AN ANALYSIS OF THE STRUCTURE OF KNOWLEDGE AND STUDENTS' CONSTRUCTION OF KNOWLEDGE IN AN INTRODUCTORY ACCOUNTING COURSE

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Abstract

This research seeks to explain how students construct knowledge in introductory accounting. It was prompted by concerns over low pass rates for first-year Introductory Accounting students at Rhodes University and particularly low pass rates amongst Novice (first-time) Accounting Students.

In trying to get a better understanding of reasons behind these pass rates, this research focusses on the structure of knowledge in the discipline and what this means for how students should construct knowledge in the course. Bernstein's Pedagogic Device and the dimensions of Semantics and Specialisation in Maton's Legitimation Code Theory are used as theoretical and analytical frameworks to help understand the structure of knowledge in this course, how knowledge is recontextualised and finally how it is acquired by students.

A group of students from the 2011 class were interviewed to gain a better understanding of how each of these students constructed knowledge during the semester. The analysis of these interviews reveals how students construct knowledge in the course and the implications this has for their success over the semester. Analysing this interview data, and comparing it with the levels of success for each student, permitted me to develop an improved understanding of how successful and unsuccessful students construct knowledge.

As a teacher of Accounting, understanding and being explicit about the structure of knowledge in the discipline, and how this impacts on the construction of knowledge, will allow me to advise future students on how to most effectively construct knowledge in this course and to advise and guide colleagues on how best to present this course.

Keywords: Novice Accounting Students, Bernstein's Pedagogic Device, structure of knowledge, construction of knowledge, Introductory Accounting, Legitimation Code Theory.

Acronyms

AD	Academic Development
HE	Higher Education
HEI	Higher Education Institutions
IA	Introductory Accounting
IAS	International Accounting Standards
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
ITC	Initial Test of Competence
LCT	Legitimation Code Theory
NAS	Novice Accounting Student
MAS	Matric Accounting Student
SAICA	South African Institute of Chartered Accountants
SIPs	Specialised Interactional Practices

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My next thanks must go to my children Stephen and Samantha who are my inspiration to achieve more. Thank you too to my mother Rowena Essex-Clark for being my biggest supporter.

The participants in the interviews also deserve a heart-felt thank you. They gave of their time and shared their work and thought processes and patterns when answering questions, which must at times have seemed a little perplexing.

Thank you too to all my friends colleagues who supported me in this journey.

My final thank you goes to all my Introductory Accounting students past, present and future. It is your desire to improve your performance in this sometimes complicated subject which put me on this journey of discovery.

I hope that the knowledge which I have gained will allow future students to make sense of this course with a little more ease.

The unexamined pedagogy is not worth teaching.

With apologies to Socrates

CHAPTER 1 - BACKGROUND AND CONTEXT

1.1 Introduction

In 2007 I was appointed to a lecturing position in the Department of Accounting at Rhodes University, Grahamstown, to teach on the Accounting 1 programme. From the outset I had heard students talk about how difficult the first year was and how demanding students had found it, particularly if they had not taken Accounting up to matric or Grade 12 level, while at school. After a couple of years of teaching on this programme and finding that I was particularly drawn to teaching during the Accounting 101 semester, I felt that I would like to better understand the reality behind students' concerns about and conceptions of the course. The aim of this research was to inform my teaching practice and to allow me to assist students who I could see were trying very hard to understand the topic, but who were not always successful in this course.

The following graph reflects the pass rates in the Accounting 101 course over the past ten years. Many of the students registered for Accounting 101 would also be registered for the other commerce faculty subjects like Economics 101, Management 101, Statistics and

