) and the opportunities emanating from the Institute for Post-School Studies situated at the University of the Western Cape; and potentially working with the Sustainability Institute at the University of Stellenbosch as an alumni of the Sustainability Institute.

I would also like to give back to the Environmental Learning and Research Centre by participating in research and outreach programmes in recognition of all that I have received from the warm, vibrant, and generous community based there.

At an international level ...

To explore the Environmental Learning and Research Centre, Rhodes University becoming a PEP node. PEP is an international research network and becoming a member of PEP is by invitation only. Areas of potential collaboration may include pressing into the work on developing a trellis which supports professional learning (Francisco, 2020); formal and informal workplace learning; and the work on refugees, who may have a similar learner-profile to the I&J Limited learners and Persons who are not in Employment, Education or Training (Kaukko et al., 2021; Wilkinson & Kaukko, 2020). The research output of PEP is far from limited to VET and related topics; there has been considerable work conducted on primary and secondary schooling which is relevant to many of the education scholars at Rhodes. As TPA is such a rich theoretical and methodological offering, further use and exploration of this theory in a Southern African context would also be advantageous.

To link the international with the national, I recommend the commencement of a practice theory reading group for Southern Africans. This would form part of the exploration of becoming a PEP node – finding other scholars interested in the work of PEP and holding the same values and ethos of PEP which is a core identifier of the network.

9.5 Dissemination of Research

In summary, I group the recommendations made under the three headings of sayings/thinkings; doings and relatings.

Theme 1: Sayings/thinkings

These are theoretical recommendations which include:

- Giving Voice to the Silent Practices of IVET4
- Methodological Opportunities of TPA
- Joining the Conversation on VET 4.0

Theme 2: Doings

These are practical recommendations which include:

- A course or module of a course for IVET4 educators
- A book on the Methodology and Methods for the development, delivery, and assessment of an IVET4 programme
- A pilot course for an Education for Sustainability programme using the Methodology and Methods of IVET4 and Ecologies of Practices to test the transferability and/or scalability of these constructs to other contexts. This could include the use of the Future People Online-In-Person Learning Platform platform, mobisodes and WhatsApp as mediators of learning.

Theme 3: Relatings

These are relational recommendations which include:

- Continuing and deepening the collegiate relationships and scholarly work in the fields of VET and TPA at both international and Southern African levels.

These recommendations could form the basis of the dissemination of the knowledge and skills emanating from this PhD. In addition, and most importantly, I could offer to make presentations to both South African Maritime Safety Association and the I&J Limited Management and Executive Team. To draw participants into this, I could communicate the research journey and outcomes in ways that I have communicated effectively with them in the past, for example, face to face in a group, by creating a mobisode or series of mobisodes, or communicating via WhatsApp. The degree to which I can feedback to the management and staff of I&J Limited will depend upon the permissions I obtain from the current gatekeepers.

9.6 Summary of Study

9.6.1 Summary of the Study

I was inspired to start this research project because I wanted to know *why* the projects undertaken at I&J Limited had been successful. I wanted to explore the bigger mechanisms behind the teaching and learning that took place.

The PP was a first in the industry and began with desired and imagined outcomes but no explicit curriculum, content, or pedagogy. The PP and the other 13 interventions grew out of the socio-material practices embodied ashore and at sea. Exploring the dynamics of primarily the PP from a practice-based approach provided ‘a way in’ to reveal the multifarious practices, practice arrangements and practice architectures at play. The socio-materiality lens afforded identification of what was *known and visible* to generate data, for example, the course development, training and assessment activities, and the mediating devices of the PP. Through the collection, analysis, and synthesis of data, TPA provided a sufficiently robust framework to uncover what was *not known* – the *invisible*, namely:

Firstly, the five practices of IVET4 which indicated what confounds or promotes learning, and how future IVET4 interventions could be improved.

Secondly, the two overarching practice architectures which provided the methodological and conceptual mechanisms to take an IVET4 programme to scale and to transfer such programmes to other contexts.

I return here to the controversies and challenges of the commercial fishing industry outlined in the context of this study (cf. 2.4.1) and I reflect that the findings of this research speak to the social and the ecological challenges of the sector. In the case of the former, it is about providing workplace education to sea-going workers who were previously excluded; and in the instance of the latter, it is the very application of the PP by the sea-farers which ensures a more efficient conversion of whole fish to product with the implication that more fish are left in the sea (cf. 2.2.3 for explanation of landed quota calculations).

9.6.2 Personal Reflections and Ontological and Epistemic Growth

In this section I reconsider McGarry’s question which I quoted as a guiding principle of positionality and reflection in Section 1.33: “How am I being changed by that which I observe and engage with, and how might I observe and engage with greater care and kindness, in an ongoing and reflexive/diffractive way?” (McGarry, 2022). If I look back a number of inflexion points come to mind which I suggest are the alchemy of both my 25 years’ worth of working with IVET4 and the four and a half year PhD process. I share these below in chronological order:

- Towards the beginning of the PhD process I learnt from my supervisor that what I had been doing at I&J Limited was called VET and that it was a dedicated field of study which was moving into its fourth generation. Further, I learnt that the 14 ‘training’ programmes I developed and facilitated at I&J Limited fell into this field, and that they were unusual because all the programmes fell outside of formal VET system and were thus considered as informal VET. These realisations helped me understand where my work and research fitted in to the broader field of education. For the first time I had the vocabulary to connect my work and worldview with the academy.

- After at least a year of searching for a suitable theoretical framework, I found the Theory of Practice Architectures.

- Under the guidance of my supervisor, I experienced two big intellectual jumps. The first was the identification of 11 IVET4 practices which were honed down to five practices with the reading of the data. The second intellectual jump was then to distinguish six cross-cutting dimensions or PAs which represented the mechanisms behind the learning and teaching. As I progressed with the analysis and synthesis of the data, two overarching practice architectures definitively emerged.

- Through this process the ontological growth for me is that behind every programme, there are practices and practice architectures which can be identified. These in turn are driven by broader dimensions or mechanisms that are not always immediately visible. This means that if one can identify these mechanisms, one has fuller insight to improve the immediate programme as well as the broader praxis through transfer and scaling or “travelling practices and dimensions”. This ontological shift will inform my future work – if I look hard enough, I will see the practices and the mechanisms which give me levers to effect changes “for an education for living well and an education for a world worth living in” (Kemmis & Edwards-Groves, 2018).

- Another ontological change crept up upon me as I got deeper into TPA – I began to see the world around me in practices and practice arrangements. TPA has given me another lens to interpret not only learning but living and working too.

- One of the deepest emotional and intellectual gifts which this project has given me is the privilege to round up 25 years of work experience into a PhD. My sense is that I am only at the beginning rather than at the end of this journey even though the PhD is almost done.

- i. I think the most provocative onto-ethico-epistemological questions which I have been left with are: Even though the conception of VET 4.0 has been emerging over the last decade, and even though I was unaware of this development, could the ten informal VET programmes which I ran between 1995-2021 be considered as (informal) VET 4.0 programmes?
- ii. Was my work practice or praxis?
- iii. In future how could I move more strongly towards a transgressive pedagogy?

I appreciate that I started this thesis with one question which has been answered, but the answer has spawned three more questions. I know that answering these questions falls outside of this thesis and will need to wait for another exploration opportunity. Nevertheless, for my own reflection I took the list of 44 VET 4.0 characteristics which were generated by the VET 4.0 Collective in January 2020 (VET4.0 Collective, in press) and I mapped the characteristics of the ten informal VET programmes I conducted against this list. I wanted to see crudely how my programmes stood up to the VET 4.0 characteristics identified. I share the results in Table 9.2 below. The 44 VET 4.0 characteristics are tabulated in two adjacent columns and have been highlighted in different colours to indicate whether or not the characteristic was strongly, partially, or not represented at all in my programmes at I&J Limited. Dark green means that those characteristics were strongly present in my programmes, light green means that they were partially present; and white means that the IVET 4.0 characteristics were not present at all in my programmes.

While indicative, it appears that the ten I&J Limited programmes were run more along the lines of VET 4.0 (VET4.0 Collective, in press) than not, when considered in this way.

Table 9.2: Comparison of VET 4.0 Characteristics to I&J Limited IVET4 Programmes

What is VET 4.0?	
1. Connected system, boundary crossing	2. Beyond the current and normative
3. A new way of viewing an existing education system	4. Thinking beyond formal public Technical Vocational Training and Education colleges
5. Creative working lives for all	6. Focus on who / what are the agents of change supporting just transitions
7. Mechanisms for supporting learning about just transitions within existing hierarchical education structures	8. Making the ignored learners visible so that they can learn
9. Creating learning mechanisms that are simple, agile, responsive to industry	10. An economic channel to narrow the gap between the rich and the poor
11. Emancipation of a despised sector of learning	12. Skills development in a fluid, changing continent
13. Africa teaching the world	14. Bringing rural skills and livelihoods into mainstream skills thinking and planning

15. Better learning opportunities for more people	16. Reimagining VET to better meet the need to sustainable livelihoods for all
17. Valuing subsistence as a fundamentally better idea over growth	18. Green economy
19. Sustainable occupations	20. Reduced cost of food
21. Inclusivity across gender, race, region	22. Transformative pedagogical vision and practices
23. Thinking about skills ecosystems not systems	24. Addressing and redressing the complicity of VET in unsustainable and unjust development
25. Looking at the meaning of skills for development and inequality and equity at different levels that will make a lasting change	26. Upskilling for a better world, fair work, healthy planet
27. Valuing specialisation and general skills	28. Inclusive participation
29. Self-appraisal / awakening	30. Working and learning together
31. Shared harvests	32. A chance to change learning systems
33. Transformed and transformative VET that has a definite bearing on the local economy and community	34. Recognising expertise in all forms of work
35. Creating communication between government institutions and communities	36. Building community learning for life
37. Supporting learning, working and doing for young people as critical citizens in a humanised and environmentally-sensitive work environment	38. Shifting values
39. Sharing stories of life and learning	40. A different path
41. An ethic of care	42. A sense of self
43. A revolution	44. A hopeful future together

To recall a quote in Chapter 4: Practice traditions “carry the imprints of prior sayings, doings, and ways of relating enacted in the practice. They encapsulate the history of happenings of practice...and act as a ‘collective memory’ of the practice” (Kemmis et al., 2014, p. 26). I am grateful for a deep past practice-praxis in IVET4, which has allowed me to draw the inferences I have in this thesis; and I to go into the future “awake and waiting as the first sun rose”¹³⁸ over a the (I)VET 4.0 landscape.

¹³⁸ This quotation is taken from the musical African Footprint produced in South African theatres in 2003.

9.7 Conclusion to Chapter 9: Claim to New Knowledge

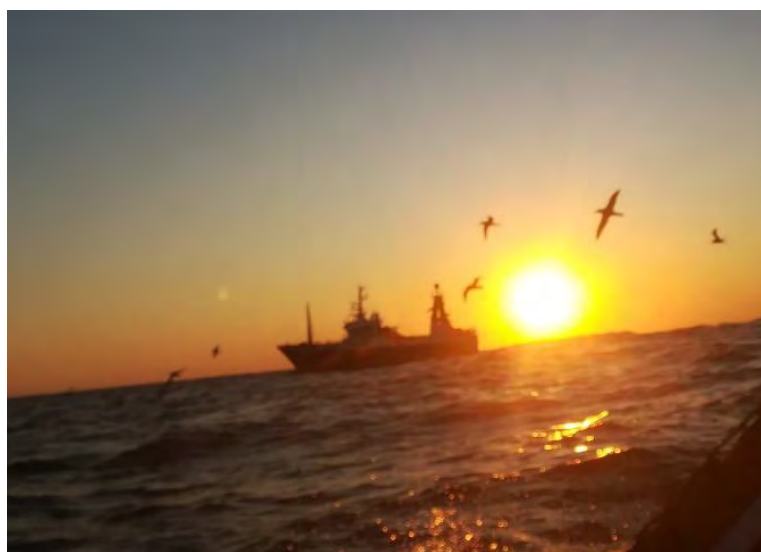
The claim which I make to new knowledge is that I have developed a practical mechanism and a theoretical conception to enable the creation, teaching, and assessment of informal VET; and the transfer and scaling of such programmes.

The overarching Practice Architecture of the Methodology and Methods consists of the PA of Informality, the PA of Range, and the PA of Relationality which provide an IVET4 educator with the philosophy, principles, and practical tools to develop and facilitate an informal VET programme from start to finish.

The Practice Architecture of the Maturing Ecologies of Practices of an IVET4 programme provides the theoretical conception for the IVET4 educator to assess the Ecologies of Practices of an IVET4 Programme and to evaluate whether the programme is in an emerging, transitioning, or maturing state. This evaluation enables the practitioner to take the IVET4 programme to scale or to transfer it to another site if this is desirable.

I have represented this claim as two sides of the same coin; however, the power of this claim lies in the lamination of the practical and theoretical.

The *practical application and meaning* of my study lies in educators leading IVET4 programmes successfully from pioneers to settlers which means that they will provide an education for the majority of South African learners who are currently excluded from the formal South African Post School Education and Training system. Together we will provide an ‘education for living well’ and contribute to a ‘world worth living in’.



Photograph 15: Sunset over troubled seas

Afterword

A general observation is that my research project did not follow the conventional route and nor does it have the form of a traditional doctorate. The data was gathered over 25-years and, at the time, there was no intention of writing my practice of informal VET up as a PhD. This thesis was developed from this starting point of the existing data which required in-depth research of the literature for an appropriate conceptual framework and research design which aligned with the given context of the Production Programme, the research questions and the available data. This is a dissertation which is partly an essay (self-reflective work), partly an historic account (25 years of work revisited) but also an insight into my own professional practice through the lenses of a theory which gives meaning to what happened. As the thesis developed I found myself reaching towards a trans-disciplinary approach which is evident in the elements of social anthropology and history reflected in the end product. In summary, to answer the research questions and make the contribution which I have done within the context and data available in this case, a conventional path could not be followed. I found the roles of long-term consultant, researcher and PP Facilitator tricky to balance; and it was extremely hard to be “objective” – mostly because I had been in the work so long it was hard to see my own biases. I would argue that it is exactly this experimentation and boundary-pushing theoretical and methodological research which is encouraged by the ELRC community of practise to advance this fast growing field of environmental education and education for sustainability in the global south. I trust that this thesis can be evaluated on its own premises, form and internal logic.



Photograph 18: Ship to shore - Can you read me anymore?

References

- American Educational Research Association [AERA]. (2006). Standards for reporting on empirical social science research in AERA publications. *Educational Researcher*, 35(6), 33–40. <https://doi.org/10.3102/0013189x035006033>
- American Educational Research Association [AERA]. (2009). Standards for reporting on humanities-oriented research in AERA publications. *Educational Researcher*, 38(6), 481–486. <https://doi.org/10.3102/0013189x09341833>
- Annecke, E., & Swilling, M. (2012). *Just transitions: Explorations of sustainability in an unfair world*. University of Cape Town Press.
- Apple, M. (1982). *Cultural and economic reproduction in education: Essays on class, ideology and the state*. Routledge and Kegan Paul.
- Bansal, P., Smith, W., & Vaara, E. (2018). New ways of seeing through qualitative research. *Academy of Management Journal*, 4, 1189–1195.
- Bassey, M. (2001). A solution to the problem of generalisation in educational research: Fuzzy prediction. *Oxford Review of Education*, 27(1), 5–22. <https://doi.org/10.1080/03054980123773>
- Beck, U. (1992). *Risk society: Towards a new modernity*. Sage.
- Bell, C. (2018). *Understanding the learning that occurs through up-skilling opportunities and practices in the marine sector in South Africa*. [Unpublished doctoral thesis] Rhodes University.
- Benington, J., & Turbitt, I. (2007). Policing the Drumcree demonstrations in Northern Ireland: Testing leadership theory in practice. *Leadership*, 3(4), 371–395. <https://doi.org/10.1177/1742715007082963>
- Benton, R., & Benton, C. S. (2004). Why teach environmental ethics? Because we already do. *Worldviews: Environment, Culture, Religion*, 8(2–3), 227–242. <https://doi.org/10.1163/1568535042690790>
- Bhaskar, R. (1975). *A realist theory of science*. Leeds Books.
- Bhaskar, R. (1993). *Dialectic*. Routledge.
- Bhaskar, Roy. (2013). *A realist theory of science*. <https://doi.org/10.4324/9780203090732>
- Blau, I., Grinberg, R., & Shamir-Inbal, T. (2018). Pedagogical perspectives and practices reflected in metaphors of learning and digital learning of ICT leaders. *Computers in the Schools*, 35(1), 32–48. <https://doi.org/10.1080/07380569.2018.1427960>

- Blue, S. (2019). Institutional rhythms: Combining practice theory and rhythm analysis to conceptualise processes of institutionalisation. *Time and Society*, 28(3), 922–950.
- Blue, S., Shove, E., & Forman, P. (2020). Conceptualising flexibility: Challenging representations of time and society in the energy sector. *Time and Society*, 29(4), 923–944.
<https://doi.org/10.1177/0961463X20905479>
- Booth, A., Papaioannou, A., & Sutton, D. (2012). *Systematic approaches to a successful literature review*. Sage.
- Bourdieu, P. (1977). *Outline of the Theory of Practice*. Cambridge University Press.
- Bourdieu, P. (1990). *The logic of practice*. Polity Press.
- Brennan-Kemmis, R., & Green, A. (2013). Vocational education training teachers' conceptions of their pedagogy. *International Journal of Training Research*, 11(2), 101–121.
- Brosser, L., & Vrabie, C. (2015). The quality initiative of e-learning in Germany (QEG) - Management for quality and standards in e-learning. *Procedia - Social and Behavioral Sciences*, 186, 1146–1151. <https://doi.org/10.1016/j.sbspro.2015.04.214>
- Capra, F. (1996). *The web of life: A new scientific understanding of living systems*. Anchor.
- Capra, F. (2002). Complexity and life. *Emergence*, 4(1/2), 15–33.
- Capra, F. (2005). Ecological literacy: Educating our children for a sustainable world. In Z. Stone & M. Barlow (Eds.), *Speaking nature's language: Principles for sustainability*. (pp. 18–29). Sierra Club Books.
- Capra, F. (2007). Complexity and life. *Systems Research and Behavioral Science*, 24, 475–479.
<https://doi.org/10.1002/sres.848>
- Carson, R. (1963). *Silent spring*. Hamilton.
- Charteris, J., Smardon, D., & Kemmis, S. (2021). Leadership in the built spaces of innovative learning environments: Leading change in people and practices in the perfectly self-managing society. *Studies in Continuing Education*. <https://doi.org/10.1080/0158037X.2021.1928051>
- Collins, J. (2022). The flywheel effect. Retrieved January 6, 2022, from
https://www.jimcollins.com/article_topics/articles/the-flywheel-effect.html
- Concise Oxford Dictionary*. (1983). J. Sykes (Ed.) (7th ed.). Oxford University Press.
- Council on Higher Education [CHE]. (2018). *Higher education qualifications sub-framework: Qualification standard for doctoral degrees*. https://nr-online-1.che.ac.za/html_documents/3.

Doctoral%20Degrees%20Qualification%20Standard_Version%201.0_%20%20HEQC%20Approved%208%20November%202018%20(002).pdf

- Cundill, G., Lotz-Sisitka, H., Mukute, M., Belay, M., Shackleton, S., & Kulundu, I. (2014). A reflection on the use of case studies as a methodology for social learning research in sub Saharan Africa. *NJAS - Wageningen Journal of Life Sciences*, 69, 39–47.
<https://doi.org/10.1016/j.njas.2013.04.001>
- Daniels, H. (2015). Mediation: An expansion of the socio-cultural gaze. *History of the Human Sciences*, 28(2), 34–50. <https://doi.org/10.1177/0952695114559994>
- De Beurs, D. P., De Groot, M. H., De Keijser, J., Mokkenstorm, J., Van Duijn, E., De Winter, R. F. P., & Kerkhof, A. J. F. M. (2015). The effect of an e-learning supported Train-the-Trainer programme on implementation of suicide guidelines in mental health care. *Journal of Affective Disorders*, 175, 446–453. <https://doi.org/10.1016/j.jad.2015.01.046>
- Department of Environmental Affairs [DEA] (2010). Environmental Sector Skills Plan (ESSP) Summary Document. <https://www.greenskills.co.za/wp-content/uploads/2015/07/Environmental-Sector-Skills-Plan-DEA-2010-1.pdf>
- Department of Higher Education and Training [DHET]. (2014). *White Paper for Post-School Education and Training*. No. 37229. Available from www.dhet.gov.za.
- Department of Higher Education and Training [DHET]. (2022). *2020 Statistics on Post-School Education and Training in South Africa*. Retrieved from www.dhet.gov.za
- Ecoliteracy. (2020). Centre for Ecoliteracy. Retrieved 19 March 2020, from <https://www.ecoliteracy.org/>
- Edwards-Groves, C. (2018). The practice architectures of pedagogy: Conceptualising the convergences between sociality, dialogue, ontology and temporality in teaching practices. In *New Pedagogical Challenges in the 21st Century - Contributions of Research in Education*. <https://doi.org/10.5772/intechopen.72920>
- Edwards-Groves, C., & Grootenboer, P. (2021). Conceptualising five dimensions of relational trust: implications for middle leadership. *School Leadership and Management*, 41(3), 260–283. <https://doi.org/10.1080/13632434.2021.1915761>
- Edwards-Groves, C., Wilkinson, J., & Mahon, K. (2020). Leading as Shared transformative educational practice. In K. Mahon, C. Edwards-Groves, S. Francisco, M. Kaukko, S. Kemmis, & K. Petrie (Eds.) *Pedagogy, education, and praxis in critical times* (pp. 117–140). Springer. https://doi.org/10.1007/978-981-15-6926-5_6

- Engestrom, Y., & Sannino, A. (2010). Studies of expansive learning: Foundations, findings and future challenges. *Education Research Review*, 5, 1–24.
- Farley, H., & Smith, Z. (2014). *Sustainability: If it's everything, it's nothing?* Routledge.
- Fenwick, T., Edwards, R., & Sawchuk, P. (2011). *Emerging approaches to educational research: Tracing the sociomaterial*. Routledge.
- Ferguson, R. (2020). *Rhodes University Ethics Application*. https://drive.google.com/drive/folders/1NBQfNUmyZ1CZL5sqqZq0KQb33S_zPB8e?usp=sharing
- Finegold, D. (1999). Creating self-sustaining, high-skill ecosystems. *Oxford Review of Economic Policy*, 15(1), 60–81.
- Finegold, D., & Soskice, D. (1988). The failure of training in Britain: Analysis and prescription. *Oxford Review of Economic Policy*, 4(3), 21–53.
- Francisco, S. (2020). Developing a trellis of practices that support learning in the workplace. *Studies in Continuing Education*, 42(1), 102–117. <https://doi.org/10.1080/0158037X.2018.1562439>
- Francisco, S., Forssten Seiser, A., & Grice, C. (2021). Professional learning that enables the development of critical praxis. *Professional Development in Education*, 1–15. <https://doi.org/10.1080/19415257.2021.1879228>
- Garcia-Cabot, A., De-Marcos, L., & Garcia-Lopez, E. (2015). An empirical study on m-learning adaptation: Learning performance and learning contexts. *Computers and Education*, 82, 450–459. <https://doi.org/10.1016/j.compedu.2014.12.007>
- Gherardi, S. (2021). A (posthumanist) epistemology of practice. In S. Neesham & C. Segel (Eds.), *Handbook of philosophy of management* (pp. 1–30). Springer Nature.
- Gherardi, S., & Benozzo, A. (2021). Shadow organising as dwelling in the space of the ‘not-yet’. *Studies in Continuing Education*, 43(3), 296–310. <https://doi.org/10.1080/0158037X.2021.1900097>
- Gibbs, L. (2020). “That’s your right as a human isn’t it?” The emergence and development of leading as a socially-just practice in early childhood education. *Australasian Journal of Early Childhood*, 45(4), 295–308. <https://doi.org/10.1177/1836939120966093>
- Gill, G. (2002). Landscape as symbolic form: Remembering thick place in deep time. *Critical Horizons*, 3(2), 177–199. <https://doi.org/10.1163/156851602760586644>
- Giroux, H. (1988). *Schooling for democracy: Critical pedagogy in the modern age*. Routledge and Kegan Paul.

- Glasser, H. (2018). Toward robust foundations for sustainable well-being societies: Learning to change by changing how we learn. In J. W. Cook (Ed.), *Sustainability, human well-being, and the future of education* (pp. 31–89). https://doi.org/httpsdoi.org:///10.1007/978-3-319-78580-6_2
- Gonzalez-Arcos, C., Joubert, A. M., Scaraboto, D., Guesalaga, R., & Sandberg, J. (2021). “How do I carry all this now?” Understanding consumer resistance to sustainability interventions. *Journal of Marketing*, 85(3), 44–61. <https://doi.org/10.1177/0022242921992052>
- Gothenburg, U. of. (2020). Pedagogy, education and praxis. Retrieved 27 August 2021, from University of Gothenburg: Department of Education, Communication and Learning website: <https://www.gu.se/en/education-communication-learning/pedagogy-education-praxis>
- Gowan, P. (2009). Crises in the heartland. *New Left Review*, 55(2), 5-29.
- Greentimes. (2022). The Rewards of Sustainable Fishing. Retrieved 23 February 2023, from <https://thegreentimes.co.za/the-rewards-of-sustainable-fishing/>
- Grice, C. (2019). 007 Spies, surveillance and pedagogical middle leadership: for the good of the empire of education. *Journal of Educational Administration and History*, 51(2), 165–181. <https://doi.org/10.1080/00220620.2019.1583173>
- Guardian, P. (2013). *Connected Learning Research Network..* Retrieved from <http://clrn.dmlhub.net/publications/how-effective-are-mentoring-programs-for-youth-a-systematic-assessment-of-the-evidence>
- Hammersley, M. (2001). On ‘systematic’ reviews of research literatures: A ‘narrative’ response to Evans & Bene. *British Educational Research Journal*, 27(5). <https://doi.org/10.1080/01411920120095726>
- Hammond-Todd, M., & Monk, D. (2021). Think Piece: Embracing love as an educational force in the anthropocene. *Southern African Journal of Environmental Education*, 37(1), 53–62. <https://doi.org/10.4314/sajee.v37i1.4>
- Hayashi, P., Abib, G., & Hoppen, N. (2019). Validity in qualitative research: A processual approach. *Qualitative Report*, 24(1), 98–112. <https://doi.org/10.46743/2160-3715/2019.3443>
- Heifetz, R. (1994). *Leadership without easy answers*. Belknap Press. <https://doi.org/10.4159/9780674038479>
- Held, D. (2004). *Global covenant: The Social Democratic alternative to the Washington Consensus*. Wiley. https://www.opendemocracy.net/en/article_1918jsp/ [Accessed 10 September 2004]
- Herselmani, M., & Hay, H. (2007). An investigation into e-learning practices: Implications for

- providers of education and training. *South African Journal of Higher Education*, 19(2), 393–410.
<https://doi.org/10.4314/sajhe.v19i2.25661>
- Hodgson, A., & Spours, K. (2018). *A social ecosystem model: Conceptualising and connecting working, living and learning in London's New East*. ELVET Research Briefing No. 3, Centre for Post-14 Education and Work, Institute of Education, University College London.
- Hodgson, A., & Spours, K. (2016). *The evolution of social ecosystem thinking: Its relevance for education, economic development and localities* Centre for Post-14 Education and Work, UCL Institute of Education.
- Hopwood, N. (2014a). Four essential dimensions of workplace learning. *Journal of Workplace Learning*, 26(6/7), 349–363.
- Hopwood, N. (2014b). A Sociomaterial account of partnership, signatures and accountability in practice. *Professions & Professionalism*, 4(2), 1–15.
<https://doi.org/http://dx.doi.org/10.7577/pp.604>
- Hopwood, N. (2021). From response and adaptation to learning, agency and contribution: Making the theory of practice architectures dangerous. *Journal of Praxis in Higher Education*, 3(1), 78–94.
<https://doi.org/10.47989/kpdc114>
- Hopwood, N., Dadich, A., Elliot, C., & Moraby, K. (2021a). How is brilliance enacted in professional practices? Insights from the theory of practice architectures. *Professions and Professionalism*, 11(1). <https://doi.org/10.7577/pp.4022>
- Hopwood, N., Blomberg, M., Dahlberg, J., & Dahlgren, M. A. (2021b). How professional education can foster praxis and critical praxis: An example of changing practice in healthcare. *Vocations and Learning*. <https://doi.org/10.1007/s12186-021-09277-1>
- I&J. (2019). I&J Limited. Retrieved September 9, 2022, from <https://www.ij.co.za/>
- I&J. (2022). Sustainability. Retrieved April 24, 2022, from <https://www.ij.co.za/sustainability/>
- Illeris, K. (2018). An overview of the history of learning theory. *European Journal of Education*, 53, 86–101. <https://doi.org/10.1111/ejed.12265>
- IOL. (1999). AVI to buy out I&J minorities. Retrieved July 20, 2022, from Business Report website: <https://www.iol.co.za/business-report/companies/avi-to-buy-out-i-and-j-minorities-802214>
- Intergovernmental Panel on Climate Change (IPCC). (2021). IPCC Sixth Assessment Report. Retrieved March 30, 2022, from <https://www.ipcc.ch/report/ar6/wg1/>
- Ito, M., Gutiérrez, K., Livingstone, S., Penuel, B., Rhodes, J., & Salor, K. (2013). *Connected*

- learning: An agenda for research and design*. Connected Learning (Watkins SC).
- James, A. (2019). Making (non)sense of urban water flows: Qualities and processes for transformative and transgressive learning moments. *Sustainability (Switzerland)*, 11(23).
<https://doi.org/10.3390/su11236817>
- Jarzabkowski, P.; Spee, A.; Smets, M. (2013). Material artifacts: Practices for doing strategy with stuff. *European Management Journal*, 31, 41–54.
- Jarzabkowski, P., Bednarek, R., Kilminster, W., & Spee, P. (2021). An integrative approach to investigating longstanding organisational phenomena; opportunities for practice theorists and historians. *Business History*. <https://doi.org/10.1080/00076791.2021.1906227>
- Jenkin, N. (2020). *Collaboration in South Africa's forestry-products biorefinery innovation system: Examining the knowledge network of leverage professionals* [Unpublished doctoral thesis] University of the Witwatersrand. [https://doi.org/DOI: 10.13140/RG.2.2.32991.07843](https://doi.org/DOI:10.13140/RG.2.2.32991.07843)
- Jordan, R. (2013). Ecoliterate: How educators are cultivating emotional, social, and ecological intelligence. *Ecological Restoration*, 31(2), 230–231. <https://doi.org/10.3368/er.31.2.230>
- Kachilonda. (2014). *Investigating and expanding learning in co-management of fisheries resources to inform extension training*. [Unpublished doctoral thesis] Rhodes University.
- Karger, T. (2021). The signs of frenetic standstill: The concept of change in the discourse of lifelong learning and the tempo of the Czech National Qualifications Framework. *Time and Society*, 30(3), 423–444. <https://doi.org/10.1177/0961463X211006082>
- Kaukko, M., Wilkinson, J., & Kohli, R. K. (2021). Pedagogical love in Finland and Australia: A study of refugee children and their teachers. *Pedagogy, Culture and Society*.
<https://doi.org/10.1080/14681366.2020.1868555>
- Kemmis, S. (2019). *A practice sensibility*. <https://doi.org/10.1007/978-981-32-9539-1>
- Kemmis, S. (2021). A practice theory perspective on learning: beyond a 'standard' view. *Studies in Continuing Education*. <https://doi.org/10.1080/0158037X.2021.1920384>
- Kemmis, S. (2022) *Transforming practices: Changing the world with the theory of practice architectures*. Springer
- Kemmis, S., Cole, P., & Suggett, D. (1983). *Orientations to curriculum and transition: Towards the socially critical*. Victorian Institute of Secondary Education (Melbourne).
- Kemmis, S., & Edwards-Groves, C. (2018). Understanding education: History, politics and practice. In *Springer texts in education*. Retrieved from <http://link.springer.com/10.1007/978-94-007->

- Kemmis, S., Edwards-Groves, C., Jakhelln, R., Choy, S., Wärvik, G.-B., Gyllander Torkildsen, L., & Arkenback-Sundström, C. (2020). Teaching as Pedagogical Praxis. In *Pedagogy, education, and praxis in critical times* (pp. 85–116). https://doi.org/10.1007/978-981-15-6926-5_5
- Kemmis, S., & Mutton, R. (2012). Education for sustainability (EfS): Practice and practice architectures. *Environmental Education Research*, 18(2), 187–207. <https://doi.org/10.1080/13504622.2011.596929>
- Kemmis, S., Wilkinson, J., Edwards-Groves, C., Hardy, I., Grootenboer, P., & Bristol, L. (2014). *Changing practices, changing education*. <https://doi.org/10.1007/978-981-4560-47-4>
- Khuluvhe, M., & Negogogo, V. (2021). *Fact Sheet on NEETS*. Department of Higher Education and Training, Available at: <https://www.dhet.gov.za/Planning%20Monitoring%20and%20Evaluation%20Coordination/Fact%20Sheet%20on%20NEET%20-%202021.pdf>
- Kulundu, I., McGarry, D., & Lotz-Sisitka, H. (2020). Think Piece: Learning, living and leading into transgression – A reflection on decolonial praxis in a neoliberal world. *Southern African Journal of Environmental Education*, 36, 111–130. <https://doi.org/10.4314/sajee.v36i1.14>
- Labus, A., Despotović-Zrakić, M., Radenković, B., Bogdanović, Z., & Radenković, M. (2015). Enhancing formal e-learning with edutainment on social networks. *Journal of Computer Assisted Learning*, 31(6), 592–605. <https://doi.org/10.1111/jcal.12108>
- Le Grange, L. (2018). What is (post) qualitative research? *South African Journal of Higher Education*, 32(5), 1–14.
- Le Grange, L., Loubser, C., & Le Roux, C. (2014). Sustainability and education: A critical discussion. In C. Loubser (Ed.), *Environmental education and education for sustainability: Some South African perspectives* (2nd ed.). Van Schaik.
- Lotz-Sisitka, H. (2016). A review of three generations of critical theory. Towards conceptualising critical HESD research. *Routledge handbook of higher education research for sustainable development* (pp.207–222). Routledge.
- Lotz-Sisitka, H. (2018). Think Piece: Pioneers as relational subjects? Probing relationality as phenomenon shaping collective learning and change agency formation. *Southern African Journal of Environmental Education*, 34, 61-73.
- Lotz-Sisitka, H. (2020). Probing the potential of social ecosystemic skills approaches for green skills planning: Perspectives from expanded public works programme studies. In E. Rosenberg,

- P. Ramsarup, & H. Lotz-Sisitka (Eds.), *Green skills research in South Africa: Models, cases and methods* (pp. 113–127). <https://doi.org/10.4324/9780429279362-8>
- Lotz-Sisitka, H., Kulundu, I., Neville, R., James, A., Moyo, A., Kunkwenzu, E., Mphepo, G., Velempini, K., Maqwelane, L., Dyantyi, P., Mushishi, R., Makwita, S., & Musariri, Y. (2021). *Education for sustainable development and COVID-19 in southern Africa: Intersecting perspectives on why water, food and livelihoods matter in transforming education for sustainable futures*. Research report in the JET Education Services/UNESCO Regional Office for Southern Africa (ROSA)/Global Challenge Research Fund's Transforming Education for Sustainable Futures Project (South African node)/Open Society Foundations (OSF) #OpenupYourThinking: SADC Researchers Challenge. JET Education Services/ Transforming Education for Sustainable Futures, Rhodes University. South Africa.
- Lotz-Sisitka, H., Mukute, M., Chikunda, C., Baloi, A., & Pesanayi, T. (2017). Transgressing the norm: Transformative agency in community-based learning for sustainability in southern African contexts. *International Review of Education*, 63(6), 897–914. <https://doi.org/10.1007/s11159-017-9689-3>
- Lotz-Sisitka, H., & Pesanayi, T. (2020). Formative interventionist research generating iterative mediation processes in a vocational education and training learning network. In E. Rosenberg, P. Ramsarup, & H. Lotz-Sisitka (Eds.), *Green Skills Research in South Africa: Models, Cases and Methods* (pp. 157–174). <https://doi.org/10.4324/9780429279362-11>
- Lotz-Sisitka, H., & Raven, G. (2004). Learning through cases: Adopting a nested approach to case-study work in the Gold Fields participatory course initiative. *Environmental Education Research*, 10(1), 67–87. <https://doi.org/10.1080/1350462032000173715>
- Lotz-Sisitka, H., Rosenberg, E., & Ramsarup, P. (2020). Environment and sustainability education research as policy engagement: (Re-) invigorating 'politics as potentia' in South Africa. *Environmental Education Research*. <https://doi.org/10.1080/13504622.2020.1759511>
- Lotz-Sisitka, H., Shumba, O., Lupele, J. & Wilmot, D. (2017). *Schooling for sustainable development in Africa*. Springer International
- Lovelock, P. (2007). *Revenge of Gaia*. Penguin.
- Labour Relations Act (LRA). (1995). *Labour Relations Act, No. 66 of 1995*, Pub. L. No. 66, 1.
- Machi, L., & McEvoy, B. (2012). The literature review - The six steps to success. *Academic Journal of Research and Scientific Publishing*, 1(10), 3–6. Retrieved from <https://books.google.com/books?hl=en&lr=&id=d3uzDAAAQBAJ&oi=fnd&pg=PP1&dq=review+sharing+economy&ots=Jr8iZxE07B&sig=Nvh2pY8OWRVaR-EvrQWOP0I1suI>

- Mahon, K., Francisco, S., & Kemmis, S. (2016). *Exploring education and professional practice: Through the lens of practice architectures*. <https://doi.org/10.1007/978-981-10-2219-7>
- Mahon, K., Edwards-Groves, C., Francisco, S., Kaukko, M., Kemmis, S., & Petrie, K (Eds.) (2020). *Pedagogy, education, and praxis in critical times*. Springer. <https://doi.org/10.1007/978-981-15-6926-5>
- Makhecha, U. P. (2020). Journey of an organizational practice. *Organizational Aesthetics*, 10(1). <https://oa.journals.publicknowledgeproject.org/index.php/oa/article/view/236>
- Malterud, K., Siersma, V. D., & Guassora, A. D. (2016). Sample size in qualitative interview studies: Guided by information power. *Qualitative Health Research*, 26(13), 1753–1760. <https://doi.org/10.1177/1049732315617444>
- Maton, K., Hood, S., & Shay, S. (2016). *Knowledge-building: Educational studies in legitimation code theory*. http://encore.seals.ac.za/iii/encore_ru/record/C__Rb2534156__Smaton__Orighresult__U__X4?lang=eng&suite=ru
- Maxwell, J. (1998). A model for qualitative research design. In J. Maxwell (Ed.), *Qualitative research design* (pp.1–22). Sage.
- Maxwell, J. (2013). Understanding, validity, and evidence. In J. Maxwell (Ed.), *A realist approach for qualitative research* (pp. 127–148). Sage.
- McBride, B. B., Brewer, C. A., Berkowitz, A. R., & Borrie, W. T. (2013). Environmental literacy, ecological literacy, ecoliteracy: What do we mean and how did we get here? *Ecosphere*, 4(5). <https://doi.org/10.1890/ES13-00075.1>
- McGarry, D. (2022). Suitably strange objects, metaphors and stories that re-imagine learning, activism and justice. *Critical Studies in Teaching and Learning*, 10(1), 93–115. <https://doi.org/DOI: 10.14426/cristal.v10i1.511>
- McGrath, S., & Powell, L. (2016). Skills for sustainable development: Transforming vocational education and training beyond 2015. *International Journal of Educational Development*, 50, 12–19.
- McGrath, S., Powell, L., Alla-Mensah, J., Hilal, R., & Suart, R. (2020). New VET theories for new times: the critical capabilities approach to vocational education and training and its potential for theorising a transformed and transformational VET. *Journal of Vocational Education and Training*, 1–22. <https://doi.org/10.1080/13636820.2020.1786440>
- McGrath, S., Ramsarup, P., Zeelen, J., Wedekind, V., Allais, S., Lotz-Sisitka, H., Monk, D., Openjuru, G, & Russon, J -A. (2020). Vocational education and training for African

- development: A literature review. *Journal of Vocational Education and Training*.
<https://doi.org/10.1080/13636820.2019.1679969>
- McGrath, S., & Russon, J-A. (2022). Towards sustainable vocational education and training: Thinking beyond the formal. *Southern African Journal of Environmental Education*, in press.
- Melrose, S. (2009). Naturalistic generalisation. In *Encyclopedia of Case Study Research*. Sage.
- Metelerkamp, L., & Ferguson, R. (2021). Chapter 5: Technical Transformations (pp. 99-132) in I. Kulundu-Bolus, I., G. Chakona & H. Lotz-Sisitka (Eds.) *Stories of collective learning and care during a pandemic: Reflective research by practitioners, researchers and community based organisers on the collective shifts and praxis needed to regenerate transformative futures*. Transforming Education for Sustainable Futures (TESF) and the Environmental Learning Research Centre (ELRC). <https://doi.org/10.5281/zenodo.5704833>
- Mohammadyari, S., & Singh, H. (2015). Understanding the effect of e-learning on individual performance: The role of digital literacy. *Computers and Education*, 82, 11–25.
<https://doi.org/10.1016/j.compedu.2014.10.025>
- Mosidi, M. (1999). *Environmental Education in Curriculum 2005: A Case Study in the Northern Cape*. [Unpublished Master's thesis] Rand Afrikaans University.
- Mouton, J. (2001). *How to succeed in your master's and doctoral studies*. Van Schaik.
- Mphopo, G. (2020). *Informal learning in local farming practices by rural women in the Lake Chilwa Basin, Malawi: Towards coping and adaptation to climate variability and climate change*. [Unpublished thesis] Rhodes University.
- Mrazek, R. (1993). *Alternative paradigms in environmental education research*. North American Association of Environmental Education (NAAEE).
- Mukute, M. (2010). *Exploring and expanding learning processes in sustainable agriculture workplace contexts*. [Unpublished doctoral thesis] Rhodes University.
- Mukwambo. (2021). *Mediating and examining expansive learning in the context of multidimensional complexities affecting household food security activity systems in Nyanyadzi Irrigation Scheme in the Manicaland Province of Zimbabwe*. [Unpublished thesis] Rhodes University.
- Murray, R. (2015). *On my watch: A review of environmental education literature with particular reference to South Africa, and South African teenagers*. [Unpublished thesis] Stellenbosch University.
- Nachhaltige-berufsbildung. (2019). Green TVET. Retrieved 19 March 2020, from

<https://www.nachhaltige-berufsbildung.com/en/green-tvet>

- Nachhaltige-berufsbildung. (2020). Sustainable vocational training. Retrieved March 19, 2020, from GEW website: <https://translate.google.com/translate?hl=en&sl=de&u=https://www.gew.de/aktuelles/detailseite/neuigkeiten/nachhaltige-berufsbildung/&prev=search>
- National Planning Commission [NPC]. (2012). National Development Plan 2030. Retrieved 21 April 2022, from National Planning Commission website: [https://www.gov.za/sites/default/files/Executive Summary-NDP 2030 - Our future - make it work.pdf](https://www.gov.za/sites/default/files/Executive%20Summary-NDP%202030_-_Our%20future_-_make%20it%20work.pdf)
- O'Donoghue, R. (2014). Think Piece: Re-thinking education for sustainable development as transgressive processes of educational engagement with human conduct, emerging matters of concern and the common good . *Southern African Journal of Environmental Education*, 30 , 7-26.
- O'Donoghue, Rob, Sandoval-Rivera, J. C. A., & Payyappallimana, U. (2019). Landscape, memory and learning to change in changing worlds:Contemplating intergenerational learning and traditional knowledge practices within social-ecological landscapes of change. *Southern African Journal of Environmental Education*, 35(1). <https://doi.org/10.4314/sajee.v35i1.10>
- Ojo, E., Ramsarup, P., & Jenkin, N. (2021). Learning to adapt in a global pandemic of covid-19: insights to support Vocational Education and Training (VET) in Southern Africa. *Southern African Journal of Environmental Education*, 36. <https://doi.org/10.4314/sajee.v36i1.18>
- Olin, A., Francisco, S., Salo, P., Pörn, M., & Karlberg-Granlund, G. (2020). Collaborative professional learning for changing educational practices. In *Pedagogy, Education, and Praxis in Critical Times* (pp. 141–162). https://doi.org/10.1007/978-981-15-6926-5_7
- Olsen, T., Glad,T., Filstad, C. (2018). Learning to learn differently. *Journal of Workplace Learning*, 30(1), 18–31.
- Ozdamli, F., & Uzunboyly, H. (2015). M-learning adequacy and perceptions of students and teachers in secondary schools. *British Journal of Educational Technology*, 46(1), 159–172. <https://doi.org/10.1111/bjet.12136>
- Pesanayi, T. (2019). *Boundary-crossing learning in agricultural learning systems: Formative interventions for water and seed provision in southern Africa*. [Unpublished doctoral thesis] Rhodes University.
- Peters, S. J., & Wals, A. E. J. (2013). Learning and knowing in pursuit of sustainability: Concepts and tools for transdisciplinary environmental research. In M. Krasny & J. Dillon (eds.) *Trading Zones in Environmental Education: Creating Transdisciplinary Dialogue* (pp.79–104). Peter Lang.
- Petticrew, M., & Roberts, H. (2008). Systematic reviews in the social sciences: A practical guide. In

Systematic Reviews in the Social Sciences: A Practical Guide.