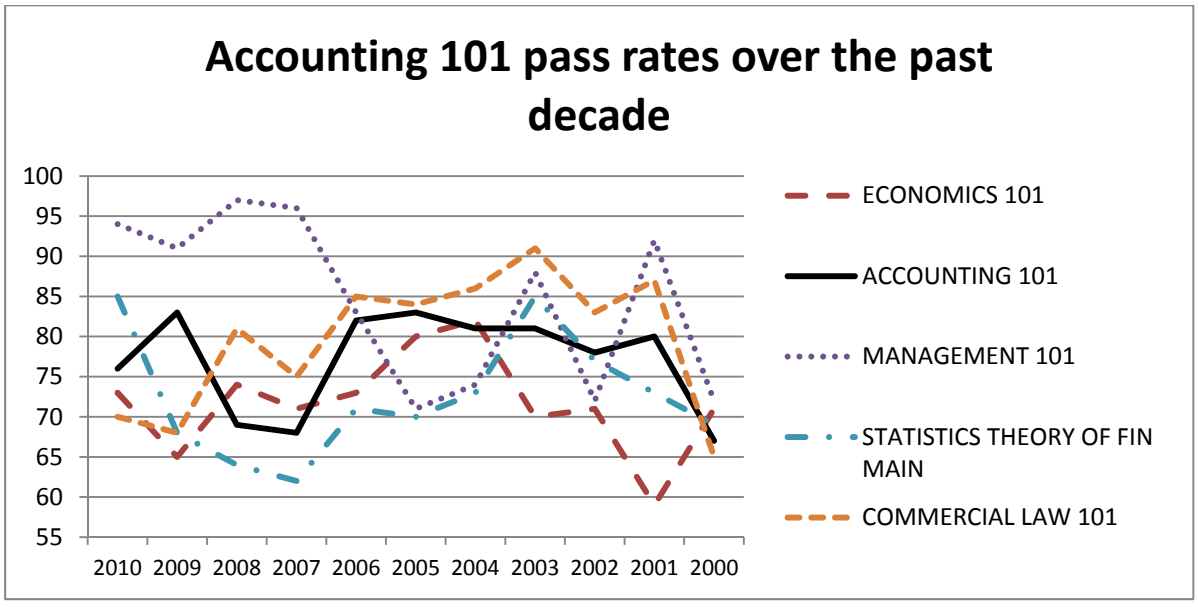

Figure 1 - Accounting 101 pass rates over the past decade compared with those of other commerce courses

Commercial Law 101, and so it is worth comparing the pass rate for Accounting 101 across these other first term courses.

Introductory Accounting, or Accounting 101, is the first semester course for Accounting 1 at Rhodes University. Accounting 101 is a prerequisite for the second semester Accounting 102/112 courses which together provide an Accounting 1 credit. Accounting[1] 1 is a prerequisite for many of the Commerce Faculty degrees.

The enrolment for this course has varied immensely over the past few years, from approximately 750 students in 2009 to 350 in 2013. At the time that this research was conducted in 2011, three 45 minute lectures were held every week with each lecture being repeated due to the class size and timetable constraints. These lectures were supported by a compulsory weekly double period tutorial held with a smaller group of around twenty students.[2] The lectures are intended to introduce concepts and to practise these concepts at an introductory level, while the tutorials are planned to allow students to practise the concepts taught at a more complex level, under the guidance of a tutor.[3]

Lectures take place in a technologically well-equipped lecture theatre where students are comfortable and logistically-speaking lecturing is easy. However, due to the size of the lecture theatre, personal interaction with students can be challenging. The face-to-face lectures are also supported by on-line discussion forums which take place on RUconnected, the Learning Management System in use at Rhodes University.

Students enrol for this course for very different reasons. From a survey conducted in 2008, 48% of the cohort for that year had registered for the subject as they required an Accounting 1 credit for their three year undergraduate Commerce Faculty degree, while 12% of the students were from other faculties, and had registered as they viewed it as a 'useful' course. The other 40% of the students had enrolled for Accounting 1 as they intended following the

[1] Unless otherwise indicated, when discussing 'Accounting' in this research, reference is being made to Financial Accounting.

[2] This information was correct at the time that the research was conducted. Both the number of lecture slots and composition of tutorials have changed since then.

[3] In this university a tutor, who for this course is generally a third year student, is employed to assist the lecturing staff by taking small groups of students to work through examples to assist students in better understanding the practice of accounting. The role played by tutors is discussed again in 2.5.3, 4.2.4, 4.4.