<https://doi.org/10.1002/9780470754887>

- Pohl, C., Rist, S., Zimmermann, A., Fry, P., Gurung, G. S., Schneider, F., Speranza, C. I., Kiteme, B., Boillat, S., Serrano, E., Hadorn, G. H., & Urs, W. (2010). Researchers' roles in knowledge co-production: Experience from sustainability research in Kenya, Switzerland, Bolivia and Nepal. *Science and Public Policy*, 37(4), 267–281. <https://doi.org/10.3152/030234210X496628>
- Ponte, S. (2008). Greener than Thou: The Political Economy of Fish Ecolabeling and Its Local Manifestations in South Africa. *World Development*, 36(1), 159–175. <https://doi.org/10.1016/j.worlddev.2007.02.014>
- Quinn, J. B., Anderson, P., & Finkelstein, S. (2009). Leveraging intellect. In *Knowledge and Strategy* (pp. 275–300). Taylor and Francis.
- Ramsarup, P. (2017). *A Critical Realist dialectical understanding of learning pathways associated with two scarce skill environmental occupations within a transitioning systems frame*. [Unpublished doctoral thesis] Rhodes University.
- Ramsarup, P., Rosenberg, E., Lotz-Sisitka, H., Jenkin, N. (2018). Green Skills. In N. Mohamed (Ed.) *Sustainability Transitions in South Africa*. Routledge. <https://doi.org/10.4324/9781315190617-8>
- Ramsarup, P., Ward, M., Jenkin, N., & Lotz-Sisitka, H. (2017). *Enabling Green Skills : Pathways to Sustainable Development*. https://www.researchgate.net/publication/328075553_UPDATED_Enabling_Green_Skills_Pathways_to_Sustainable_Development_A_Source_Book_to_Support_Skills_Planning_for_Green_Economies_2017_Ramsarup_P_and_Ward_M_with_contributions_from_Rosenberg_E_Jenkin_N_a
- Richie, D. (2015). *Doing Oral History* (3rd ed.). Oxford: Oxford University Press.
- Robinson, L. M., van Putten, I., Cavve, B. S., Longo, C., Watson, M., Bellchambers, L., ... Boschetti, F. (2021). Understanding societal approval of the fishing industry and the influence of third-party sustainability certification. *Fish and Fisheries*, 22(6), 1213–1226. <https://doi.org/10.1111/faf.12583>
- Rooney, D., Manidis, M., Price, O., & Scheeres, H. (2018). An enterprising phoenix: Materiality, affect and learning. *Journal of Workplace Learning*, 30(4), 274–290.
- Rosenberg, E., Ramsarup, P., & Lotz-Sisitka, H. (2020). Green Skills Research in South Africa. <https://doi.org/10.4324/9780429279362>
- Roush, P. E. (1997). Leadership without easy answers. *The Leadership Quarterly*, 8(1), 85–88.

- [https://doi.org/10.1016/s1048-9843\(97\)90032-1](https://doi.org/10.1016/s1048-9843(97)90032-1)
- Sachs, J., Kroll, C., Lafortune, G., Fuller, G., & Woelm, F. (2021). *Sustainable Development Report 2021*. <https://doi.org/10.1017/9781009106559>
- South African Deep-Sea Trawling Industry Association [SADSTIA]. (2022). South African Deep-Sea Trawling Industry Association. Retrieved April 26, 2022, from <https://www.sadstia.co.za/>
- South African Maritime Safety Authority [SAMSA] (n.d.). South African Maritime Safety Authority. Retrieved March 9, 2020, from <http://www.samsa.org.za/Pages/default.aspx>
- Schatzki, T. (2001). Practice theory. In E. Schatzki, T. Knorr Cetina, & K. Von Savigny (Eds.), *The practice turn in contemporary theory* (pp. 1–230). Routledge.
- Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. *Educational Researcher*, 27(2), 4–13. Retrieved from <http://0-eds.b.ebscohost.com.wam.seals.ac.za/eds/detail/detail?vid=0&sid=f428454e-4c56-4647-a9e3-bff1595f4f13%40sessionmgr102&bdata=JnNpdGU9ZWZlWxpdmU%3D#AN=RN042606248&db=edsbl>
- Shiva, V. (2005). *Earth democracy: Justice, sustainability and peace*. Zed Books.
- Shiva, V. (2012). *Making peace with the earth: Beyond resource, land and food wars*. Women Unlimited (Johannesburg).
- Shove, E. (2020). How to conduct a practice-based study: problems and methods (2nd ed.). *Consumption Markets & Culture*, 23(6), 616–618.
- Singh, R. J. (2015). Use of blended learning in higher education – Some experiences. *Progressio: South African Journal for Open and Distance Learning Practice*, 37(1), 54–67. <https://doi.org/10.25159/0256-8853/572>
- Sjølie, E., Francisco, S., Mahon, K., Kaukko, M., & Kemmis, S. (2020). Learning of academics in the time of the Coronavirus pandemic. *Journal of Praxis in Higher Education*, 2(1), 85–107. <https://doi.org/10.47989/kpdc61>
- Smith, E. (2020). Afterword: a fresh look at workplace learning for VET teachers. *International Journal of Training Research*, 18(1), 84–92. doi:10.1080/14480220.2020.1757890
- Southafricanmi. (2020). South Africa’s education statistics. Retrieved May 6, 2022, from <http://www.southafricanmi.com/education-statistics.html>
- Southerton, D. (2003). ‘Squeezing time’: Allocating practices, coordinating networks and scheduling society. *Time & Society*, 12(1), 5–25. <https://doi.org/10.1177/0961463X03012001001>

- Spee, A. P. (2022). The influence and impact of social practice theory on strategy and strategic management. In *Elgar Introduction to Theories of Social Practice* (pp. 1–38). Elgar.
- Spee, Andreas Paul, Jarzabkowski, P., & Smets, M. (2012). Material artifacts: Practices for doing strategy with ‘Stuff’. Academy of Management 2012 Annual Meeting, AOM 2012, 353–358. <https://doi.org/10.5465/AMBPP.2012.250>
- Spours, K. (2021). Building social ecosystem theory. Retrieved August 20, 2022, from <https://www.kenspours.com/elite-and-inclusive-ecosystems>
- Statistics South Africa. (2019). *Sustainable Development Goals (SDGs): Country report 2019 - South Africa*. <https://www.datocms-assets.com/7245/1574774307-sdgs-country-report-2019-south-africa.pdf>
- Stesenko, A. (2019). Radical-transformative agency: Continuities and contrasts with relational agency and implications for education. *Frontiers in Education*, 4. <https://doi.org/10.3389/feduc.2019.00148>
- Stoddard, E. (2022, March 13). South Africa the world’s most unequal country – World Bank report. *Daily Maverick*. Retrieved from <https://www.dailymaverick.co.za/article/2022-03-13-south-africa-the-worlds-most-unequal-country-world-bank-report/>
- Swilling, M., Musango, J. K., & Wakeford, J. (2018). Greening the South African economy: Scoping the issues, challenges and opportunities. *Town and Regional Planning* (72). <https://doi.org/10.18820/2415-0495/trp72i1.8>
- Taleb, Z., Ahmadi, A., & Musavi, M. (2015). The effect of m-learning on mathematics learning. *Procedia - Social and Behavioral Sciences*, 171, 83–89. <https://doi.org/10.1016/j.sbspro.2015.01.092>
- Tchernegovski, P., Reupert, A., & Maybery, D. (2015). ‘Let’s Talk about Children’: A pilot evaluation of an e-learning resource for mental health clinicians. *Clinical Psychologist*, 19(1), 49–58. <https://doi.org/10.1111/cp.12050>
- Tilbury, D., & Ryan, A. (2011). Today becomes tomorrow: Re-thinking business practice, education and learning in the context of sustainability. *Journal of Global Responsibility*, 2(2), 137–150. <https://doi.org/10.1108/20412561111166012>
- Uhl-Bien, M., & Arena, M. (2017). Complexity leadership: Enabling people and organizations for adaptability. *Organizational Dynamics*, 46(1), 9–20. <https://doi.org/10.1016/j.orgdyn.2016.12.001>
- United Nations (UN). (2019). *Sustainable Development Goals*. Retrieved from

<https://sustainabledevelopment.un.org/sdgs>.

United Nations Educational, Scientific and Cultural Organization (UNESCO). (2021). *Futures of Education*. Retrieved April 21, 2022, from <https://en.unesco.org/futuresofeducation/>

VET 4.0 Collective. (in press). *Transitioning Vocational Education and Training*.
<https://bristoluniversitypress.co.uk/transitioning-vocational-education-and-training-in-africa>

Wals, A., Van der Hoeven, N., & Blanken, H. (2009). *The Acoustics of Social Learning*. Wageningen Academic Publishers.

Walters, S. (2019). Navigating climate crises: Deepening the conversation about contributions of adult educators. *Journal of Vocational and Continuing Education and Training*, 2(1).
<https://doi.org/10.14426/jovacet.v2i1.37>

Watson, L. (n.d.). Lilla: International Women's Network. Retrieved July 22, 2021, from
<https://lillanetwork.wordpress.com/about/>

Wilkinson, J. (2021). Introduction: Educational leadership through a practice lens. In J. Wilkinson (Ed.) *Educational Leadership Theory* (pp. 1–16). Springer.
https://doi.org/https://doi.org/10.1007/978-981-16-7629-1_1

Wilkinson, J., & Kauko, M. (2020). Educational leading as pedagogical love: The case for refugee education. *International Journal of Leadership in Education*, 23(1), 61–76.
<https://doi.org/10.1080/13603124.2019.1629492>

Wilkinson, J., Olin, A., Lund, T., & Stjernstrøm, E. (2013). Understanding leading as travelling practices. *School Leadership and Management*, 33(3), 224–239.
<https://doi.org/10.1080/13632434.2013.773886>

Yahalom, J. (2020). Toward a methodology of chance: On obstacles to research and their advantages. *Qualitative Psychology*, 7(2), 153–168. <https://doi.org/10.1037/qup0000172>

Yin, R. (1981). The Case Study: Some answers. *Administrative Science*, 26(1), 58–65.

Yow, V. (1994). *Recording Oral History: A practical guide for Social Scientists*. London: SAGE Publications.

Yucel, R. (2018). Scientists' ontological and epistemological views about science from the perspective of critical realism. *Science and Education*, 27(5–6), 407–433.
<https://doi.org/10.1007/s11191-018-9983-x>

Appendices

Appendix 1: A Germ of an Idea: First Contact with D. Prof Lotz-Sisitka

Dear Professor, Lotz-Sisitka,

Sent on 26 December 2017

I would like to discuss the possibility of doing a PhD under your supervision. I had the opportunity of discussing my research interests with the Vice Chancellor when he recently did a Cape Town roadshow and he suggested that I contacted you. I will be bringing my youngest daughter to Grahamstown to commence her studies at Rhodes next year. **I will be in Grahamstown from mid-afternoon on Friday, 2 February – lunchtime on 4 February 2018. Would it be possible to meet you and discuss a potential supervision?** I will fit in with your availability. Below please find both summarized and expanded points for discussion.

Regards

Robin

072 600 6870

SUMMARY:

1. I have an MPhil cum laude which focuses on education for sustainability.
2. I am the MD of a small business called Future People (Pty) Ltd which delivers learning and development into predominantly heavy industry to large numbers of semi-literate, semi-skilled staff. The interventions manifest social system transformation increased personal agency and to some extent result in social-ecological improvements.
3. We are involved in 2 projects in the deep-sea fishing industry which are firsts in South Africa, both of which provide raw qualitative and quantitative data for study. The companies involved are eager for a PhD study to be conducted which ensures access to data.
4. I am curious by nature and would use the rigors of a PhD study to answer some questions which have been fomenting in my mind as a result of my studies, raising two girls as a single mom and my work. I would like to contribute to a more sustainable South Africa through my work, fishermen do not need to be convinced of climate change as they live it every day. I suspect

that the studies could make an original contribution to theory and practice, with special relevance to South Africa.

I appreciate that my thoughts are just the beginning and will alter greatly as any academic process unfolds. I have expanded these four points below:

EXPANDED EXPLANATION:

1. I attained an MPhil cum laude (Sustainable Development Planning and Management) from the University of Stellenbosch in 2015. The topic of the MPhil was “On my watch: a review of the environmental education literature with particular reference to South Africa, and South African teenagers.” The MPhil was supported by a BPhil cum laude 2013 which covered key topics of sustainable development and sparked my interest in the field of education and leadership for sustainability.
2. 22 years ago, I started a small business called Future People (Pty) Ltd which commenced on the premise that business could drive social transformation and this focus endures today. The intent of the business has always been, and remains helping the ‘cellophane’ people i.e., workers who are semi-skilled and semi-literate, and whom are most often identified by number rather than name.
3. I am currently heading up two long-term projects which are first timers in the fishing industry and in South Africa. One project focusses on sea-going production staff (300 pax) and the other on skippers (20 pax). The elements which make these projects unique & challenging are:
 - The learners have a functional literacy level of about Grade 7
 - The learners come from different cultural backgrounds
 - Languages used in the classroom are 3 African languages, English, French and Portuguese
 - All the learners are men
 - The content taught is both theoretical and practical
 - The class composition changes every course due to vessel manning requirements
 - The availability of learners for classroom training is very limited, so education must continue at sea
 - Significant change is required from the shore-based managers and their departments to accommodate huge growth in the sea-going staff

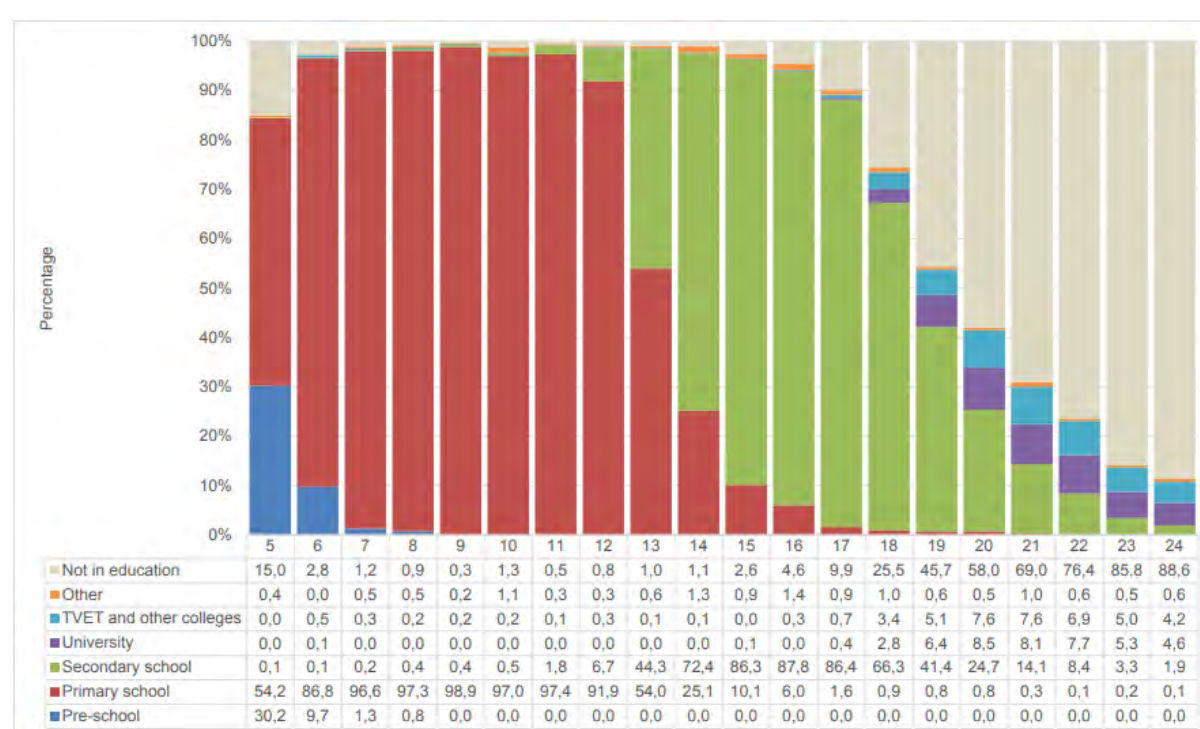
- Corporate vs. operational expectations of the projects differ and require careful translation or articulation of goals and progress
- Techniques span the blended learning spectrum

These projects are very busy, and “sometimes we even get things done.” The most significant growth in the learners is their perceptions of themselves, their families, work mates and the living resource (hake or white gold) which is the basis of the business.

4. By studying a PhD, I would like to investigate a number of questions which I have formed as a result of both my work, life experiences and my studies, these are:
 - How could I build a scaffold for individuals to leap-frog formal learning which they have lost along the way? For example, do we need to teach people to read and write or just to read and type? How do I pick up, and extend education to those lost along the way? (for many of our learners, this is the first time they are receiving a certificate)
 - The above-mentioned projects are acknowledged by the JSE-listed company as highly successful, so what elements have caused this result and how could this be bottled to amplify social-transformation?
 - How do I use the opportunity of these projects to increase education for sustainability? Industry pays us to improve capacity which leads to increased profitability, however, one of the biggest unintended consequences is personal growth & insight into sustainability principles and practices e.g., impact of waste, water usage etc. Fishermen do not need to be convinced of climate change; they live it every day at sea.
 - How could the learnings from industry be used in the education for sustainability in other spheres?

Appendix 2: Education statistics based on General Household Survey (GHS) 2018

“This update is based on the latest results from the General Household Survey (GHS) as published by Statistics South Africa. It shows per youth age the percentage of children and youths in various educational facilities or whether they are not in any educational facility. For example for children aged 5 years old in South Africa, 15% of them are not in education, 54.2% of children aged 5 years old are in primary school, and 30.25 of children aged 5 years old is in pre-school.”

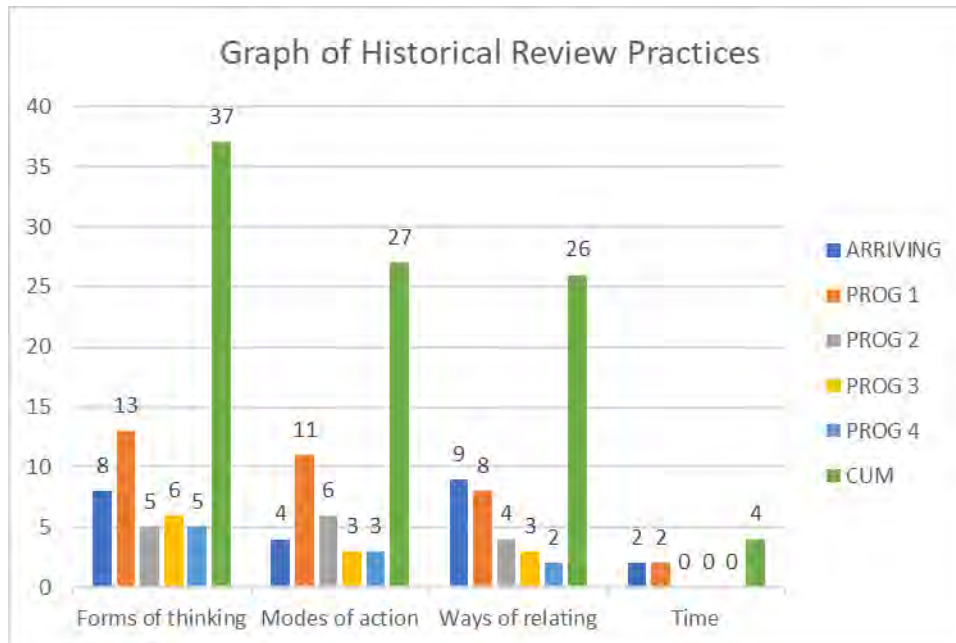


“Let’s take a look at those youths that are 19 years of age. Where exactly do they find themselves? 45.7% of youths aged 19 is not in education. And this is the sad and depressing statistic. This is the age at which youths should be enrolled in Technical Vocational Training and Education Colleges and Universities. 41.4% of youths aged 19 years are currently attending secondary school (or high school), and only 6.4% of youths at age 19 is attending or is enrolled at University.”