'professional' four year accounting route for aspiring Chartered Accountants. The reality is that according to recent trends at this institution, only around 10% of the students in the first year enrolment, or about 25% of those intending following the Chartered Accounting route, are successful in proceeding through to the fourth year of the accounting programme.

According to research conducted in 2010, from of a total registration of 500 students, 204 (41%)[4] were first time or Novice Accounting Students (NAS)[5]. The other Matric Accounting Students (MAS) had studied accounting at school, normally for three years.

The goal of my research was to obtain a better understanding of the underlying causes of the mediocre pass rate in Accounting 1, as reflected in Figure 1, given that around 60% of these students had studied accounting at school. In addition I wanted to get a better idea of the cause of the 'desperation' I sensed from some students in their course evaluations.[6] When I embarked on the preliminary research in preparation for undertaking this investigation, I had expected the statistics to reveal that diversity, in terms of gender, race and possibly home language, would be at the root of the problem.

Statistics were obtained from the institutional Data Management Unit and it was only when analysing these statistics that the real problem became apparent. The 'problem' was indeed one of diversity, but the low pass rates could not be attributed to differences in gender, race or home language. The problem lay in the difference in pass rates between those who had taken accounting as a matric subject; the Matric[7] Accounting Students (MAS) versus the Novice Accounting Students (NAS) who were studying accounting for the first time. The extent of this problem is revealed in Figure 5 which follows.

At this institution no 'summer school' or similar intervention had been offered to NAS to allow them time and space to learn and understand what other students have been studying

[4] The numbers of NAS in this class vary from around 55% in the class in 1990 to 41% of the class in 2010.

[5] If students did not provide details of registration for accounting as a matric subject in their application for admission to Rhodes University, an assumption was made that they were studying accounting for the first time.

[6] Evaluations are conducted regularly, generally once or twice a semester. Through this exercise feedback is obtained from students on their perceptions of the course and the teaching, and this is where they have an opportunity to make suggestions or comments.

[7] A matriculation certificate is the certificate with which successful Grade 12 learners leave the school system. Depending on the marks obtained the certificate may grant the learner admission to a university.

for up to three years at high school. It had always been believed by the academic staff in the Department of Accounting that the introduction to the course was slow enough to enable first time accounting students the time required to become familiar with the accounting discourse, concepts and principles, necessary for success in this first year course.

In trying to better understand the reasons behind the low pass rate I investigated the structure of knowledge in IA, which in turn allowed me to analyse how students construct knowledge in this course, both when this is done appropriately and when it is done inappropriately. My ultimate goal as a teacher is to assist these students both to recognise and to realise legitimate accounting texts (Bernstein, 2000).[8] I have used Bernstein's pedagogic device with its fields of production, recontextualisation and reproduction and Maton's Legitimation Code Theory (LCT) with its dimensions of Semantics and Specialisation to help me better understand these issues.

1.2 The Higher Education context – National and Institutional

South Africa has not been shielded from global changes to HE that have taken place since around 1980 although major changes only took place in this country after the advent of democracy (Bundy, 2006). These changes have put an enormous strain on existing resources within Higher Education Institutions (Bundy, 2006; Leibowitz, van der Merwe, & van Schalkwyk, 2009; Scott, Yeld, & Hendry, 2007) as student numbers have grown dramatically, but resources have not grown to the same extent, if at all.

An additional factor in the significant changes experienced in South African HE, but not experienced to the same extent elsewhere in the world, is that previously the privileged white minority had access to a relatively superior secondary level education, while the disadvantaged black majority in most instances had access only to under-resourced schools, which provided an inferior education (Motala & Pampallis, 2005).

During apartheid black learners would primarily have attended secondary schools which were formerly part of the Department of Education and Training (DET). On the whole DET

[8] The terms 'recognition', 'realisation' and 'legitimate text' are terms used by Bernstein which will be discussed more fully later.

schools provided an education which was, according to Reynolds, (1997, p. 14) "part of a scheme to maintain racial division and white political and economic dominance." Many of the black students enrolling at Rhodes University in recent years may have experienced a secondary education superior to that of *their* parents and their teachers. However, some of these students would still have been taught by teachers who, as a result of their own secondary and tertiary educational experiences, would not have acquired formal academic discourses, and would thus not have been able to pass these higher levels of discourse on to their children and pupils (Reynolds, 1997).

According to Reynolds, "students enter historically white, English-medium universities with neither the language abilities nor the academic skills necessary to succeed easily in gaining 'epistemological access'" (1997, pp. 15–16). While this does refer to research conducted in the late 1990s, it will still be relevant to some of our first-time entering students.

The increase in numbers of black South African students entering HEIs during the 1990s is significant. The registration of black students at South African HEIs rose from 40% (191,000) of the total enrolments in 1993 to 60% (404,000) in 2002, an increase of 111%.[9] (CHE, 2004, p. 66). According to Bundy, "overall, changing patterns of access to higher education in South Africa amount to one of the most rapid and socially significant demographic changes, anywhere, in the contemporary era" (2006, p. 12).

These additional 213,000 black students would have entered an HE environment which was in many instances seemingly unaware of the changing needs of the student body, and therefore unable to make changes quickly enough to allow students to make a success of this opportunity. This meant that for many the experience of HE was "marred by failure, loss of confidence, and perhaps disillusionment" (Scott, 2009, p. 17), resulting in a national crisis with "equity of access" not being matched by "equity of output" (Scott *et al*., 2007). High failure rates were experienced, particularly among black students.

This seems to indicate that while there was increasing pressure on HEIs to enrol larger numbers of black students, the impact of the growing student numbers on the lecturing staff, teaching methodologies and on the facilities available to teach students, may not always have been considered.

[9] This is an increase in percentage of the number of registrations.

In this department, in spite of an increase in the diversity within the class, little thought seems to have been given to considering whether it was necessary to change pedagogic practices within the Introductory Accounting class. While changes initiated by national policy have resulted in improved access to HE for many, this had not necessarily translated into success (Scott *et al*., 2007).

1.2.1 Accounting – National and Institutional

Nineteen years since the advent of democracy in South Africa, the South African Institute of Chartered Accountants (SAICA) still records lower pass rates for black (African) candidates in comparison to candidates from other race groups. This is in particular in respect of the Initial Test of Competence examination (previously known as QE1). Passing this examination is one of the prerequisites for qualification as a Chartered Accountant. In the results for the January 2013 examination black (African) candidates made up 29% of the overall passes (SAICA, 2013b).

Within the context of the Department of Accounting at Rhodes University, the increasing numbers of IA students over the past three decades and the increasing diversity among these students is quite notable. The graphs which follow show the changes in student demographics which have occurred over this period.

For the purpose of this research, I have omitted certain demographic details as the numbers involved are not significant. The inclusion of all categories would have made these graphs less easy to read and would not have contributed to a better understanding of this research context. In particular here I refer to the omission of additional home languages, race groups, and nationalities, all of which showed limited variance in terms of academic performance in this course. The statistics revealed in the graphs which I have provided reflect the figures which are significant in terms of the research project which I have undertaken and on which I report in this dissertation.

These graphs collectively show that there has been a significant shift in numbers in each of the demographic groups relating to gender, race and language.

As shown in Figure 2, there has been a shift from a dominance of approximately 80% white South African English-speaking male students, to a far more heterogeneous mix of students

with black South African females being slightly dominant. Also of interest in Figure 3 is that the number of students who indicated that their home language was English dropped from over 80% in 1980 to just over 50% in 2010.