Source:

<http://www.southafricanmi.com/education-statistics.html>

Appendix 3: Rudimentary Graph of Practices for Programmes 1-4



**Appendix 4: Table of the Fourteen IVET4 and Performance-related
Programmes facilitated between 1995-2021**

#	Projects	Population	Intervention	Measurable outcome
1	LRA for sea-going staff	18 vessels 800 employees Officers and s/s	6 x3 hour sessions 160 sessions - Joint initiative with TLFU	- D & G knowledge - Skills developed - Intervention embedded
2	LRA for shore-based staff	All depts 400 employees Snr managers	- Complainants Course - Chairperson's Course - Monthly Industrial Relations update	- D & G knowledge and awareness - Skills developed - Cases handled well ashore
3	Commissioning of Boronia	All officers and staff	- Handling discipline and grievance - Developed job profiles for each position	- Refresher training for Ace-squad - Clearly defined job and KPAs
4	360° Performance Appraisal	Snr managers	Review of individual performance by line manager, subordinates, and peers	- Clear view of job perf - Development areas identified
5	Full Fleet Mentorship Programme @ Trawlers	All sea-going staff and snr managers 1 000 staff	- Allocation of a ship's mentor - Mentorship meetings on t/a - Use of Action Log	- Militant union threat averted - Improved vessel performance on t/sea day; time alongside; fuel usage; dismissals dropped to 0 - Performance Charter per ship
6	Job profiles	All Trawlers jobs	Developed outcomes-based position profiles with clear measurables	- Each employee had clear task and performance markers - Gaps and overlaps identified

	Project	Population	Intervention	Measurable outcome
7	Procurement	Buyers 8 buyers	Project Butterfly: 6 mo. intervention to embed procurement software upgrade	1. Procurement software embedded 2. Exceeded savings target and paid bonus 3. System clean-up of vendors Conviction of buyer fraud
8	Stock and Stores	Stock and stores 20 stockmen	Project Safari: 6 mo. intervention to embed JIT principles to support buyers	1. Stores re-organised 2. Stock holding decrease and accuracy as per stocktakes improved 3. Invited to present Butterfly and Safari at National Procurement Conference at Council for Scientific and Industrial Research
	Industry Involvement in Labour Disputes	Chaired appeals in industry	Mutiny on the high seas (17 crew) Largest fraud to date at competitor	1. Fair outcome 2. No comebacks
9	Job profiles	Woodstock Factory jobs Various key positions	Developed outcomes-based position profiles with clear measurables	3. Each employee had clear task and performance markers 4. Gaps and overlaps identified

10	Change Management and Performance Enhancement @ Woodstock Factory	All perm and contract factory staff and other stakeholders 700 staff	Developed material and supporting procedures to enable a smooth transition to the new Meral processing system. Project commissioned by Exec Sessions and support before, during and after implementation. Matched people to jobs	1. Staff prepared before change with info sessions and simulations 2. Smooth transition from a staffing perspective 3. Performance enhancement in key areas e.g. trimming and packing lines
11	Production Programme	Discussed in depth in the Case Study		
12	Skipper Development Programme			
13	Individual Competency Files and Engineering Modifier			
14	Chief Engineers Programme			

Appendix 5: Examples of Assessment Matrix and Assessment Guide

Chief Engineers Programme Assessment Matrix – Linking IVET4 - to Company Goals and Metrics - to - Employee's Individual Performance Appraisal. This document was also used to benchmark the in-house training against appropriate external standards or internal policies and practice. Please see summary below:

LEARNING OBJECTIVE	COURSE CO-ORDINATES (content, facilitator, assessment, benchmark)	EVIDENCE (tied back to Individual Performance Appraisal i.e. “show up in the business”)
Computer skills & E-Learning Platform	Content: Office 2019 Textbook (Wempen, 2019) Facilitator: Electronics Superintendent Rick Achmat Assessment: Assignments Benchmark: pre and post skills test by Mi Consultancy	- Engagement with E-Learning Platform - Business communication and data transmission using Word, Excel, and Outlook at a job-appropriate level KPI 4: personal development
Planned Maintenance System and Procurement	Content: PowerPoint presentation, written material and mobisodes based on I&J Limited Asset Care Strategy and Planned Maintenance System Policies and Procedures Facilitator: Internal Manager (expert knowledge) Assessment: Written assignment per sub-module Benchmark: Compliance with Planned Maintenance System onboard	- Planned Maintenance System implemented on resident vessel - Reconciliation of procurement software tasks issued vs. completed - Onboard inspection - External audit findings - Procurement forms 95% accurate consistently KPI 2&3: Procurement Forms and Planned Maintenance System roll-out
Engineering Theory	Content: Onboard library and digital repository of drawings and manuals Facilitator: TBD Assessment: Oral assessment by Facilitator and demonstration of access to hard and soft copy materials Benchmark: In-depth understanding of machinery and systems e.g. Praxis on resident vessel	- Improvement in fault-finding and problem solving - Improved technical communication to superintendents and foremen of problems. KPA 1: platform and machinery availability
Workshop Skills	Content: Key areas covering systems & circuits, terminology, practical skills, tools, and fault-finding. Areas designated by Foreman & on request of the Chief. Facilitator: Foreman or qualified artisan Assessment: Chief keeps timesheet and has an oral assessment of key areas by Facilitator. TBD Benchmark: Cherry pick key areas from South African Maritime Safety Association Code GOP-532.02 and aligned National Qualifications Framework Unit Standards. Examples provided for Refrigeration.	- Improved ability to conduct repairs and maintenance at sea. KPA 1: platform and machinery availability

ASSESSMENT GUIDE

FREEZER VESSEL PRODUCTION TRAINING

COURSE

Created for all sea-going I&J Limited staff.

Created by Kevin Gaynor and Robin Ferguson.

Technical advice and expert input from Charlene Coetzee and Donovan Brickles.

The First Edition of the two Freezer Production Manuals were published in 2016-2017 and covered only key production principles and procedures.

This is the Second Edition of the Freezer Production Manual which is published in 2021 has been expanded to include all production principles, all procedures, Standing Operating Procedures and Assessments for every Standing Operating Procedures.

The Second Edition of the Assessment Guide contains an Assessment Matrix for all formative and summative assessments for theoretical and practical assessments ashore and at sea. It also contains the Reporting Requirements for this training.

1. Introduction to Assessment Guide

The Freezer Production Course is designed around the principles and process of production on the freezer vessels. This is a highly practical course, and an assessment has been designed for each one of the 28 production processes. The assessment can be found in Appendix 1 of the relevant production process. Each assessment has a theoretical portion and a practical portion. A Factory Hand is required to pass the theoretical and the practical component of the particular production process e.g. sorting to become an Accredited Sorter and, therefore, permitted to work as a Sorter. All Factory Hands have a primary position and a secondary position e.g. the Sorter may also be a Packer. When the sorting function is finished, he would then go and help the packers. The Factory Hand would need to have passed the Packing Assessment and so that he is also an Accredited Packer. There are a few experienced Factory Hands who may be accredited to work in three or four different positions. The theoretical portion of the assessment can be done ashore or at sea. The practical component is always done at sea on the line in real time. These assessments are conducted by the Production Management Team and the results are recorded. All positional assessments are considered to be *summative assessments*. A complete table of the production processes and associated assessments is provided in the table below.

In addition to the Positional Assessments described above, during shore-based training, all candidates are taken to Woodstock to be trained and tested on Trimming and Packing. The results are recorded by the trainers at Woodstock and provided to L&D for reporting purposes.

A Refresher Worksheet has been included in this document to support reinforcement training and can be used at any time to remind Production Workers about the principles and processes of production. As part of this exercise delegates can be asked to draw and label a fish. Both the worksheet and the drawing are considered to be *formative assessments*.

The L&D Team collate and maintain the training records for each person.

2. Assessment Matrix

CHAPTER	ASSESSMENT	PRACTICALS	FORM/SUMM
1-Introduction	Refresher Worksheet		formative
2-Teamwork	Refresher Worksheet		formative
3-What is a Fish?	Draw and label a fish (10 marks)		formative
4-Products	Refresher Worksheet		formative
5-Production Principles	Refresher Worksheet		formative
6-Production Processes	Refresher Worksheet		formative
7-Factory Preparation	PA-1: Factory Preparation (REC-P1:Factory Preparation Checklist)		summative – positional accreditation
8-Stocker Pond	PA-2: Stocker Pond		
9-Sorting	PA-3: Sorting		
10-Chill Tanks	PA-4: Chill Tanks		
11-Heading	PA-5: Heading		
12-Tailing	PA-6: Tailing		
13-Gutting	PA-7: Gutting		
14-Filleting	PA-8: Filleting		
15-Skinning	PA 9: Skinning		
16-Filleting	PA 10: Trimming	Practical at WSK	
17-Deboning by Hand	PA 11: Deboning by Hand		
18-Grading	PA 12: Grading		
19-Scaling	PA 13: Scaling		
20-Shatterpak Coding and Labelling	PA 14: Shatterpak Coding and Labelling		
21-Packing Fillets	PA 15: Packing Fillets	Practical at WSK	
22-Horizontal Plate Freezer	PA 16: Horizontal Plate Freezer		
23-Hake H&G and HGT	PA 17: Hake H&G and HGT		

24-Bycatch	PA 18: Bycatch		
25-Roe broken and unbroken	PA 19: Roe broken and unbroken		
26-Blocks – fillet and mince	PA 20: Blocks – fillet and mince		
27-Master Carton Coding and Labelling	PA 21: Master Carton Coding and Labelling		
28-Blast Freezer	PA 22: Blast Freezer		
29-Vertical Plate Freezer	PA 23: Vertical Plate Freezer		
30-Unloading Freezers	PA 24: Unloading Freezers		
31-Master Cartoning	PA 25: Master Cartoning		
32-Fish Hold Stacking	PA 26: Fish Hold Stacking		
33-Rinse and Deep Cleaning	PA 27: Rinse and Deep Cleaning		summative – positional accreditation
34-Fishmeal Bagging	PA 28: Fishmeal Bagging		
35-Conclusion	None		

3. Freezer Production Training: Refresher Course Worksheet

Full Name:	
Pay Number:	Date:

Wherever there is a letter followed by dots, complete the word – there may be one or two letters, these are clues to help you! Each word is a mark. Spelling is not that important, just do your best. If you can't think of any more words in a particular question, move on to the others & come back to it later. There are clues all over the worksheet as well. Good luck!

1. MAGIC M's: (10 marks)

M =

M =

M =

M =

M =

M =

M =

M =

M =

M =

2. MISSION: FGFFFTA (7 marks)

F..... G..... F..... F..... F..... T.....
A.....

3. TEAMWORK: Remember Exercise from previous training Groups, Words on Flipchart, Photo's.

4. CLEVER C's: (10 marks) Co....., Cl.....,

Co....., Ch..... o... C....., Co-....., Co-

....., Co....., Co.....,

Ca....., Ca, C.....

5. FACTORY PROCESS STAGES: 28! (28 marks)

List as many as you can below:

6. BALANCE: (4 marks)

7. ACTION LOOP: (3 marks)

8. PRODUCTION PRINCIPLES: (16 marks)

1. P Y
2. C C M
3. J..... I..... T
4. B..... t..... L.....
5. B.....

6. D..... L.....

7. R.....

8. L..... E

9. We DON'T WANT: (6 marks)

B....., B....., B.....,

B..... or B B

10. PROCEDURES - PER POSITION: E.G Stocker Pond Master, Sorter – A Squad, Operator, Grader etc (5 marks)

Production Process:

Production Process:

11. We WANT (11 marks)

F through the Factory.

Better than F..... = F..... F

OTHER THINGS WE WANT BEGINNING WITH 'F':

F, F....., F.....,

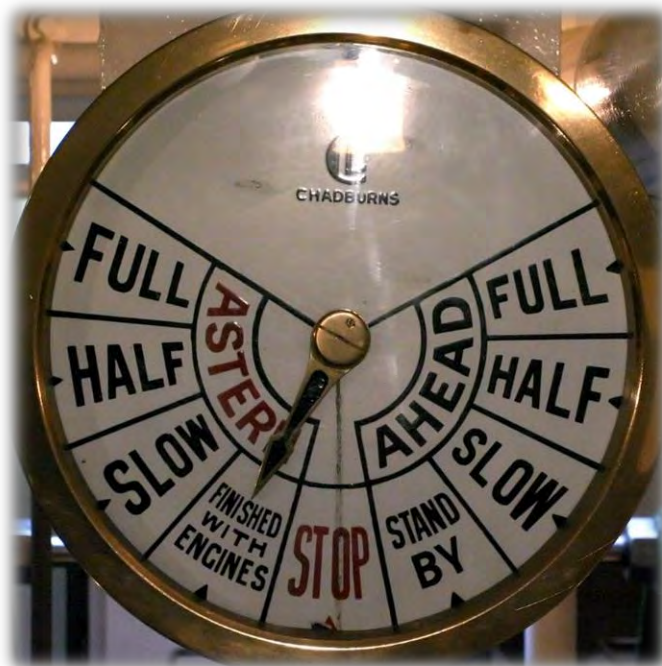
F.....

F..... F....., F.....,

F.....

TOTAL: 100

Appendix 6: E-Learning Chief Engineers Programme – Module One



E-Learning Chief Engineers Programme 2020/2021

Name:

Vessel:





Cover photographs 1 by Unknown Author and licensed under [CC BY-SA-NC](#)

Cover photograph 2 by Unknown Author is licensed under [CC BY-SA](#)

Dear Chief Engineers

1 October 2020

We started our Chief Engineers Programme with such confidence in February. Thank you for the enthusiasm and effort which you put into Module 1. And then, Covid-19! It feels like a tsunami hit us out of nowhere and scattered us. I have thought about you all in these very trying times and asked the shore staff, and Kevin Gaynor, who sailed on the freezers, how you are doing. I understand some of you are ashore, some of you are at sea and that some of you have not been at all well. I have missed coming to Trawlers due to the Covid-19 restrictions and very much and look forward to being back on site regularly! I hope your families are all ok? I am fortunate because my family and I are all fine and figuring out our way in this strange new world.

As we are all finding our feet, it is time to begin again with the training. The Chief Engineers Programme will start on 1 October 2020. We have eighteen months to complete the programme. The time to complete the training has been extended to accommodate two factors, firstly, the shipping and shore leave schedules; and secondly, that E-Learning takes longer. It is likely that Covid-19 will be with us for some time and that ‘social distancing’ is our new normal. This completely changes how we do Vocational Education and Training (VET) and I have been working behind the scenes to re-work the Chief Engineers Programme so that it can be taught using distance and online learning techniques. The Trawlers Management Team are committed to your training and development and will not allow Covid-19 to sabotage your opportunities for personal and professional growth. The main changes to the Chief Engineers Programme are focussed on the methods of teaching, learning and feedback which are covered in Module 1. The same content will be covered where this is practically possible under our new working, living, and learning conditions.

Please contact me directly if you have any questions or suggestions. As the Facilitator, I am committed to supporting you in every way I can so that your learning journey is a happy and positive one for you. We are all learning here, so *please* be my Teachers too. My cell is

072 600 6870 and my email is robin@futurepeople.org.za.

Kind Regards

Robin

Introduction to E-Learning at Cape Town Trawling

E-Learning at Cape Town Trawlers means using all the technical options we have to continue with our Vocational Education and Training (VET) whilst maintaining social distance. There are positives and negatives as we move from face to face, classroom-based training ashore to e-learning on board the vessel. We are all on a steep learning curve especially as the sea-going environment is unique! During Lockdown even South African Maritime Safety Association announced that all their training would be online except for essential practical exercises. Fortunately, even before the Covid-19 crises, we have been working at converting our Trawlers-specific courses to an e-learning platform so that the sea-going staff can benefit from new internet-enabled technologies. E-learning will effect a number of aspects of the Chief Engineers Programme, which are:

Content: The focus of the Chief Engineers Programme remains on the technical knowledge and skills required to perform the work of a Chief Engineer, however, there will be more engineering theoretical knowledge included in the course as time in the workshops may be limited by Covid-19.

Method of learning: We have a number of internet-enabled options open to us to support both the training and our communication with one another. These include:

Alongside: These are activities which can be done whilst on the ship alongside using the Trawlers connectivity and data:

- *Meetings* (Zoom, **Microsoft Teams**, Skype)
- *Individual calls* (WhatsApp video and voice)
- *Upload* and submit assignments & *download* course material
- *Access* to websites required for the course e.g. YouTube

At sea: These are activities which can be done whilst at sea using the vessel's connectivity and data if required.

- *Course material* (soft & hard copies)
- *Written assignments* (on Chief's laptop)
- *Videos, photos, and voice notes* on cell phone for assignments to be trickled-fed to Facilitator
- *Videos and podcasts* on a flash provided by shore-based personnel
- *Communication* via WhatsApp or video



There is a message for you. Please open this hyperlink:

<https://www.youtube.com/watch?v=ybGBvyUkz0s>

TIP: Let the pointer hover over the link and then press the CTRL button and left click on the mouse at the same time.

What is in it for you and for I&J Limited?

Skippers and production staff have received specialised training recently, and now it is the turn of the Chief Engineers. Any learning opportunity is only as good as you make it: effort in = results out. Hard work is never wasted. If you wish to grow, take this course as an opportunity to improve your administration, Planned Maintenance System, engineering theoretical knowledge and bench skills. No-one can ever take away skills and knowledge you have gained. From I&J Limited's side, the Company is wishing to support a culture and practice of “own your part of ship” and this course will support you to do this. The effect of this training is likely to ‘show up’ positively in the business in R&M costs and vessel/factory availability. This course is tough and is all about YOU doing the best YOU can for YOURSELF.

1.1 Objectives of Chief Engineers Programme 2020

This course is designed to give the Chief Engineers of the fleet job-specific training and support. The objectives of the course are:

1. To provide training and support on the implementation of the Planned Maintenance System & Asset Care on your vessel
2. To improve theoretical engineering knowledge on the engines and machinery under your care
3. To provide opportunities in the Engineering Workshops to improve your hands-on bench skills
4. To provide Office 365 skills – MS Word, Excel, and Outlook (email) required for the job
5. To provide training & support on the use of the adobe forms
6. To build upon a culture of collaboration (communication, teamwork, trust) amongst the engineering team
7. To ensure that Engineering aboard and ashore are aligned in terms of policies, procedures, workflow, and responsibilities

1.2 Architecture of Chief Engineers Programme

This course has been put together in a special way to ensure that the training meets both individual and Trawlers 2020 Goals. The course architecture is shown in the diagram below:

Diagram 1: course design to meet individual and corporate goals



You will notice an arrow in the background of this diagram which indicates that this training course is dynamic and iterative. It is dynamic because the course is active and reactive which allows us to accommodate quickly and easily to changing business requirements. It is iterative which means it is a continuous cycle which promotes on-going individual skill development and system/process adaption to meet Trawlers Goals 2020. This kind of course design is known as VET 4.0 (Vocational Education and Training 4th generation) which is on the cutting edge of workplace of training. This course has been put together by a practitioner who is part of an international VET 4.0 team, so we have access to the very latest thinking on enabling employees to reach their potential while meeting corporate goals. Once again, I&J

Limited is leading the industry. Here is a brief explanation of the seven dynamic elements which make up the course design:

1. Achieve individual and Trawlers goals 2020-2021: Chief Engineers Programme is 100% aligned to your Individual Performance Appraisal 2020 and will help you to reach your goals for this year. It is also designed to support utilisation, cost & catch-rate (UC²) goals for the business unit. The training uses these three financial values to determine the progress and effectiveness of this training.
2. Establish individual and corporate skills gap: We establish what skills we have now (AS-IS) and what skills we need to have (TO-BE). The difference between where we are, and where we wish to be, is known as the 'skills gap'. Together we will look at your Individual Competency File to figure out your AS-IS position and talk about what you like to learn and take advantage of this course. During this course, you will be given feedback on your Individual Performance Appraisal score and be given the opportunity to set your own personal goals.
3. Development of training course: This course is designed to 'close the loop' – we start with Trawlers & personal goals, and we end in the same place, with the training and measuring happening in between. Most training courses focus on training delivery and do not tie the learning into hard financial values which impacts both the individual and the company.
4. Assign metrics to assessments (utilisation, cost, catch-rate): You will notice in your Individual Performance Appraisal 2020 all measurements are entirely objective and are tied back to UC². This takes the subjectivity and favouritism out of training and performance evaluations. The assignments will also reflect UC² and, therefore, help you to reach your own work goals as stated in your Individual Performance Appraisal 2020.