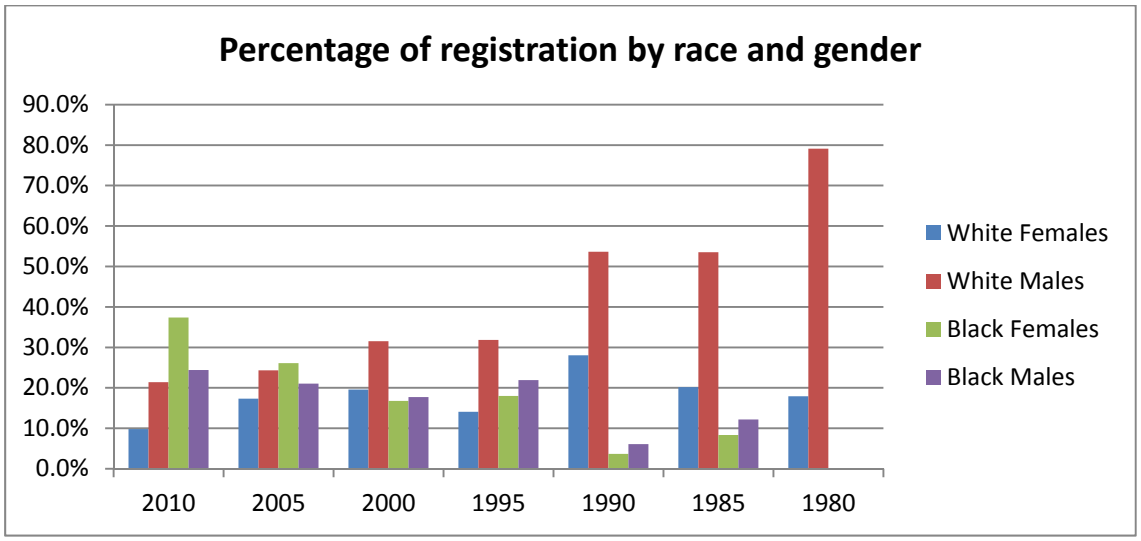

Figure 2 - Breakdown of Introductory Accounting registrations by race and gender

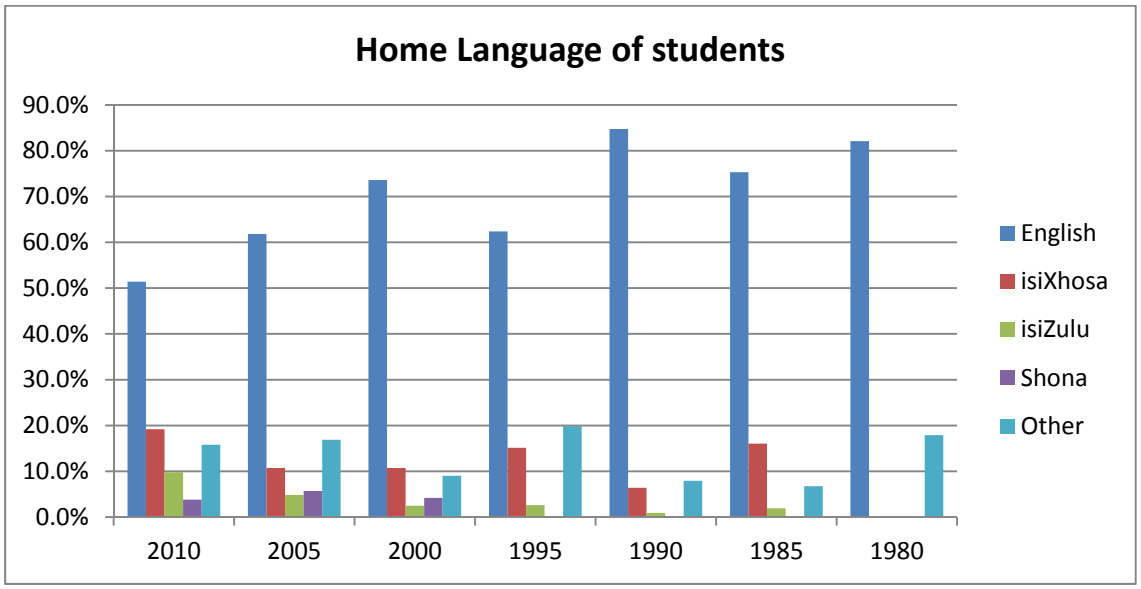

Figure 3 - Breakdown of Introductory Accounting registrations by home language

In viewing the pass rates for IA students over the same period, it appears that in recent years the Department of Accounting at Rhodes University, has on the whole achieved 'equity of outcomes' for our students as shown in Figure 4. The data presented in this graph are based on marks obtained by students on their first time enrolment for Accounting 101. Repeat students' marks were excluded from these figures. This was where I was expecting to see a