5. Conduct change management activities to support new capabilities: As we are attempting something which has never been done in the Company or industry before, it is likely that there will be unintended consequences. These often require changes in processes, procedures, and behaviour both at sea and ashore. A change management programme will be run alongside the Chief Engineers Programme to ensure that the training is supported by the organisation, and that improvements are not lost because Trawlers does not adapt to an improved standard. One area we are likely to see this phenomenon is when we apply the Planned Maintenance System onboard the vessels, as this is a team effort between ship and shore. This change management support of a training intervention is unusual as most courses focus on the learner and not the whole system. Change management is a characteristic of VET 4.0 and ensures that your learning effort is not wasted. It also ensures that your newly acquired skills, and the improved 'way we do things around here,' are deeply grafted into the business and become the 'new normal'. VET 4.0 is the 'cutting edge' of training and development world-wide and, by participating in this course, you are a pioneer.
6. Deliver and apply training: Chief Engineers Programme is as much about theory, as it is about practice. Another VET 4.0 characteristic which makes this training unusual is that it is seen as a partnership and not a 'top down' learning experience. As a Chief Engineer, your voice is *extremely* important, as are the relationships & two-way communication between ship and shore. We have consulted with many of you as we have put this course together and are grateful for your inputs. We have ended up with a better course because of your contributions....
7. Measure results by Individual Performance Appraisal & Individual Competency Files 2020 (individual) and vessel performance (corporate): The training course, your Individual Performance Appraisal 2020 and Trawlers's business goals are all measured against the same yardstick i.e. UC². This means that the training supports you to reach your goals, and Trawlers to reach the business unit goals.... we have arrived back where we started and have closed the loop....

1.3 Self-directed learning & planning your own progress

This is the first time we are introducing self-directed learning for sea-going management. This means that you can choose the pace you move through a module and when you do your face-to-face sessions ashore. The material is designed in such a way that the shore-based contact sessions are kept to the essentials because you are either busy whilst ashore or wish to get to your families as soon as possible. Most of your learning & training exercises can be done at sea. With this freedom to direct your own learning comes the responsibility of completing a module on time and organising your contact sessions with the required Facilitators convenors. One of the benefits of self-directed learning is that you choose when you wish to do to the learning activities. For Module 1, please arrange the following contact sessions at a time that will suit you. Each contact session will be 1-2 hours depending upon your requirements.

Please note:

You are welcome to attend sessions as a small group and invite other people who may be interested. 😊😊😊😊

1.4 Textbook, in-house manuals & online resources

As a self-directed learner, one wants to have access to several resources to help you learn in a way that works for you. Please find a list of hard copy and online resources:

Written materials:

1. You will have access to the relevant engineering manuals and procedures as you require them.
2. Course material will be provided to you for each module.

On-lines sources:

1. You can sign up for a month's worth of free courses on Lynda.com. This on-line learning platform has excellent MS Office courses available at beginners, intermediate and advanced levels so you can start off where you feel most comfortable.
2. The Help button in all the Office 365 applications is likely to answer most of your questions when you are figuring out how to do something on Word, Excel ,or PowerPoint.

The downside of the on-line resources is that they are only available when you have internet.

Real People Resources:

You can call or email any of the facilitators of this course and we will happily help you.

1.5 Equipment

The Chief Engineers will use the vessel's engineering laptop which he will bring ashore for the required contact sessions. We will ensure that the laptop is in working order and up for the task.

1.6 Workshop time

As part of the course requirement, you are mandated to spend 5 working days in an engineering workshop ashore for every voyage (30-35 days) which you complete. You are required to complete 6 rotations i.e. 30 working days in the workshops. It is likely that these 5 days in the workshops will occur after your shore-leave on your 'work-by' days. You will be seconded to a workshop. This means that you will report directly to the Workshop Foremen and work workshop hours for the duration of the secondment. The skilled workshop staff will facilitate your tuition. You are required to fill in a timesheet which details all the tasks which you have achieved during the five days in the workshop. Please also state what you have learnt. The Foreman will sign this timesheet off every day or at the end of the week as he directs. The Compliance Manager is responsible for co-ordinating the secondment of the Chiefs to the workshops. As you know there are many variables when it comes to fishing, so, Sulaiman will do his best to match the learning needs of the Chiefs and the work available at the time.

1.7 Planned Maintenance System Audits

The Planned Maintenance System of the vessels' critical systems have been completed and are now live on the vessels. As part of the Company's accounting and business's audit requirements, two Planned Maintenance System audits are required on each vessel regularly. The first is a paper-based exercise which involves a reconciliation performed by the Senior

Planner on procurement software where the jobs issued are reconciled against the jobs completed for the month. The second is a physical inspection by the Superintendents and/or Compliance Manager and/or Asset Care Manager to ensure that the Planned Maintenance System work is being completed as required. The implementation of Planned Maintenance System is a partnership between ship and shore which requires lots of communication on what's working and what's not. These audit processes will support this partnership, and any changes & adjustment to the Planned Maintenance System can be made in a collaborative manner. These audits are a Chief Engineers Programme course requirement or task. This means that you will be getting course credits for work you do 'in the normal course of your day'. The course is designed so you can kill two birds with one stone 😊

1.8 Reporting up the line

The Facilitators are required to submit weekly and monthly reports to the Trawlers Managers and the Executive of the Chief Engineers Programme using a uniquely designed scorecard.

1.9 Stretch Targets

For each module there are mandatory activities which must be completed. If you have the drive and the interest, you can complete additional activities which will earn you extra points. These stretch targets will be indicated on the training matrix .

1.10 Contact details of Facilitators, Course Administrator and Course Convenor

Compliance Manager Sulaiman Samsodien Sulaimans@ij.co.za

Computer Facilitator Rick Achmat RickA@ij.co.za

Asset Care Manager Chris Somerset ChrisSo@ij.co.za

Senior Planner Mark Smith MarkSm@ij.co.za

Course Administrator Shannon Allman ShannonA@ij.co.za (021) 402-9727
(Training)

Course Convenor Robin Ferguson robin@futurepeople.org.za

Module 1 Activities: self-directed learning and e-learning communication tools

1. Please arrange the following two in person meetings:

- a) Meet with Rick to assist you with any questions you have on MS Office 365 2019, and to take you through the onboard electronic navigation and fish finding equipment.
- b) Meet Robin and Sulaiman to discuss your Individual Competency Files and decide on your training goals. At this meeting you will be given the Chief Engineers Programme Training Matrix which will be a map for you on the learning journey. Regular feedback will be given to you during this course as to whether you have mastered a skill (competent) or need to work on the skill a bit more (not yet competent).

2. Please fill in the table – you can do this electronically or in hard copy.

On-board Computers

PIECE OF EQUIPMENT	PURPOSE	WHAT MORE WOULD I LIKE TO KNOW ABOUT THIS EQUIPMENT?

3. Read through this module. Send a WhatsApp voice note or short video to Robin and tell her

- a) what you would like to get out of this course
- b) ask any questions which you may have about this module.
- c) describe the incident that you are most proud of in your career as a Chief Engineer
- d) tell her what you thought of the *hyperlink*

Send the voice note or video to her on 072 600 6870. Make sure she knows it is YOU, as she may not recognise your profile 😊

Module 1: Evidence Portfolio

Name:

Vessel:

DATE	TIME	TASKS ACCOMPLISHED	FAC	DEL

MS Office 365 2019

Appendix 1: Learning Commitment

- I understand the objectives of the Chief Engineers Programme.
- I understand that this course is self-directed learning and that I need to take responsibility for my own learning.
- I understand that it is my responsibility to make the arrangements with the Facilitators for my face-to-face contact sessions.
- I understand that when I am seconded to the workshops that I report directly to the Foreman and will work workshop hours.
- I understand that I will simultaneously be undertaking the Vessel Management Team - Skills Development Programme 2020.
- I understand that Trawlers is committing considerable resources to this training and is committed to ensuring that I get the best learning opportunity possible and have the equipment, data (ashore in the Chiefs' Boardroom) and resources required to complete the course.
- I understand that there are several Facilitators on stand-by to support the learning journey.

Name:

Signature:

Date:

Appendix 2: MS Office 365 2019-chapter & curriculum outline

(Based upon the book - Office 365 2019)

The MS Office 365 section of this course is perfectly suited to self-directed learning as you know where your own strengths and weaknesses lie as far as using MS Office is concerned. At the end of the course you need to master: MS Word, Excel, Outlook, and PowerPoint. This means that you are able to do all the tasks in twelve chapters below in **black font**. The chapters in **blue font** are the stretch target chapters. You will be asked to demonstrate that you are able to achieve the tasks to the Facilitator. This will be done using your vessel's engineering laptop in the Chief Engineers' Boardroom or with Rick at his workstation at a time which you arrange in advance.

Part 1: Getting Started with Office 2019

Chapter 1: The Two-Dollar Tour 7

- Start an Office Application 8
- Start a New Document 9
- Explore the Office Ribbon and Tabs 10
- Understand the File Menu (Backstage View) 14
- Create a Document 15
- Type Text 16
- Insert a Picture 18
- Move Around in a Document 19
- Select Content 21
- Zoom In and Out 23
- Change the View 24

Chapter 2: Exploring the Common Features of Office Applications 27

- Edit Text 28
- Move and Copy Content 29

- Choose Fonts and Font Sizes 33
- Apply Text Formatting 35
- Use the Mini Toolbar 37
- Work with Themes 38
- Check Your Spelling and Grammar 42

Chapter 3: Opening, Saving, and Printing Files 47

- Save Your Work 48
- The Basic Save 48
- Changing the Save Location 50
- Choosing a File Type 54
- Open a Previously Saved File 55
- Change the File Listing View 56
- Email Your Work to Others 57
- Emailing a Link to a Document 58
- Emailing a Copy of a Document 59
- Share Your Work in Other Formats 61
- Print Your Work 64
- Recover Lost Work 66

Part 2: Word 69

Chapter 4: Composing Your Thoughts in Word 71

- Examine the Word Interface 72
- Move Around and Select Text 73
- Choose Paper Size and Orientation 74
- Set Margins 76
- Select the Right Screen View 78
- Align and Indent Paragraphs 80
- Change Line Spacing 86

- Create Bulleted and Numbered Lists 88

Chapter 5: Dressing Up Your Documents 91

- Apply Styles and Style Sets 92
- Insert Photos 97
- Size and Format a Picture 100
- Position a Picture 101
- Add a Page Border 102
- Apply a Background Colour to a Page 104
- Create Tables 106
- Format a Table 109

Chapter 6: Taking Word to the Next Level 111

- Number the Pages 112
- Use Headers and Footers 114
- Insert Cover Pages and Other Building Blocks 117
- Print an Envelope 119
- Perform a Mail Merge 121
- Insert the Date and Time 127

Part 3: Excel 129

Chapter 7: Creating Basic Spreadsheets in Excel 131

- Understand Excel's Unique Features 132
- Get Familiar with Spreadsheet Structure 134
- Move the Cell Cursor 134
- Select a Range 135
- Type and Edit Cell Contents 139
- Insert and Delete Rows, Columns, and Cells 141
- Work with Worksheets 145

Chapter 8: Doing the Math: Formulas and Functions 149

- Learn How Formulas Are Structured 150
- Write Formulas That Reference Cells 150
- Move and Copy Cell Content 152
- Reference a Cell on Another Sheet 154
- Understand Functions 154
- Take a Tour of Some Basic Functions 157
- Explore Financial Functions 159

Chapter 9: Creating Visual Interest with Formatting and Charts 163

- Adjust Row Height and Column Width 164
- Wrap Text in a Cell 165
- Apply Gridlines or Borders 166
- Apply Fill Colour 169
- Format Text in Cells 171
- Format the Spreadsheet as a Whole 173
- Create a Basic Chart 174
- Identify the Parts of a Chart 177
- Format a Chart 178

Chapter 10: Using Excel as a Database 183

- Understand Databases 184
- Prepare a List for a Mail Merge 184
- Store Data in a Table 185
- Sort a Table 187
- Filter Data in a Table 189
- Split a Column's Content 192
- Merge the Contents of Columns 195

Part 4: Outlook 197

Chapter 11: Managing Email with Outlook 199

- Set Up Outlook for the First Time 200
- Set Up Additional Mail Accounts 201
- Troubleshoot Mail Setup Problems 202
- Take a Quick Tour of Outlook's Mail Feature 206
- Receive and Read Your Mail 207
- View Photos and Other Attachments 209
- Reply to a Message 210
- Forward a Message 211
- Compose a Message 212
- Attach a File to a Message 214
- Avoid Frauds, Scams, and Viruses 215

Chapter 12: Managing the Details: Contacts, Notes, and Tasks 219

- Store Contact Information 220
- Edit and Delete Contacts 223
- Choose How the Contact List Appears 224
- Use the Contacts List 225
- Create Notes 227
- Categorize Notes 230
- Use Tasks and the To-Do List 232
- Update the Status of a Task 235
- Set a Task Reminder 236

Chapter 13: Your Busy Life: Using the Calendar 239

- View Your Calendar 239
- Create and Delete a Calendar Event 242

- [Set an Event to Recur 243](#)
- [Configure Event Reminders 245](#)
- [Add Holidays 246](#)
- [Print a Hard Copy of Your Calendar 247](#)

Part 5: PowerPoint 251

Chapter 14: Getting Started with PowerPoint 253

- Explore the PowerPoint Interface 254
- Work with PowerPoint Files 255
- Understand PowerPoint Views 256
- Create New Slides 258
- Use Slide Placeholders 259
- Turn Text AutoFit Off or On 261
- Change Slide Layouts 263
- Move or Resize Slide Content 263
- Manually Place Text on a Slide 264
- Navigate and Select Text 265
- Select Content 267

Chapter 15: Dressing Up Your Presentations 269

- Understand and Apply Themes and Variants 270
- Change the Presentation Colours 271
- Edit Slide Masters 272
- Format Text Boxes and Placeholders 274
- Insert Pictures 275
- Create a Photo Album Presentation 279

Chapter 16: Adding Movement and Sound 283

- [Animate Objects on a Slide 284](#)

- [Add Slide Transition Effects 289](#)
- [Set Slides to Automatically Advance 291](#)
- [Add a Soundtrack 292](#)

Chapter 17: Presenting the Show 293

- Display a Slide Show Onscreen 294
- Use the Slide Show Tools 296
- Print Copies of a Presentation 299
- Package a Presentation for Distribution 301
- Make a Video of the Presentation 304
- Appendix: Customizing Office Applications 307

Appendix 3: October 2020 Calendar

October						
2020						
Chief Engineers – Skills Development Programme						
October 2020 Appointments for contact sessions ashore and other learning activities.						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Appendix 7: Data Code Table

Data Fragment #	Data Index Code	Code Full Name	Data Generation Tool	Data Source
1	N1	Arriving: The girl in the picture	Historical Narrative	Researcher - Robin
2	N2	Programme 1: Labour Relations Act for Sea-going Staff	Historical Narrative	Researcher - Robin
3	N3	Programme 2: Labour Relations Act for Shore-based staff	Historical Narrative	Researcher - Robin
4	N4	Programme 3: The Commissioning of the Boronia in 1999	Historical Narrative	Researcher - Robin
5	N5	Programme 4: 360-degree Performance Appraisals for Managers	Historical Narrative	Researcher - Robin
6	N6	Programme 5: Mentorship Programme for Sea and Shore Staff	Historical Narrative	Researcher - Robin
7	N7	Programme 6: Job Profiles for all Positions at Trawlers	Historical Narrative	Researcher - Robin
8	N8	Programme 7: Project Butterfly	Historical Narrative	Researcher - Robin
9	N9	Programme 8: Project Safari	Historical Narrative	Researcher - Robin
10	N10	Programme 9: Job Profiles: Woodstock Factory, Walker Bay and Danger Point	Historical Narrative	Researcher - Robin
11	N11	Programme 10: Change Management Programme at Woodstock Factory	Historical Narrative	Researcher - Robin
12	N12	Programme 11: Production Programme - 3 Generations	Historical Narrative	Researcher - Robin
13	N13	Programme 12: Skipper Development Programme - 2 Generations	Historical Narrative	Researcher - Robin
14	N14	Programme 13: Engineering Modifier	Historical Narrative	Researcher - Robin
15	N15	Programme 14: Chief Engineers Programme	Historical Narrative	Researcher - Robin
16	FGI-I	Focus Group Interview-1: Production Programme Shore-based	Focus Group Interview by Researcher	Shore-based Resource Manager and Facilitator
17	FGI-I-T	Transcription of Focus Group Interview One	Focus Group Interview by Researcher	Shore-based Resource Manager and Facilitator

Data Fragment #	Data Index Code	Code Full Name	Data Generation Tool	Data Source
18	FGI-2	Focus Group Interview-2: Production Programme Sea-going	Focus Group Interview by Researcher	Sea-going Production Staff
19	FGI-2-FN	Field Notes Production Programme Sea-going (post interview)	Focus Group Interview by Researcher	Sea-going Production Staff
20	II-1	Individual Interview 1: Gerard Wessels	Individual Interview by Researcher	Marine Manager
21	FN-1	Field Notes of Interview with Gerard Wessels (post interview)	Individual Interview by Researcher	Marine Manager
22	II-2	Individual Interview 2: Johann Botha, General Manager	Individual Interview by Researcher	General Manager of Trawlers
23	FN-2	Field Notes of Interview with Johann Botha (post interview)	Individual Interview by Researcher	General Manager of Trawlers
24	II-3	Individual Interview 3: Rick Achmat	Individual Interview by Researcher	Leverage Professional
25	FN-3	Field Notes of Interview with Johann Botha (post interview)	Individual Interview by Researcher	Leverage Professional
26	WA1	WhatsApp Video 1: WhatsApp Video 2021-05-17 at 13.57.31_ARYTON LUIKJIES_STOCKER POND MASTER	WhatsApp Video by Facilitator on ship	Sea-going Production Staff
27	WA2	WhatsApp Video 2: WhatsApp Video 2021-05-17 at 13.57.31_DONOVAN MATHYSE_ASST. FM	WhatsApp Video by Facilitator on ship	Sea-going Production Staff
28	WA3	WhatsApp Video 3: WhatsApp Video 2021-05-17 at 13.57.31_ERIC KOMO FISH MEAL OPERATOR	WhatsApp Video by Facilitator on ship	Sea-going Production Staff
29	WA4	WhatsApp Video 4: WhatsApp Video 2021-05-17 at 13.58.59_HEINZ BLOM_PM	WhatsApp Video by Facilitator on ship	Sea-going Production Staff
30	WAV	WhatsApp Voice Note from Kevin Gaynor: Facilitator Experience	WhatsApp voice note by Kevin Gaynor	Kevin Gaynor - Facilitator
31	M1	Example of a Production Mobisode - Excessive Trimming	Archive Retrieval	Researcher I&J Limited files
32	M2	Example of an Engineering Mobidode	Archive Retrieval	Researcher I&J Limited files

Data Fragment #	Data Index Code	Code Full Name	Data Generation Tool	Data Source
33	Q1	Questionnaire 1: Heinz Blom - Production Manager	Questionnaire	Sea-going Production Staff
34	Q2	Questionnaire 2: Phumelele Jini - Production Manager	Questionnaire	Sea-going Production Staff
35	Q3	Questionnaire 3: SC- Factory Manager	Questionnaire	Sea-going Production Staff
36	Q4	Questionnaire 4: Mgunga Andiso - Factory Manager	Questionnaire	Sea-going Production Staff
37	Q5	Questionnaire 5: Donovan - Charge Hand	Questionnaire	Sea-going Production Staff
38	Q6	Questionnaire 6: No name, no rank	Questionnaire	Sea-going Production Staff
39	Q7	Questionnaire 7: No name, no rank	Questionnaire	Sea-going Production Staff
40	Q8	Questionnaire 8: No name, no rank	Questionnaire	Sea-going Production Staff
41	Q9	Questionnaire 9: No name, no rank	Questionnaire	Sea-going Production Staff
42	Q10	Questionnaire 10: Martin Shumbamwe - Training Officer	Questionnaire	Sea-going Production Staff
43	D1	Email inviting RAF to begin	Document Search	E-document
44	D2	Presentation to management	Document Search	E-document
45	D3	Programme briefing from unknown source	Document Search	E-document
46	D4	EM_ the people story_V1_5 April 2019	Document Search	E-document
47	D5	Martin Shumbaimbe_role in Chief Engineers Programme and VMP	Document Search	E-document
48	D6	Freezer Course 1 – Contents Page	Document Search	E-document
49	D7	Freezer Course 2 – Contents Page	Document Search	E-document
50	D8	Wet Fish (Fresh Fish) Production Course - Content Page	Document Search	E-document
51	D9	The Production Manual (500+ pages) – contents page	Document Search	E-document

Data Fragment #	Data Index Code	Code Full Name	Data Generation Tool	Data Source
52	D10	Balloons – conceptualising the future	Document Search	E-document
53	D11	Gen 2: Refresher Course Outline	Document Search	E-document
54	D12	Gen 2: Refresher Worksheet [Also appears in D15]	Document Search	E-document
55	D13	Gen 2: Augmented PowerPoint - screenshot	Document Search	E-document
56	D14	Production Training Ecosystem	Document Search	E-document
57	D15	Rudimentary Assessment Matrix	Document Search	E-document
58	D16	Reporting Templates by Robin	Document Search	E-document
59	D17	Reporting Templates by Kevin	Document Search	E-document
60	D18	RAF Weekly Updates - Production Manual and Freezer Training Programme 8 April 2021	Document Search	E-document
61	D19	Johann Botha Instruction to all parties re. Production Training	Document Search	E-document
62	D20	RAF Work Flow_3 APRIL 2021	Document Search	E-document
63	D21	Example of email communication with I&J Limited re. PhD	Document Search	E-document
64	D22	Example of a Standard Operating Procedure generated for the Production Manual	Archive Retrieval	Researcher - Robin
65	D23	Earning and Learning Model Proposal by RAF	Archive Retrieval	Researcher - Robin
66	D24	Explanation of Sea-going Training Under Covid March 2020	Archive Retrieval	Researcher - Robin
67	D25	I&J TV Business Case	Archive Retrieval	Researcher - Robin
68	D26	Chief Engineers Programme Update including tech adoption	Archive Retrieval	Researcher - Robin
69	D27	VET 4.0 Explained	Archive Retrieval	Researcher - Robin
70	D28	Chief Engineers Programme-E-Learning Module One	Archive Retrieval	Researcher - Robin
71	D29	Chief Engineers Programme Module 1: Exercise One	Archive Retrieval	Researcher - Robin

Data Fragment #	Data Index Code	Code Full Name	Data Generation Tool	Data Source
72	P1	Photograph 1: Learning-living-working a long way from home	Archive Retrieval	Printed photographs
73	P2	Photograph 2: Circa 1996 - The Girl in the Photograph	Archive Retrieval	Printed photographs
74	P3	Photograph 3: Hogsback Painting	Archive Retrieval	Printed photographs
75	P4	Photograph 4: Circa 2021 I&J Limited Head Office	Researcher Search	Website
76	P5	Photograph 5: Circa 2021 I&J Limited Abalone Farm	Researcher Search	Website
77	P6	Photograph 6: Circa 2016-2021 -Freezer Course Manuals One and Two	Facilitator photograph taken in training	E-photographs
78	P7	Photograph 7: Circa: 2018-2021 - Calm Quay	Facilitator photograph taken in training	E-photographs
79	P8	Photograph 8: Fabric Fish	Facilitator photograph taken in training	E-photographs
80	P9	Photograph 9: Red Ball	Facilitator photograph taken in training	E-photographs
81	P10	Photograph 10: Training in the messroom in bad weather	Facilitator photograph taken in training	E-photographs
82	P11	Photograph 11: Transfer at sea	Facilitator photograph taken in training	E-photographs
83	P12	Photograph 12: Scales used in apple experiment	Facilitator photograph taken in training	E-photographs
84	P13	Photograph 13: Rhinoceros Pieces	Researcher Search	Website
85	P14	Photograph 14: Rhinoceros Whole	Researcher Search	Website
86	P15	Photograph 15: Sunset on Troubling Seas	Facilitator photograph taken in training	E-photographs
87	P16	Photograph 16: Ship to Shore - can you read me anymore?	Facilitator photograph taken in training	E-photographs

Appendix 8: Questionnaire Sample

INFORMED CONSENT DECLARATION (ON RU LETTERHEAD)

(Participant)

I _____ (name) _____ (rank)
_____ (contact number) choose to participate in Robin Ferguson's
research. She is trying to understand why the training programmes which we did together e.g.
Production Programme or Skipper Development Programme were successful.

I understand that:

- My participation is entirely voluntary, and I can withdraw from this research project at any point.
- I am not paid for this participation.
- I will get the results of this research.
- I choose to participate anonymously. Circle YES/NO
- I give Robin to permission to use:
 - 1. This questionnaire Circle YES/NO
 - 2. A WhatsApp video Circle YES/NO
 - 3. Interview Circle YES/NO
 - 4. Group Photo Circle YES/NO
- I matter and my opinion is important, and I will make a positive contribution to this research.
- There are no right or wrong answers.
- I can contact Robin on robin@futurepeople.org.za or on 072 600 6870.

.....

Participants signature	Witness	Date

Rhodes University, Research Office, Ethics

Ethics Coordinator: ethics-committee@ru.ac.za

t: +27 (0) 46 603 7727 f: +27 (0) 86 616 7707

Room 220, Main Admin Building, Drostdy Road, Grahamstown, 6139

QUESTIONS: Please answer as many questions as you would like to – your opinion matters!

Remember there are NO right answers, it is your honest opinion that is important here! This training was a first in the industry.

1. What did you enjoy most about the Production Training?
2. Could Robin or Kevin have done anything to improve the course?
3. What did you tell your family about the course?
4. The course was taught in English, was this a plus or a negative for you and the teams?
5. What was your favourite activity?
6. The course was taught ashore and not at sea in your real workplace. Do you think this was an advantage or a disadvantage?
7. What was the best thing you learnt?
8. How did you feel when the course started, and when it ended?
9. If you were to use one word to describe this course, what would it be?
10. Has this training helped you in work or at home?

Appendix 9: Analytic Memos 1-8

Analytic Memo 1: Practices in the Creation of Courseware – First Generation

#	EVIDENCE (SOURCES 18)	PRAC S/T- D-R	ARR CD- ME-SP
N1	Arriving: The Girl in the Picture – experience of going to sea to watch working practices	ALL	ALL
N12	Narrative description of PP to provide overview	ALL	ALL
N13	Skipper Development Programme	S/T	CD
N15	Chief Engineers Programme	S/T	CD
FG1-1	Rationale for training and point of beginning: CC: “We sent people to sea with little to no training and they learnt what they knew from people that had little to no training and if there were bad habits, the bad habits would pass on and if there were good habits the good habits would pass on ... but we didn’t actually even know what those good or bad habits were. So the whole thing started with trying to just understand what was good and bad in production and then from there on to teach the crew what we want from them in the form of good habits, good production practices etc. and try and break down those bad habits that had been forming over many years.” (P1)	S/T CD	
	Corporate motivation for PP: CC:” ... then there was push from above being the Jonty’s (CEO) and at the time Johann Botha (General Manager) saying we need to get a training programme together. So it was really one of those programmes that was built in flight ...” (PG 2)	R	S/P
	False start: CC: “Six months at that point, ja we had been trying to pull something together and what we had been doing up till then ... Franklin was assisting them, and it was very quality and HACCP to that side as opposed to production ...” (PG2)	S/T	CD
	Gin moments: CC: “It is those last few minutes before I left work on a Friday that I would have these brilliant moments of how to get certain difficult messages across ... and it was named Gin-Fridays because I was clearly having a clarity because I knew I was about to go and pour a gin and start my weekend ... so um ja I think ... so for me a positive memory would definitely be Gin-Friday. The other thing on a more serious note was the challenges of trying to find simple ... um ... applicable ways to get complex messages across so for example your drip-loss or the apple work where we were trying to show the defects, the skinning, and the yields and the de-boned and that. It was just trying to find because you couldn’t use words because of the literacy issues ... and what was the other word you used?” (PG 3)	S/T, D	CD/ME
	Built in flight: “So it was really one of those programmes that was built in flight ... [N5, pg.2].	S/T, D	CD/ME
	Conversation on the practice of development (pgs. 19-21) RAF: So I just wanted to ask you as we think If we take a big, giant step back and say what we were thinking, where did language come in? We will just take each one of those ... well I mean your gin moments are ... KG: This is higher grade stuff ... <i>laughing</i>	ALL	ALL

	CC: I wasn't thinking much to be honest I was doing ... <i>laughing</i> KG: And experimenting ... RAF: I think it is brilliant. It was experimenting. It was a very creative process. CC: It had to be because it was new and hadn't been done before KG: Never been done CC: So it wasn't just taking something that was there and dusting it off and improving it with a little bit of creativity...we had to be creative all through ... KG: And brainstorming ... I think there was a lot of brainstorming CC: There had to be a lot of brainstorming ... KG: Even though CC has been here for – how long have you been here? CC: 18 years KG: <i>laughing</i> ... nearly 20 years! That's huge, that's huge. So your experience of hands-on understanding of the business and our influence from training, practical things and exercises. I think it was a good team to develop and brainstorm and figure out what would work or what didn't work. CC: It didn't have to be done alone. KG: It was a big shock for them to realise the gap in many instances, it still is surprising in so many ways in the training like percentages or grams to kilograms ... but to put it into a model something like this is fascinating and then it actually makes sense to what happened. RAF: Why do you think the brainstorming, the creativity worked well between the three of us? What made that happen well? KG: For me, we challenged each other. It's like we came up with a concept and I know we were talking about apples and there was talk about bananas at one stage ... <i>lots of laughing</i> ... or oranges CC: Sponges .. KG: And then we would land on something. And then we would try something, and it didn't work ... whatever go to CC and say what about this? And she would say no but that applies to ... if it was packing wet fish that applies to the yellow bins not the white bins ... oh shucks we got to do it also for the yellow bins and ... it was just a mix of practical, experience, ideas and theoretical and models. Just putting it down ... your PowerPoints. When I came in there was a lot of ... the skeleton was there but we had to flesh it out and find ways to ... I think for me to make it exciting and engaging and obviously learning for the guys CC: One of the bigger things was there like-mindedness in the sense of we all wanted something better.		
II-1	Executive top-down instruction to start the Skipper Development Programme, negative perception of skippers and unrealistic timelines were the same as for the PP	S/T	CD
II-2	"I was shocked and horrified when I found out at I&J Limited that the guys in the factory, the production guys never had any kind of, type of production or factory training ... to the extent that you taught them what a fish is and what a fillet looks like cos they just never knew....they never had the training of the anatomy of a fish and what it looks like, or what you can get from a fish or what the yield should be, what are the products are that one can make from a fish ... I was just nearly flabbergasted that it had never happened."	S/T	CD
II-3	Executive top-down instruction to start the Chief Engineers Programme, the negative perception of the Chiefs and unrealistic timelines were the same as for the PP	S/T	CD
Q1-Q10	Language: 10/10 wrote that English as instruction medium was an advantage	S/T, D	CD/ME
D1	Email inviting RAF to begin	D	ME
D2	Presentation to management	S/T	CD
D3	Programme briefing from unknown source	S/T	CD

D4	Original Freezer Course 1 PowerPoint	S/T, D	CD/ME
D5	Original Freezer Course 1 – Module 1 Courseware	S/T, D	CD/ME
D6	Freezer Course 1 – Contents Page	S/T, D	CD/ME
D7	Freezer Course 2 – Contents Page	S/T, D	CD/ME
D8	Wetfish Production Manual	S/T, D	CD/ME
P6	Calm Harbour – representative of a fresh palette for the creation of courseware	S/T	CD

Analytic Memo 2: Practices in the Creation of Courseware – Second Generation

#	EVIDENCE (19 SOURCES)	PRAC S/T- D-R	ARR CD- ME-SP
N2	Programme 1: Labour Relations Act for Sea-going Staff e.g. ‘start-stop-start again’	S/T, D	CD/ME
N3	Commissioning of the Boronia (Freezer Vessel) in 1999		
N6	Job Profile for All Positions at Cape Town Fishing (Trawlers)	S/T, D	CD/ME
N9	Job Profile for All Positions Woodstock Factory, Walker Bay and Danger Point	S/T, D	CD/ME
N12	Narrative description of PP to provide overview	ALL	ALL
N13	Engineer Modifier e.g. ‘start-stop-start again’ – chasing the next crises	S/T, D	CD/ME
N14	Chief Engineers Programme e.g. ‘start-stop-start again’ – chasing the next crises	S/T, D	CD/ME
FGI	RAF: I would add another reason why it worked well with the three of us is that we had a lot of fun, lots of laughing ... lots of laughing ... CC: To be honest that is something that is seriously lacking in I&J Limited, is the having fun and that is what I came into this company – a company that had a lot of fun. It worked well because we bought the fun back into it.	D, R	ME/SP
II-1	Executive top-down instruction to start the Skipper Development Programme, negative perception of skippers and unrealistic timelines were the same as for the PP	S/T,R	CD/SP
	“It is becoming more difficult to fish you need to work very hard at it. In the early ‘70’s there was unrestricted fishing all over the world. That is very well controlled now. But fish is not as abundant as it was 30-40 years ago. Bearing in mind it was a balance because the technology they had then was not as good as it is now...it would be ideal for you to sit with the resource as it was in the ‘70’s and the technology we have now ... we would be A-for-away” [FN-1, pg. 4]	S/T	CD/SP
II-2	Support for Generation Two	D,R	ME/SP
WA4	Heinz Blom: Factory Manager – ex quality Re. impact or ‘landing’ of production training (done two years prior) on factory hands Heinz: “The fillet training, the production training was actually good. It shows them something else, more than what they actually know. They know their working conditions and how they work but just to give them a broader idea of how to apply the balancing of the line and what to look out for. They work but not actually think what they are doing.” They agreed that there was a better understanding of the big picture and what we are trying to achieve overall.	S/T, D	CD/ME
Q1	Example of disillusionment with training	S/T	CD/SP
Q2	Example of disillusionment with training	S/T	CD/SP
D9	The Production Manual (500+ pages) – contents page, including all Standard Operating Procedures	ALL	ALL
D10	Balloons – conceptualising the future – indicate ideas started in 2017	S/T	CD
D11	Gen 2: Refresher Course Outline	S/T	CD
D12	Gen 2: Refresher Worksheet	S/T,D	CD/ME
D13	Gen 2: Augmented PowerPoint	S/T	CD
D14	Production Training Ecosystem	S/T	CD
D15	Rudimentary Assessment Matrix	S/T	CD
D22	Example of a Standard Operating Procedure generated for the Production Manual for final packaging	S/T	CD

Analytic Memo 3: Practices in the Creation of Courseware – Third Generation

#	EVIDENCE (10 SOURCES)	PRAC S/T- D-R	ARR CD-ME- SP
N12	Programme 11: Production Programme - 3 Generations	ALL	ALL
N15	Programme 14: Chief Engineers Programme	ALL	ALL
II-2	PG 5: ▪ “To reach more people in less time and to add value efficiently all the time ... time off is sacred ... certification [industry marine and engineering tickets] has been done at an institution, therefore, do the developmental training at work to maximise time at work. I&J TV was the perfect vehicle for that.” ▪ JB: “Time off is sacred” ▪ Certification (tickets) has been done at an institution, therefore, do the developmental training at work to maximise time at work. I&J TV was the perfect vehicle for that. ▪ Cost: R 2300 p/d and I&J TV was R 12. ▪ “Very much back to the early 2000’s ... resistance to change ... exec not knowing anything about what we are doing because we are operational people they just block it or stop it and which means that nothing at I&J Limited can progress” (pg. 5)	S/T	S/T
M1	Example of a Production Mobisode	S/T, D	CD/ME
D23	Earning and Learning Model Proposal by RAF	S/T	CD
D24	Explanation of Sea-going Training Under Covid_March 2020	S/T, D	CD/ME
D25	I&J TV Business Case	S/T	CD
D27	VET 4.0 Explained or VET 4.0 Ecosystem	S/T	CD

Analytic Memo 4: Practices of Teaching and Learning in the PP – Classroom Teaching and Learning

#	EVIDENCE	PRAC S/T-D-R	ARR CD-ME- SP
N5	In reflection, I think this was achieved by ‘just starting’ rather than waiting for everything to be ‘just right’. In the <i>doing</i> the mentorship programme was established and through the measurable successes on the vessels the programme gained momentum.	D	CD
N12	Narrative description of PP to provide overview	ALL	ALL
N13	Skipper Development Programme	S/T	CD
N15	Chief Engineers Programme	S/T	CD
II-1	Referenced ‘building in flight’ for Skipper Development Programme	D	CD
II-1	42:13 GW: “They (skippers) changed as well. I think we all did. Not in terms of maturity necessarily, but with the interaction the thinking and understanding where you fit in to the organisation, and the important role that they have to play. Umm...And it was not a Damascus moment it is a gradual process and I think it is still on-going.” (pg. 4)	ALL	ALL
II-2	Referenced ‘building in flight’ for PP, Skipper Development Programme, and Chief Engineers Programme	D	ME
II-3	“It was breaking ground from an I&J Limited perspective. We had promised to take people from classroom-based learning to computer-based learning. We got them to interact with technology and use technology ... they became the Kings within their Kingdoms. How was it [Future People Online-In-Person Learning Platform] different? We had taken them ... or the plan was to take them to the 21st century. And that is where we are right now. You can’t take it back ... you can’t stop it.” (page 2) “we assume that people are computer literate, my experience revealed the contrary” - Advent of laptops and smart phones “gave people limited access to smart technology but nobody really knew how to go and do the first aid steps should they run into problems....but we as a management team we expected people to give you the quality of work or feedback based on your assumption or our assumption on what it should be, but not taking into account that these people were primarily just doing what they were told, so it was a matter of ‘monkey see, monkey do’ ... and I wanted to change that perception”. (pages 1-2) - I like people, and to see people grow and succeed. “They don’t necessarily want the answer, they just want a sounding board, someone to listen to them. And if you give people an ear it is just one of those things ... seafarers they very ... kinda in isolation for a while and sometimes they just need another person to speak to.” “The questions I get today with respect to technology questions – what they could do to enhance their kids’ lives. And if you think back two years they probably would not have had that conversation with me... Got to sometimes pinch myself when I speak to the people today and I think back two years.”	ALL	ALL

	▪ “It is all about empowering people and if you take the sea-going staff into account primarily very few of them have had formal education and formal training so the bulk of it was on the job training.” ▪ “To give people opportunities that the formal structures haven’t afforded them”. ▪ Opportunity to give back so they could be “better at the way they did their job.” ▪ “You cannot put people without any formal training into a classroom environment. You need to give them somebody that they trust, and if they were comfortable with somebody they would basically go out of their way and they would suck up whatever you are about to tell them, they’d suck up.”		
FGI-1	▪ Undoing the bad habit of speed: ▪ KG: And it links back to the principle again of good ball, bad ball that if they are going too fast they are actually passing on ... well actually they are making more mistakes which is causing bottlenecks, blockages and maybe even breakages of machinery down the line. So it is good ball, bad ball and a ball that is too fast is a bad ball cos ... so again it is thinking smart, not just working hard that actually by going slower here, like you say, and I talk about driving a car ... and I would walk around the room - first gear, second gear, third gear umm and then slow down and the corners ... and it comes back to flow so. (PG 12) ▪ CC: Ja, that was the flow, it was getting that concept across of we have to have rules and boundaries in place in production in order to get to our goal and that is where is where the ball ... that rules are needed. And I think that is possibly one of the things the guys at sea don’t always like, is hearing that there need to be rules. I don’t think it is a sea thing, nobody likes rules! [laughing]. I think it was an original way of bringing across why rules are important or why structure is important. ▪ CC: I think it was brilliant because we didn’t just ... and here I am going back to the meeting at the school the other night where each individual learns differently ... and I think there is something like 20-odd learning styles ... I can’t remember ... So one individual may have gained a lot from the being in the classroom environment, the next individual learnt a lot from a ‘monkey-see, monkey do’ at Woodstock, another individual may have learnt a lot by being in their own safe environment at sea and learning there. By having those different areas and different disciplines to learn you actually caught a lot more as opposed to if we had just gone to sit in a classroom. We would have probably got only 20% if that whereas we probably managed to catch 80% then because we had different environments and different conditions under which the learning happened ▪ RAF: I think it perhaps also gave the women at Woodstock an appreciation of what happened at sea. CC: Oh for sure, ja ... KG: Absolutely, but also visa versa so when the guys’ practicals went to Woodstock, I think they understood a lot more. I mean a lot of them had never been to Woodstock before. And it showed them, I would like to say the scientificness of Woodstock was and what we can bring or take from Woodstock to the boat its professionalism and scientific procedures and measures and standards, quality ... CC: Don’t waste	S/T, D	CD-ME

	KG: And don't waste. I think just the whole environment there they realised that they had to up their game I think on the boat because there was a big difference. RAF: I remember the issue about waste. They don't throw anything away - KG: I think more could be done with connecting the dots back to just talking about it ... back to the apple experiment, back to those fabric fillets. But I would say on the whole the guys understand the concepts, albeit that they needed to be reminded of them, and the specific words which we use but they catch on very quickly and understand when we remind them. - And I would say 90%, a good 90% did modules [courses] one and two. So when we talk about it the lights go on even though they might not have remembered those specific things in the test. So it is then much easier to talk about ... I think they have understood, with that as a background I think they have understood that each position there is a whole lot of knowledge and understanding that needs to happen per position and then the practical assessment of that. - RAF: It has taken five years to get to that ... I suppose it is almost like a level of confidence that the guys have got. So would you say that the simulations are as important as the real thing, or do you think that the simulations are a poor cousin? for teaching?[Emphasis mine: FGI-1] - CC: I think that they are important because they were needed to get that background. Without that we wouldn't have gotten the background. ... Back to that we had to do the theory and the simulations to close those gaps we didn't even realise were there to begin with. We figured it out along the way, and we had to close those gaps and then develop the confidence which you were speaking about Robin to get to a point where we now can go to sea and do the real thing.		
FGI-2	- Importance of words. A lot has been learnt because a word comes out a lot at sea 'bottleneck' ... means the manager must do something. "times when Robin was there and the things that was coming out there and what Robin was explaining. I mean she gives us a better picture to understand actually even when she was taking production stuff and stuff like that ... a bigger picture it was very learning" - Gender did not make a difference; it was about what she was teaching us. Going to sea did lend credibility to her. "We are not so educated that I can put ... we are not so educated so getting someone like Robin to come and tell us in a ... if I can put it in a paper kind of things like something that maybe policy wise if I can put it like that so that we will know 'after this is that', 'after this is that', 'after this is that'. Because we are not educated we just work from experience if I can put it like that. So for her to come and teach us some of the things that we need to put to accompany this experience we have it's a good thing that she came here." - And, besides that what actually stands out for me is what ... faster is not always better but rather work smarter ... now we start at a step, and we go through the whole procedures and at the end of the day we are getting the best results."	S/T, D	CD-ME
FGI-2	See points around what was enjoyed - Person 1: It was the yields – apple exercise. Realised how to increase yields - Person 2: Apple exercise – product left standing deteriorates with time	S/T, D	CD, ME