large difference in pass rates. As reflected in Figure 4, there is very little difference in pass rates between the demographic groupings in recent years. 1994 marked the advent of democracy in South Africa. Prior to this many schools had been racially segregated and most children of colour would have been forced to go to schools for 'Black', 'Coloured', or 'Indian' people. With the change in 'status' of schools which was introduced from 1991, children of colour were able to enrol in the "best-resourced", previously 'whites only' schools in the country (Motala & Pampallis, 2005, p. 8). These schools were semi-private and were provided with a government subsidy of between 75-85% of the school's operating budget (Motala & Pampallis, 2005). It is possible that this improvement in primary and secondary school education contributed to a reduction of the difference in pass rates between white and black students from 2000 onwards.

I continued to believe that the pass rate was unacceptably low given that so many of the students had already studied the work up to matric level, given that the Accounting 101 course is on the whole a summary of what students would normally have studied at school. I felt that it would be beneficial to investigate further to try to reveal where the variance in pass rates lay.

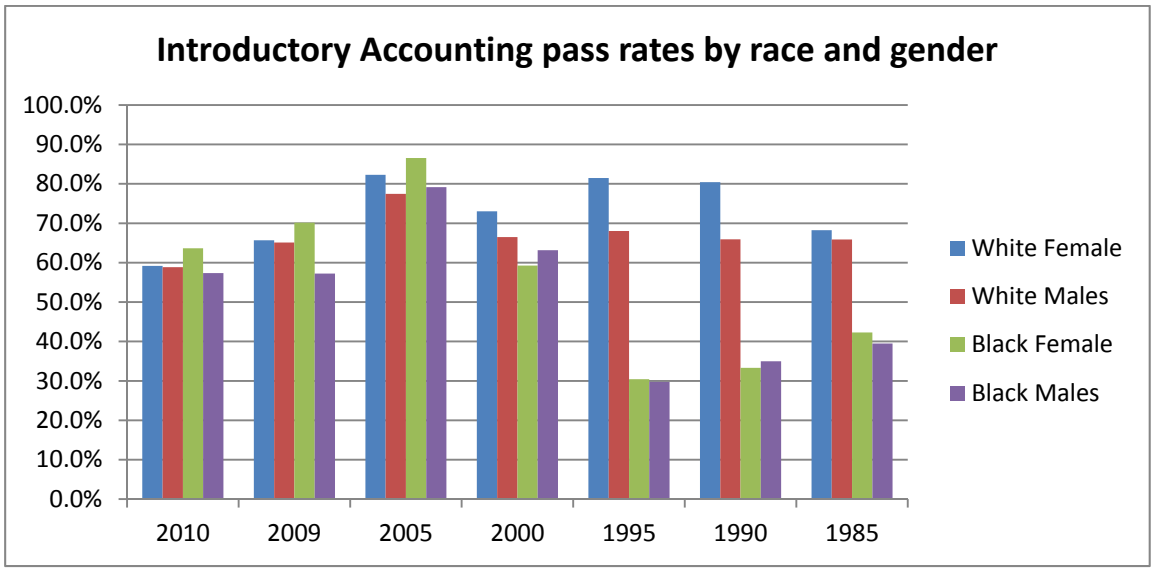

Figure 4 - Introductory Accounting pass rates by race and gender

It was when disaggregating the marks for Matric Accounting Students (MAS) and Novice Accounting Students (NAS) that the significant variation in pass rates in this course became more apparent as can be seen in Figure 5. MAS perform relatively well in the course with

pass rates of around 80%, with NAS performing particularly badly with recent pass rates being around 30%.[10] This pass rate is problematic for this cohort of students.[11]