	- Person 3: Big bags do not necessarily mean more fish in the boxes because of the delays 8/10 found value in the practical simulations and exercises		
WA1	- Training on the boat at sea when asked was it helpful, he replied yes and then explained: “how to put more water in the stocker pond ... and fish is firmer” and ready for the baaders “... baaders can mess up” Understood consequence that if he goes too fast in the stockerpond he will cause a bottleneck. “how to cut apples and ... like cutting a fillet”	D	ME: Space and Place was different
WA2	Doni, Assistant Factory Manager who did F1 and F2 “ I learnt how to work in the factory and improve the flow ...”	S/T	CD
WA2	Doni: “Make more of the use of the training on the ships for the guys ... helps a lot” KG: “Helps your job if they know what they are doing?” Doni: “Yes, it help a lot.”	D	ME: Training on board
WA2	KG noting that they had just finished 1.5 week of training on the boat as a refresher and that the guys had forgotten a lot. Doni agreed.	S/T	CD
WA2	In response to what Doni learnt the most from the onboard training: Doni “How to work the fish, how quicker to work the fish and how to work the product because it must not stay long ... work the product fast if we can because the fish must not stay long in the factory. I was learning about the loss when the fish stands there in the bins ... loss some of the water (drip loss of protein water). We must do something about that and work a ‘bietjie’ level” Agreed with KG that the aim was to get more 1 st Grade Fillets and less Trawler Brand (2 nd) or Block (3 rd).	S/T	CD
WA3	Fishmeal Operator Eric who did not do the F1 or 2 but did training onboard. KG: “What did you learn most from the training?” Eric: “...I think it is safe working (not the intention of the course) in the production ... and even to the customer has to be 100%”.	S/T	CD
WA4	Heinz Blom: Factory Manager – ex quality Re. impact of production training (done two years prior) on factory hands Heinz: “The fillet training, the production training was actually good. It shows them something else, more than what they actually know. They know their working conditions and how they work but just to give them a broader idea of how to apply the balancing of the line and what to look out for. They work but not actually think what they are doing.” They agreed that there was a better understanding of the big picture and what we are trying to achieve overall.	S/T, D	CD/ME
WA4	Reminding Heinz of the Mission: First Grade Frozen Fillets First Time Around	S/T, M	CD/SP
WA4	Teaching tricks: Mission Motivate Measure Manage	S/T, M	CD/SP
WA4	Re. impact of training at sea: Heinz: “Good that they do it at sea rather than another facility. Here they can see how to apply what they know in their working environment, so it gives them a	S/T, D	CD/ME

	more realistic approach. Instead of the sandbag now they can see the fillet ... more practical ..." KG: "...they can see the relevance"		
Q1	Heinz Blom: Production Manager: A7,9 – most useful things learnt; relevancy of the course	S/T	CD
Q1	Heinz Blom – Production Manager A4,10 – impact on home life	D,R	CD/ME
Q1-10	Inclusion of games and simulations popular with 8/10	S/T, D	CD/ME
A1	Mediation props e.g. fabric fish (P15), red branded ball (P16)	D	ME
D6	Freezer Course 1 – Contents Page	S/T, D	CD/ME
D7	Freezer Course 2 – Contents Page	S/T, D	CD/ME
D8	Wetfish Production Manual	S/T, D	CD/ME
D11	Gen 2: Refresher Course Outline	S/T	CD
D12	Gen 2: Refresher Worksheet	S/T,D	CD/ME
D13	Gen 2: Augmented PowerPoint	S/T	CD
D14	Production Training Ecosystem	S/T	CD
D15	Rudimentary Assessment Matrix	S/T	CD
D22	Example of a Standard Operating Procedure generated for the Production Manual for final packaging	S/T	CD
D23	Earning and Learning Model Proposal by RAF	S/T	CD
D27	VET 4.0 Explained or VET 4.0 Ecosystem	S/T	CD
D28	Chief Engineers Programme_E-Learning Module One (also Appendix 6)	ALL	ALL
D29	Chief Engineers Programme Module 1: Exercise One (also Appendix 11)	ALL	ALL
P11	Training in the messroom at night	D	ME
P12	Transfer at sea	D	ME
WAV	WhatsApp Voice Note by Kevin confirming his teaching experiences on PP	ALL	ALL

Analytic Memo 5: Practices of Informal VET 4.0 Assessment Strategies and Outcomes of The PP over the Three Generations

#	EVIDENCE	PRAC S/T-D-R	ARR CD- ME-SP
N12	Programme 11: Production Programme - 3 Generations	ALL	ALL
N13	Programme 12: Skipper Development Programme – 2 Generations	ALL	ALL
N15	Programme 14: Chief Engineers Programme	ALL	ALL
FG1-1	- CC: Oh yes so we measured ... we decided not to focus on the individual ... we wanted to have it as a positive experience at the time. So we do a measurement of how fast it takes to pack if you are doing it right and we did do it on the vessel but we used it as a groups ... we didn't really focus on the individual ... we didn't want to see this as a punishment. We were worried that it was going to come across as a punishment as opposed to ... we just wanted ... here's the team you are all packing well or you aren't and then we did later go to 'this is your best packer, this is best trimmer, this is your best ... so there was a little bit of a 'I am the best' ... again, I am not sure if that has been followed through at this point ... but we definitely at the beginning the assessment wasn't individual based and I do know we have moved it on from that ... and we needed to move on from that cos you needed to then have an individual assessed and found competent before he went on board ... (pgs. 8&9) - And I think we had a recognition of the people we were working with. And even in the shocking moment of finding out that they didn't understand what a fish was – it was a shock, but it was never a judgement. It was ok we've now hit this roadblock and how are we going to get around it and how are we going to help them understand this so that we can get around this and then carry-on teaching what we were actually originally set out to teach.(pg. 21) - CC: I think that was ... um ... as much as I think the rest of the company possibly wanted better bottom lines, better yields, better efficiencies ... and that was probably the end goal but what our foundation was everyone wanted the crew themselves to feel more valued and more engaged and more respected I suppose. Through that ... because they were then more engaged we could work on getting the concepts. (T1, pg.21] - That was a huge realisation for all of us was the level of education that we were dealing with and ... to the point now where we do the theoretical test and it is frightening to think that out of 90-odd points some people get below 10 and illiteracy and English understanding and numeracy is really bad. So we were talking about the ABET, how the training can also highlight who needs what kind of training. (PG. 18) - so I think we'll have given a really good foundation and a really good mix of product, and theory and exercises for them to take to the next level.(pg. 23)	S/T	CD
	See comments on future focus External accreditation and measurement on the vessel and compare internal production managers' measures vs. external assessor	S/T,D	CD/ME

	▪ Jini: Packing times on the spreadsheet for each product was “set in an excitement manner rather than in a real environment where someone is going to face this from the first day until the end of the trip” ▪ Times should be set in the factory. Woodstock times are not realistic, nor was the quality checked at Woodstock. Packers more careful with the quality as their money depends upon it. Puts a lot of pressure on the guys. ▪ KG: suggested competitions in real-life are likely to set more realistic, sustainable times. ▪ Unintended consequence: Be careful about the ‘time taking’ because packers pack carelessly or under spec to make the quicker times especially in comparison with the other packers. (Pg.2)		
II-2	▪ JB: big support for Standard Operating Procedures to assist people as they are learning but 14.46 “the way the Standard Operating Procedures and procedures were applied at I&J Limited was to nail someone for not doing it correctly or not doing it right or not following....two different views on how to do it” (pg.3) ▪ Certificates and red balls – lots of fun (pg3) ▪ JB: Recognition was important – esp. with legacy (pg. 2) ▪ JB: Shows a lack of respect re. Chief Engineers Programme (pg. 5)	S/T,D	CD/ME
WA4	Heinz: “Actually the measurement is quite good especially I can remember the trimmings that we did. No one actually thought the impact that the trimmers would have on the packing line until you can actually use some way of measuring how much trimming they miss [packers trimming fillets] ... now they can actually see the quantity of what they actually miss and how it would impact the packers.” Important of evidence, packers’ trimmings came down to <1/4 . Evidence spoke for itself.	D,R	ME/SP
Q1-10	Popularity of the assessment tools		
D9	The Production Manual (500+ pages) – contents page	S/T	CD
D12	Gen 2: Refresher Worksheet	S/T,D	CD/ME
D14	Production Training Ecosystem	S/T	CD
D15	Rudimentary Assessment Matrix	S/T	CD
D22	Example of a Standard Operating Procedure generated for the Production Manual	S/T,D	CD/ME
D25	I&J TV Business Case	S/T	CD
D27	VET 4.0 Explained or VET 4.0 Ecosystem	S/T	CD

Analytic Memo 6: Practice of Love

#	EVIDENCE	PRAC S/T- D-R	ARR CD-ME- SP
N5	3.7.1 Henk's project brief was:. 3.7.1 This project was initiated in response to a number of discussions between me and the Trawlers Management concerning an ever-widening disconnect which was developing between the sea-going staff and the shore-based staff. The reasons for this breakdown in trust, communication and co-operation were complex and multifarious, however, the consequences to the business were in plain sight. The situation enabled collective conflict and third-party involvement, fraught employee relations and decreased financial performance. 3.7.2 We set out with the explicit aim of improving relationships and <u>not</u> productivity, however, the latter was an unintended consequence. The lesson I learnt is – focus on building relationships and the rest will follow. Allied to this was the <i>doing</i> – every vessel, every turnaround	D-R	ME-SP
FG1-1	▪ KG: ... and you know these okes...can flick a knife in a split second and will have that at your throat if you mess up but respect ... but the word 'love' came out and that changed the whole dynamic and we even had it in the test or the worksheet we do now with all the words for teamwork beginning with C for there it is about care for one another, care for one another, care for the assets, care for the boats and the equipment. But it is also caring for one another and the word love came out. And I think it added another whole level of recognition and understanding, being valued, and being appreciated and closely coupled with that would be the word 'connecting'- and it is how do we connect with each other? ▪ KG: We can only connect with each other if we have got a common language, and Charlene spoke to them being – there's Afrikaans, there's English is probably the second language for 99% of them, but it is Afrikaans, English, Xhosa, Ovambu are the main ones when I asked even the management guys "Can they greet the Ovambu guys in their own language, can they say thank-you in their own language?", they have got no idea and I write those words on the board and when I do the Ovambos that are in the class, the smile on their face is ... just the teeth are exposed, there is a big smile, a light in their eyes and it is about connecting and caring for one another. And we can only as a team we can accomplish much more than on our own but then we have got to connect and how do we connect. Ja so it has just been ... with that as one of the foundations I think people then get more engaged ... ▪ CC: And open to learning ▪ CC: Umm, I suppose CM general management yes, their attitude has changed. I am not so sure about the exec level because I don't they come down far enough to recognise the change. It is still left in the hands of the, what we refer to, as the general managers. I definitely feel that ... someone like a Kirsten [Business Intelligence Analyst] is more engaging and more supportive of the sea-going crew. A Gerard [Marine Manager], for example, also is more engaging and supportive. Whereas prior to tackling this ... and it was probably not this particular course, but it was the follow	ALL	ALL

	on when we did the Skipper Course ... which brought the production module into the skipper course - RAF: Yes, yes ... - CC: And that course also having a BI portion a finance portion etc., etc. I think that was more successful in changing attitudes and building more connection than the Production Course itself. The Production Course back to Kevin's point created that feeling of value and respect but didn't necessarily change management attitude. Cos there were too few people involved in it actually ...		
FGI-2	"This is not only building us for work purposes it does also build us generally in life because for instance communication. Communication is broad, it is something we use also at home. You need to communicate something ... the way you want it to be done ... we also need to be productive at home ... as a human being you are becoming better, you become a good judgemental as a person, you become to see things in a way that someone will say even if it comes so bad that you can make it look good." "The small word 'respect' ... mentioned so many times in the training ... the respect the guys have for each other now than before, it makes so much difference because why now everybody know how to talk to each other ... I explain it so much to the manager and the chargehand and even to the other guys ... if you give someone a job it is how you give it to him ... Respect, especially on the Trawlers, it is a big thing and respect was coming out of this training ... [respect] this was one of the words that ... I don't know how to say it ... was coming out a lot and I think the guys they take note because why we can see it out there. We can see it out there really Kevin, really"	S/T, R	CD-SP
II-1	"I think it is the development of ... the interactions we had. I mean you had a lot of interactions with the guys in my absence, or me being absent at stages, and the feedback that you gave to me ito character (Individual Competency Files) ... but also the interactions that I had with them ito the personalised, character ... that bond we had, or that we formed at that stage. And like anything, relationships ... I mean are sometimes strenuous but at least there was something to be strenuous"		
II-2	"I have a heart, I do believe in people, I do believe in the good of people, the development of people, and that everyone wants to do the right thing all the time." Recognition and love: - Certificates and red balls – lots of fun - JB: 20.10 Care, family, love for I&J Limited, teamwork, pulling together – "never before said at I&J Limited" - Guys happy, excited about getting certificates - Guys realised that Trawlers managers cared about them as individuals 'love' JB agreed that it came out a couple of times across different vessels		

II-3	- Bringing hope: “It was giving light at the end of the tunnel.” (5:38 of recording) - RA: “I think we removed the fear factor, we kinda lit the flame to curiosity, we lit the flame to wanting to improve, we fundamentally changed the perspective of an individual who was scared to speak to their kids about life, homework. So what we have done is built or helped parents to come a bit more confident in order to engage with their kids. If you think about it, most of the seafarers employed don’t have relationships with their families. You speak to people today and they speak to you about their kids’ schoolwork, ‘my kid is at varsity’ and you say to yourself *#\$ a couple of years ago you wouldn’t do this conversation. And we kinda injected that want – family, curiosity ... the game has always been - whatever I have had, my kids must have better. Yes, financially I&J Limited might be giving them the opportunity to do that ... but it also gives them the opportunity to be confident to speak to their kids with regard to just about everything ... whether it be schoolwork, whether it be smart phones, computers these days ... it has become a lot easier. That is where I feel we that we have helped a lot”	S/T, R	CD-SP
WA1	Aryton: Stocker Pond Master did training two years ago and enjoyed it himself. Wanted more sea-going training.	R	SP
WA1	Talk in the messroom? Aryton: “They say they enjoy it a lot and how important it is.”	R	SP
WA3	KG: “Did you enjoy it?” Eric (Fish Meal Operator): “Oh it was a nice course I understand everything that was explained to me.”	R	SP
Q 2, 5, 7, 9, 8, 10	Evidence of ‘relatings’		
Q1	Heinz Blom: Production Manager: A8 – feelings and insights about the course		
D12	Gen 2: Refresher Worksheet	R	ST
D21	Email from KG: 20 June 2020 15.05 Re enjoying it, yes, absolutely, as soon as seasick is over – seeing the guys again, building relationships, sunsets, sunrises, ocean life (albatrosses, petrels, whales, seals, fish, storms, boats, people, ...– what a privilege! Must also tell you, ongoing to the Fuchsia again, Lorenzo was great, & when I went into the factory, , the ‘gees’ was amazing, the smell & sights awful, but everything ‘flowing’ with great gusto - in spite of an all-nighter from a 25 ton drag the night before & this guy ‘Mako’ with ‘Rasta’ hair, on the line, saw me, his face lit up, said “Aweh Kevin’ as I walked past! Later on he asked about sending him a photo of me & him with his certificate from 2 yrs. ago - had a short chat in the mess later, was really special to connect with him again – some really special unbelievably hardworking people in there, & if we can help give hope & inspiration in some small way, how awesome.	D & R	ME, SP

Analytic Memo 7: Practices of Management

#	EVIDENCE	PRAC S/T-D-R	ARR CD- ME-SP
N1-14	Describes Executive Senior Management Team impact on informal VET 4.0 over 25-years	D	ME
N2,3,5,7 and 8	Programmes where informal VET 4.0 caused organisational change.	D, R	CD-SP
FG1-1	- CC: I am not so sure about the exec level because I don't they come down far enough to recognise the change. It is still left in the hands of the, what we refer to, as the general managers. - One of the challenges with our execs is their memory retention. So you would have shown that, and it would be well done 'pat on the back' and then forget that they were shown it. Even if it is a fantastic number, a fantastic improvement it is not a lasting memory. I think that is for the general managers, middle managers, very frustrating. You do send the message up, you do show this huge success, and it is just a drop in the ocean as opposed to filling the swimming pool. We filled the swimming pool, but no one is now taking notice that the pool is now full. And the fact the sun soaks up ... and we work with our swimming pool and we have dropped a tile and you have got to fill it up that is seen – why have you dropped a tile and they have forgotten about the fact that you have filled the swimming pool. That is heart-breaking and the challenge for middle management is not to let the crew see that lack of appreciation. You need to protect them so you can keep the momentum down there because what they have achieved, what they have learnt, what they have changed is remarkable. And like Kevin says the numbers are there and can be shown.	ALL	ALL
FGI-2	Demonstrated the protection of sea-going staff and management from the negative views of the Executive Senior Management Team	D, R	ME/SP
II-1	- Motivation to start the Negative perception of skippers – no trust. Wasn't always like this with the Butch Leask's of the world - Most execs sceptical – whatever you tell them they won't believe you. Despite many reports, they will only believe it when they want to believe it. They want tangible things like the bottom line. ".... Stretch this development programme over the progress of a career. I think we were trying to fit in, and it is not a negative it is a reality, we tried to fit in what should have happened over the course of a career ... fit in to a couple of months or a year or two."	S/T	CD/SP
II-2	"It was just unfortunate that as years gone by that I realised that the people focus is not ... um ... throughout the company. It is not from the Exec down to the divisions – it is more operationally and where we operated at. And hence the start of these programmes ..." "Only lip service given to T&D and the good of the people but there was no support, no anything. It was actually ... um ... putting obstacles in your way than trying to help you and support us operational guys to train and develop and impact positively on our people ..." - You said we did the work quietly and under wraps, it was unfortunately done so ... the feeling one gets is when the Exec finds	ALL	ALL

	out about it they want to derail it ... not let them know you are doing it, not let them know how we are achieving and how it is faring and impacting the people because there was just this attitude of trying to put obstacles in place and derail whatever good is done for some or other reason ... I am still trying to figure that out....must just be the attitude of some” ▪ “It was always questioning how we do it, what we do it and why we are doing it so that kind of continuous ... just from the side grinding questioning and not supporting ... and then always someone knowing better what we should have done ... no guidance or support given to a process and a project that will add and did add tremendous value to the company.” ▪ Programme literature never read – it was easier just to shoot it down. ▪ JB: 26.27 “One of the big unintended consequences of the Skipper Development Programme was the amount of trust that was built between the skippers and the shore-based people because of the time and effort which was put in by the shore-based people, the likes of you, Gerard, Wynand, Charlene, everybody. Personal attention was given to the skippers and that kind of trust was just um ... you can’t really measure and cost that ... because that was the ... that was actually I think meant more to everybody than the physical programme itself meant. Because ... now there is a trusting conversation that is happening that never used to happen in I&J Limited, never ever...28.08 the Skipper Development Programme and that contact and that continuous contact ... and the open, clear, and honest communication that was the last bit of straw that made the guys realise that the shore management could be trusted kind of thing” ▪ Attitude – wanted to impact the staff for good ▪ They did not see it as a job to do but as giving someone an opportunity ▪ Nothing you could have done better – all of us but perhaps JB should have got the exec critically involved, made more effort, forced it down their throats. IJ TV wrongly named ... sounds like a jolly ▪ “ ...it was very much ... um ... view of you know the guys are useless, they don’t know what they are doing so why waste your time on doing these kind of things.”		
II-3	Chiefs were useless – no trust ▪ “The stopping of the programme had an outpour of why, what happened, as in what did we do wrong type of thing? And it was one of those unfortunate exercises that again was taken by a group or individuals who had no understanding for the programme other than sitting on the outside and wanting a brownie point so to speak. But quite frankly they had no idea why they stopped it, nothing has come of it. I expected they would probably try and do something internally but again with all of the changes it has gone further backwards so I cannot see it happening in the foreseeable future ... and covid kinda played a role in it...” ▪ I don’t think the training was aligned. I think there were a couple of pages missing. There was a gap and everybody kinda had their own ideas as to where it should go. And they would have discussions around what they think should happen without discussing it with the people [RA & RAF] actually involved in it. That is where I saw it go wrong ▪ “With regard to our training philosophy, sometimes I think the ideas are still very archaic, they don’t kinda of necessarily embrace the now opportunities that is available....The training programme might just be	S/T, R	CD/SP

	too advanced for people to kinda comprehend and even though that is where the problem with our management comes in, they just cannot sync the two because they come from a formal educational background whereas primarily your sea-going factory workers have very little or no education, formal education that is.” ▪ Company has done something. Has not done enough. “There was no commitment, this is the plan ahead we have 18-months to do this programme...whenever they felt like chopping and changing it happened. And the training programme suffered, and the individual suffered as a result of that training programme being ‘skepped’ [stopped] or delayed.” ▪ “I don’t there is much you could have done. I firmly believe there was an agenda, and the agenda was 1) individual personalities; 2) it is all of the departmental assistants they didn’t see ... they didn’t look down the same tunnel. ▪ Whether it be a training facility, they just don’t grasp the fact that the background, the audience and whatever is needed to make these things work. There is a lack of understanding from a management point of view.” ▪ “Today [16 November] I mean ... I had a guy who told me that he was not computer literate ... he travelled in from Wolseley today to come and sit with me to discuss his tax situation. I got him to register on e-filing all on his own after explaining to him how it works. But he came in all the way from Wolseley. I said to him we could have done this on the phone – No! he feels better if we do the work together.” ▪ “I do know that certain individuals are still using our textbooks today, because I got shown one today. Chief X is another one that has just bought into that programme.		
WA 1-4	Demonstrated the protection of sea-going staff and management from the negative views of the Executive Senior Management Team	D, R	ME/SP
Q1-10	Demonstrated the protection of sea-going staff and management from the negative views of the Executive Senior Management Team	D, R	ME/SP
D2	Mgmt. assumptions about the AS-IS state is incorrect; internal communication between executive and Human Resources was inaccurate e.g. what was already known about production	S/T	CD
D3	Mgmt. assumptions about the AS-IS state is incorrect	S/T	CD
D14	Production Training Ecosystem which I developed to provide a bigger picture to management to explain the articulation between courseware, training, assessment, and results. Making explicit the course design in this way was key to joining the dots for senior management and invited their input.	S/T	CD
D16	Reporting Templates by Robin	S/T, D	CD/ME
D17	Reporting Templates by Kevin	S/T, D	CD/ME
D18	RAF Weekly Updates - Production Manual and Freezer Training Programme 8 April 2021	S/T, D	CD/ME
D19	Johann Botha Instruction to all parties re. Production Training	D	ME
D26	Chief Engineers Programme Update including tech adoption	S/T, D	CD/ME
D27	VET 4.0 Explained or Expanded VET 4.0 Ecosystem	S/T, D	CD/ME