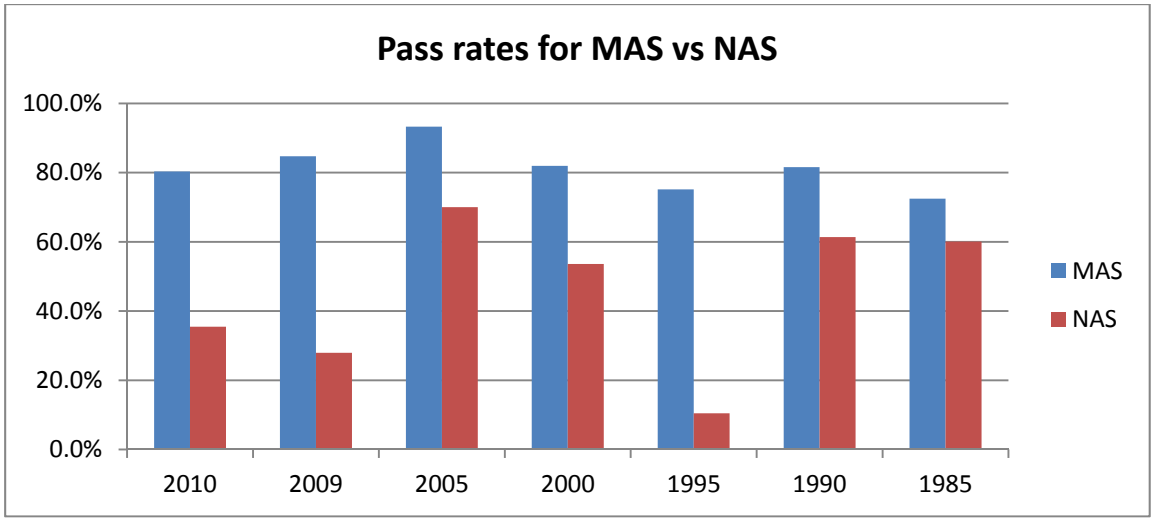

Figure 5 – Matric Accounting Students versus Novice Accounting Students pass rates

Analysing the demographics of the NAS did not reveal any significant differences in achievement amongst the four groupings of white and black, male and female students, except that the very small white female NAS group seems to show a continuing decline in pass rates over the past few years.

Despite the significant increase in numbers and a change in demographics, despite the increasing national need for graduates, despite the increasing need for black graduates, particularly for those students who wish to follow the professional route of becoming a Chartered Accountant, from my observations within the department, the pedagogic practices within this course had not changed significantly since around 2000. However, the significant variation in pass rates between the MAS and NAS points to an area of concern and therefore an area where investigation and intervention could be potentially useful in identifying and addressing the underlying causes for the low pass rate.

[10] These statistics do not go beyond 2010 as the interventions discussed in this research were introduced after 2011.

[11] The variations in particularly the NAS pass rates are difficult to explain and without an in depth investigation would likely result in speculation.

Having explained the context in which this course is offered at this institution, and having identified the significant different in pass rates between MAS and NAS, I will next focus on the theoretical concepts which have formed the foundation of my research.

Chapter 2 - Theoretical Framework

2.1 Introduction

This study focusses on the Introductory Accounting (IA) course, officially called Accounting 101, offered by the Department of Accounting, Rhodes University. My goal in this research was to obtain a more informed understanding of the factors underlying how students construct knowledge, both successfully and unsuccessfully, in this course. This would include obtaining a better understanding of the enabling and constraining factors which impact on students' ability to be successful in this course.

My meta-theoretical approach was informed by a critical realist perspective on the world and on knowledge. This means that I believe in a reality that exists independently of our knowledge of it and that this reality conditions socio-cultural interactions. Furthermore, I believe that knowledge, albeit fallible, exists and has real effects on the world (Bernstein, 2000; Danermark, Ekstrom, Jakobsen, & Karlsson, 2002; Maton & Moore, 2010; M. Young, 2008).