Analytic Memo 8: Data Referenced in Other Parts of the Thesis

#	EVIDENCE	PRAC S/T- D-R	ARR CD- ME-SP
N1	The managers, however, <i>strongly</i> disagreed with me on the level of the training and the use of language ¹³⁹ as they believed it was too advanced and ‘fancy’ e.g. the use of the concept and technical term, ‘substantive fairness’. I had not conducted a single class but intuitively believed that the Turners would rise to the occasion and take on these concepts and the vocabulary to express themselves. FOR CH 7	S/T	CD
FGI-1	KG Docking into procurement software re. production Spreadsheet linking manual input data with business intelligence and a handheld digital device which would sink the production data into the BI data web/system. No examples provided due sensitivity of the intellectual property.	D	ME
FGI-1	KG: Just looking at some of some of Donovan’s dashboards when we have sat together and he has shown me what they are doing from a BI point of view and from some of the new measures that we have put on board especially from May last with the new trips all those trips went on and brought back. And working with Kirsty and implementing those production measures which become part of a daily production report. The value ... I don’t have the numbers off the top of my head but we worked out some of the value add and the numbers ... it is massive, it is millions. And it can be shown but whether it is visible to the Exec level I don’t know if they have actually done that but I think that is something we could look at. (T1, pg.23)	D	ME
FGI-1	And I think my overwhelming feeling is one of pride actually. That we started with nothing and we have taken it so far.	R	SP
FGI-1	CC: Yes, possibly ... I suppose I would go with upper management there cos I don’t think the Trawlers Management or Trawlers people look through them. I think we have a serious appreciation for our sea-going guys. I think they are a unique ... to be able to go to sea for let’s call it 35-days on a freezer vessel you need to be a special sort of person ... and working the hours they do, standing up ... your environment is constantly moving. Every time your trawl comes up it looks different ... and their ability to adjust and just roll with the punches I think is just amazing. And I don’t think they get appreciated enough for their flexibility. And I don’t think they get appreciated enough for ... for their endurance, they just keep going, and going and going ... And they ... I think we need to go back ... not well educated, a lot of them have primary school education and possibly the beginning of a high school education ... yet they are very intelligent individuals it is just that they have not had the opportunities and they came to go to sea either because family had already been here or there was nothing else for them ... and then they have found the sea as their life. I think they are unique; they are fantastic. [FGI-1 PG.5]	R	SP
FGI-1	“I think we have a serious appreciation for our sea-going guys. I think they are a unique ... to be able to go to sea for let’s call it 35-days on a freezer vessel you need to be a special sort of person ... and working the hours they do, standing up ... your environment is constantly moving. Every time your trawl comes up it looks different ... and their ability to adjust and just roll with the punches I think is just amazing. And I don’t think they get appreciated enough for their flexibility. And I don’t think they get appreciated enough for ... for their endurance, they just keep going, and going and going ... And they ... I	ALL	ALL

¹³⁹ Forms of thinking or sayings: use of language

	think we need to go back ... not well educated, a lot of them have primary school education and possibly the beginning of a high school education ... yet they are very intelligent individuals it is just that they have not had the opportunities and they came to go to sea either because family had already been here or there was nothing else for them ... and then they have found the sea as their life. I think they are unique; they are fantastic.”		
FGI-2	▪ “Some of the guys were not knowing actually ... was not into it ... as production [training] go on and we went out to sea you could see that it some of the guys or most of the guys actually going into their heads and we are getting actually better results out of it.” (pg. 1) ▪ “we can see that 90%, 95% is actually on top of it” ▪ “You guys were doing a great job. As I say at the start of this, for some of us, it was like just another course, ugh another course but as time goes on and we are learning and all the guys it was buying in. And as I say what the guys was learning and when we go out there we can actually see the results” (Pg.3)	S/T	CD
II-1	▪ “They (skippers) changed as well. I think we all did. Not in terms of maturity necessarily, but with the interaction the thinking and understanding where you fit in to the organisation, and the important role that they have to play. Umm...And it was not a Damascus moment it is a gradual process and I think it is still on-going.” (PG 4) ▪ Also acknowledgement of bottom-line results of the Skipper Development Programme’s effectiveness. (PG.5) ▪ “So that was the biggest success for me. In terms of the skippers learning that they are not too old to learn things ... um ... and it was a two-way street. It wasn’t just you know ... ‘Oh you are being developed.’ I think all of us who were involved in the programme also developed.” (pg. 5) ▪ Assessment – shows up in the numbers. Could track progress monthly. Skippers’ effective cos they were making money, but the company was not. (Pg. 4) ▪ Human Resources wanted leadership; GW & RAF disagreed with Human Resources if they are managing their technical jobs then by definition they will be leading. (pg.3) “.... Stretch this development programme over the progress of a career. I think we were trying to fit in, and it is not a negative it is a reality, we tried to fit in what should have happened over the course of a career ... fit in to a couple of months or a year or two.”	S/T,D	CD/ME
II-2	“I was shocked and horrified when I found out at I&J Limited that the guys in the factory, the production guys never had any kind of, type of production or factory training ... to the extent that you taught them what a fish is and what a fillet looks like cos they just never knew....they never had the training of the anatomy of a fish and what it looks like, or what you can get from a fish or what the yield should be, what are the products are that one can make from a fish ... I was just nearly flabbergasted that it had never happened.”	S/T	CD
II-2	4.21 “Those guys come from pretty humble beginnings, are very practical...and I don’t want to say victims, but they are from the legacy of our past and they came through that, and nothing really has changed for them in their work life. They are still just a fisherman and that is why we started during my tenure at I&J Limited to look at these different development programmes.”	R	SP
	RAF: 18.12 Did PP have a positive impact on the rands and cents? ▪ 18.25 “...factory throughput, tonnes/hr which went through the factory and the quality of the end products which is now an increase in tonnage ... less waste...definitely a huge value add through the PP.	D	ME

	▪ Difficult to nail down rands and cents, also dealing with a living resource so there are many variables. ▪ “Per ship basis and measure tonnes per hour through the factory, you measure your end products, quality of end products ... delta of landed vs sellable. Added tremendous value for sure just on the P&L [profit and loss].”		
D19	Johann Botha Instruction to all parties re. Production Training	D	ME

2

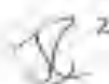
management which occurred in two of these four projects, namely the Production Programme and the SDP. Simply put: I understand that these programmes went well, but I don't understand why or how we achieved this success. I wish to gain a deeper understanding of these VET practices so that I can offer improvements to current I&J VET programmes underway.

The working title of this PhD is:

To develop a deeper understanding of the Vocational Education and Training practice and practice architectures of two I&J training programmes; and to identify how this understanding can contribute to the on-going improvement of the programmes.

Benefits to I&J

1. I&J Limited has consistently trained and developed staff from previously disadvantaged backgrounds for 25-years with my support. The Company's training and development record extends many years further back than my own involvement e.g. engineering and seamanship cadet courses. This research will give prominence to the commitment of the Company towards the growth of the staff and recognition for this achievement, as well as the contributions of this training to sustainability outcomes. This research resonates with three of the Sustainable Development Goals 2030, which are quality education (four), responsible consumption and production (twelve) and life below water (fourteen) (The United Nations, n.d.). There are few companies which have achieved a VET track record like I&J Limited, and this deserves to be better articulated and recognized. This work may enhance the Company's transformation agenda and ecological sustainability imperative, and the reporting thereof.
2. The Company will potentially gain national and international recognition for their VET achievements as this research work will be presented at national and international forums. These occasions are networking opportunities which may result in reputational or learning resources for the Company. I have regular meetings with leading theorists and practitioners in my field and will feed back on this research to the Company as it unfolds. Collaboration between the One Ocean Hub and CTF is being explored as I&J is a key stakeholder in the commercial fisheries of South Africa.
3. Further exposure will be gained during the PhD process as I am conducting my PhD as a PhD with publication i.e. the scholar prepares four journal articles for publication plus the dissertation in fulfilment of the degree.



4. The approach I am taking as Principal Researcher is not one of "conducting research upon" (a specimen or persons) but rather one of "conducting research with" I&J Limited personnel who will be regarded as Co-researchers. This participatory approach is likely to provide public recognition for their efforts and personal achievements. A mechanism of feedback will be agreed with the Company.
5. CTF will be the direct beneficiary of the process, and not only the product of the research e.g. as Principal Researcher as I gain insight into aspects of learning, I will implement these micro-innovations in the VET programmes currently underway. As I work directly with the CTF Management Team, there is likely to be a 'trickle-down' effect as the PhD process deepens my own thinking and praxis.
6. Should I&J Limited wish to capitalize on the development of I&J TV, as a business communication and VET tool e.g. to communicate the Gashuni community social development underway as part of the abulose expansion project, then this research work may assist in meeting the Company's CSI obligations.
7. Cutting edge: The two projects mentioned above have all been conducted using a methodology, which is on the cutting edge of the field and is known as VET 4.0. This approach aims to extend the NQF-SETA based approach by considering more complex contexts of VET provisioning, other than that offered in colleges and training institutions. The academic community is interested in the I&J projects as they are some of the first projects which have been successfully done using more complex approaches (See Appendix 3 of Research Proposal for VET 4.0 principles and practice). It is likely that this PhD will contribute to an international research community who are working on articulating VET 4.0 in Africa. This will imply that the I&J legacy may be extended beyond South Africa.

The research will offer findings on what works in I&J's VET practices and how these practices work, offering insight for the design and development of future VET interventions.

Code of Ethics

All research at any higher education institution in SA is governed by a strict Code of Ethics. Please find the Ethical Clearance Certificate issued by Rhodes University for this PhD attached. In addition to this compliance, I propose taking a step further and negotiating a Code of Ethics between I&J Limited and the relevant parties so that this research is truly a joint venture. Please find the terms of this code below:

3


1. Parties to code:

I&J Limited, Cape town Fishing, Future People Pty (Ltd) and Robin Ferguson, in the capacity of a Rhodes Scholar - 1861169

2. Estimated timelines:

Robin plans to conduct her research with CTF staff between May 2020 and December 2020 (Co-vi-19 dependent). This proposed 'fieldwork' involves a) Interview sessions of one hour each; b) deskbound research studying the project documents, Company website, course artefacts and so on; and c) video/audio recording of two VMT-SDP sessions. Please refer to the Ethics Application attached for details of these methods. Robin intends to provide on-going formal and informal feedback as the research project progresses. She intends to write up submit her PhD in 2021.

3. Roles in the research process:

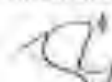
Robin is the Principle Researcher, Johann Botha, as General Manager of CTF, is Co-researcher and will represent the participants in the research process. The intention behind the assigning of the Co-researcher role is to ensure that the participant, in the research and those managers, who have ensured the success of the four VET 4.0 projects are acknowledged for the good work done; It also provides a formal platform for further negotiations during the research process; and it neutralizes or equalizes the power relationships between 'researcher' and the 'researched'. The Co-researcher/s will be invited to review and provide input on the interview schedule and the questionnaires will be co-created. This is to ensure any information the Co-researchers may request will also be gathered as part of this research initiative. Further, they will be invited to indicate how & when they wish to receive feedback on this research project.

4. Time and money:

Robin, through the vehicle of her own company, Future People Pty (Ltd) is a consultant to CTF and she is paid for her time. The interviews & feedback (two focus groups and three key informants) will be conducted over an 8-month period and will be done during working hours at the convenience of CTF staff. Any time spent on research e.g. co-crafting the questionnaires, interviews, providing feedback etc. will be strictly for Robin's account. To ensure transparency, this research work will be indicated on the monthly Future People (Pty) Ltd timesheet as a zero-cost item.

5. Confidentiality and Intellectual Property:

The focus of this research is to understand the learning mechanisms or practices which occurred in the two VET 4.0 programmes mentioned above. In this sense, the research is agnostic to the content of the



information e.g. production processes. Any company information used will be information which is either a) already in the public domain, or b) information which has been vetted by the Co-researcher and his permission to use the information has been granted in writing using the RU Ethical Consent Form. There is no requirement nor intention to use information which is I&J Limited intellectual property, or information which gives the Company a competitive advantage. This adheres to the approach towards confidentiality and non-disclosure which Robin has taken over the last 25-years as she has worked with the Company. It is also consistent with Robin's refusal to work with competitors of I&J Limited despite being offered opportunities to do so.

6. Annual negotiation:

This Code of Ethics will be renegotiated annually, or at shorter intervals as required to ensure both parties are happy and are getting what they want out of the process. One of the intentions of this document is to foresee and solve any issues which may affect the publication of the PhD and the journal articles associated with this work.

7. Covid-19 provision:

In order to meet the national and company requirements for social distancing and disease control, face to face research activities are likely to be restricted. In this instance we will consider safe, practical alternatives like zoom, emails, Whatsapp, video conferencing. Should we figure out a way to do something e.g. interviews on zoom, then we will agree upon the specifics of these activities and draft them into the Informed Consent Form. As the pandemic situation is so fluid it is impossible to agree upon such arrangements in advance. The Researcher recognizes that the Covid-19 may restrict her activities, require patience and that activities may take longer than anticipated.

I very much look forward to this journey together. Please indicate by your signatures below if this document is acceptable or let me know of any changes you may require.

Kind regards

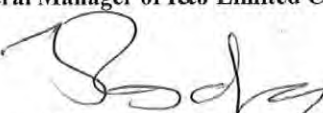
Robin Ferguson

MPhil (cum laude) Stellenbosch

Signatures of acceptance:

Johann Botha, General Manager of I&J Limited Cape Town Trawling Division

Signature and date:

 18/06/2020

Distinguished Professor Heila Lotz-Sisitka

Signature and date:



Appendix 1: 20 Years in Review: 1995-2015

Future People has conducted 11 training, change management and performance enhancement interventions as detailed below in chronological order:

Projects

Project	Population	Intervention	Measurable outcome
LRA for sea-going staff	18 vessels 800 employees Officers & s/s	6 x3 hour sessions 160 sessions - Joint initiative with TLFU	- D&G knowledge - Skills developed - Intervention embedded
LRA for shore-based staff	All depts 400 employees Snr managers	- Complainants Course - Chairperson's Course - Monthly IR update	- D&G knowledge & awareness - Skills developed - Cases handled well ashore
Commissioning of Boronia	All officers & staff	- Handling discipline and grievance - Developed job profiles for each position	- Refresher training for Ace-squad - Clearly defined job & KPAs
360° performance appraisal	Snr managers	Review of individual performance by line manager, subordinates and peers	- Clear view of job perf - Development areas identified
Change Management @ CTT	All sea-going staff & snr managers 1 000 staff	- Allocation of a ship's mentor - Mentorship meetings on t/a - Use of Action Log	- Militant union threat averted - Improved vessel performance on t/sea day; time alongside; fuel usage; dismissals dropped to 0 - Performance Charter per ship
Job profiles	All CTT jobs	Developed outcomes-based position profiles with clear measurables	- Each employee had clear task & performance markers - Gaps & overlaps identified
Procurement	Buyers 8 buyers	Project Butterfly: 6 mo. intervention to embed SAP upgrade	- SAP embedded - Exceeded savings target & paid bonus - System clean-up of vendors - Conviction of buyer fraud
Stock & stores	Stock & stores 20 stockmen	Project Safari: 6 mo. intervention to embed JIT principles to support buyers	- Stores re-organised - Stock holding decrease & accuracy as per stocktakes improved - Invited to present Butterfly & Safari at National Procurement Conference at CSIR

7
38

Project	Population	Intervention	Measurable outcome
IR	Chaired appeals in industry	▪ Mutiny on the high seas (17 crew) ▪ Largest fraud to date at competitor	1. Fair outcome 2. No comebacks
Job profiles	CTP jobs Various key positions	▪ Developed outcomes-based position profiles with clear measurables	3. Each employee had clear task & performance markers 4. Gaps & overlaps identified
Change Management & performance enhancement @ CTP	All perm and contract factory staff & other stakeholders 700 staff	▪ Developed material and supporting procedures to enable a smooth transition to the new Meral processing system. ▪ Project commissioned by Exec ▪ Sessions and support before, during and after implementation. ▪ Matched people to jobs	1. Staff prepared before change with info sessions and simulations 2. Smooth transition from a staffing perspective 3. Performance enhancement in key areas e.g. trimming and packing lines

Contribution to I&J

- Built strong and enduring relationships with I&J staff.
- Assisted HR and the line managers to deal with the changes required as the Company faced internal and external challenges to the business environment.
- Developed a deep-rooted and extensive corporate memory of the people, places, problems and solutions of I&J over the years i.e. what works and what does not.
- Impacted the lives of hundreds of employees by consistently delivering multiple interventions which have improved individual and corporate performance.
- Managed all the projects against agreed and measurable outcomes using key business metrics e.g. dismissals; tons per sea day; turn-around times alongside; trimming and packing speeds, procurement spend etc.



RHODES UNIVERSITY
Where leaders learn

Robin Ferguson
Prof Haila Lotz-Sisitka
Faculty of Education
Rhodes University

28 September 2020

Dear Robin and Prof Lotz-Sisitka,

Research Ethics Approval for the study "Develop an understanding of the VET practice and practice architectures of two L&J training programmes to contribute toward improving these programmes"

I hereby grant full research ethics approval for the above PhD study.

The application has been reviewed by three senior staff and tabled at the Education Faculty Ethics Clearance Committee meeting of 16 April 2020. The letter indicating permission from the General Manager at the company has been received and you may proceed with the study.

Approval is granted for one year. A progress report will be requested in order to renew approval at the end of 2020. An e-mail reminder will be sent in this regard to your Rhodes-registered address.

Please notify the Committee Chair should any substantive change(s) that deviate from this application, be made during the research process. Please also provide a brief report to the Committee on the completion of the research. The purpose of this report is to indicate whether the research was conducted successfully, or if any problems arose that the ethical standards committee should be aware of. If the research results in the completion of a thesis lodged in the Rhodes University Library, please provide the Committee with the details of the submission as well.

The Ethics Clearance Number for this study is 2020-05/1. Kindly safeguard this approval letter for the duration of your study, and for publication purposes.

Yours faithfully,

Prof Everett Rosenberg
Education Faculty Ethics Chair

Copied to:
Dr Gammohiri Chakona
Mr Siyanda Manqele

Appendix 11: Chief Engineers' Programme (Chief Engineers Programme):

Module 1 – Exercise 1

Please complete the following tasks for Exercise 1:

Task 1: E-Learning Platform

1.1 A Chief Engineers Programme WhatsApp Group has been created to facilitate this training. Please send Robin a WhatsApp acknowledging your membership of this group.

1.2. Please ensure that you have a personal I&J Limited email address and that it is active. All training communication will be sent using this address.

1.3 Please ensure you have the Zoom patch loaded onto the computer which you use at sea and set up a Zoom test meeting with Robin. Robin will send a Zoom invitation to each Chief's personal email address which will enable him to download the Zoom patch.

1.4 Watch Mobisode 1.1 and give Robin feedback on the content either by email or on WhatsApp.

Task 2: Reading through Chief Engineers Programme Module 1

2.1 Please read through the Module and feel free to ask Sulaiman or Robin any questions which you may have regarding the training.

2.2 You will be sent an electronic copy of all the modules as we go through this training course.

Task 3: On-board Technical library

Please provide Sulaiman and Robin with a written list of the technical books and manuals on your vessel.

Task 4: Create a video

4.1 Please create a video of 4 mins or less of 'Your Finest Hour' as a Chief Engineer i.e. what event, action, or which decision you are most proud of achieving in your years at I&J Limited.

4.2 Please send this to Robin on email or WhatsApp and let her know if you are happy for your video to be shared within I&J Limited.

Task 5: Office Lessons and Workshop Time

5.1 Please initiate time with Rick to learn about Office 365.

5.2 Please arrange time with Sulaiman in the Workshops when alongside.

5.3 Please use the form below to record all your activity and send it to Robin and Sulaiman on the last day of every month.

Task 6: On-board Equipment

Please fill in the table below and send it to Robin at robin@futurepeople.org.za.

PIECE OF EQUIPMENT	PURPOSE	WHAT MORE WOULD I LIKE TO KNOW ABOUT THIS EQUIPMENT?

Evidence Portfolio

Name:

Vessel:

DATE

TIME

TASKS ACCOMPLISHED

FAC

DEL