My substantive theory draws on Basil Bernstein's concept of the Pedagogic Device (Bernstein, 2000). This is the theoretical lens I use to examine the structure of knowledge in IA and how students construct knowledge in this course. According to Bernstein, the pedagogic device "describe[s] the organisational, discursive and transmission practices in all pedagogic agencies and show[s] the process whereby *selective acquisition* takes place" (2000, p. 3) [emphasis added]. In simpler terms, I use Bernstein's Pedagogic Device to describe what comprises knowledge in the discipline, who determines what is to be taught, pedagogic practice itself and how students selectively acquire this knowledge within this course at this institution. The pedagogic device comprises the following three fields: the fields of production, recontextualisation and reproduction. These fields will be discussed in more detail under Bernstein's Pedagogic Device in section 2.4.

Bernstein's field of production was developed further by Karl Maton's Legitimation Code Theory (LCT) (2000, 2007, 2010). I have used the dimensions of LCT: Specialisation and LCT: Semantics as a theoretical lens in my research.

Before embarking upon my research, it was necessary to first examine existing research conducted into the first year experience as a whole and the first year experience of accounting students in particular.

2.2 Existing Research

The First Year Experience for students at higher educational institutions both within and outside of South Africa has come under increasing scrutiny in recent years. There has been an increasing focus on understanding the pressures under which first year students need to work to succeed in the tertiary educational environment, given that this environment is so different to the secondary school environment to which they are accustomed. At university, when confronted with a new discipline, "the student who stands on the edge of a discipline is an outsider who is faced with the decision of whether to join or not and at what cost" (Mann, 2001, p. 11). This applies to all first year students, but it is particularly applicable to the Novice Accounting Students (NAS) in the IA class. While all first year students may feel like disciplinary outsiders to a certain extent, I believe that the Matric Accounting Students (MAS) do not feel as alienated in this course as many of them are already established members of the accounting community of practice. A community of practice is a group of people "…who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger, McDermott, & Snyder, 2002, p. 4).

Students who have studied accounting at school could be considered part of a community of practice as they are likely to understand the discourse of the discipline and have some level of knowledge and expertise in the discipline. Some MAS will also have a passion for the discipline, which will make them part of the core group in the community of practice. I would however suggest that the NAS are not in this position, certainly not when they first register for the course.

Individuals in the core group sometimes initiate and attempt to dominate classroom discussions to establish themselves as being knowledgeable in the subject. This in turn can be disempowering for the NAS as discussions could start around a topic which they are just starting to understand, and could move into new topics which they may be unable to make

sense of. Keeping MAS interested in the subject, while getting NAS to make sense of very basic work, can be a challenging task for a lecturer in Introductory Accounting.

South African research into Accounting Education has generally been limited to studying the impact of external factors on student success. These factors tend to focus on "relations to knowledge" (Maton, 2007, p. 87) [emphasis in original]. In 'relations to' knowledge, the focus is, for example, on the relationship of a student's age, race, gender or previous academic performance to the acquisition or production of knowledge in a discipline.

More specifically, much of the earlier research focussed on questions around whether students' school subjects impacted on success in Accounting 1, with one project investigating the impact of studying accounting at school on success in Accounting 1 (Rowlands, 1988). This study investigated students' and accounting lecturers' opinions on whether having studied accounting prior to attending university had an impact on students' performance in the first year of accounting. These opinions were supported by students' test and examination results over the first year of accounting at university. Rowlands found that while MAS achieved higher results in earlier tests and examinations, there was no difference between MAS and NAS marks in the final examination of the year. This is at odds with the results revealed by this study. As the Rowlands research was conducted during the late 1980s, and as universities have changed significantly since this time, this may account for some variation in results.

Another study focussed on whether there was a relationship between Accounting 101 results and success in Accounting 3 (Mazwi & Stack, n.d.). More recent research has focussed on analysing how success in Accounting 1 could be predicted by a combination of factors like: the overall marks obtained at school, whether accounting was a school subject, lecture attendance and home language (Baard, Steenkamp, Frick, & Kidd, 2010). Baart *et al.'s* research could potentially enable lecturers to identify 'at-risk' students and then to provide suitable interventions to improve student academic performance.

Another focus of research in the field of accounting has been the influence on and implications of social and political transformation on the field. Both the shortage of black chartered accountants in South Africa, and the obstacles which black accounting students face in qualifying as chartered accountants, have been investigated (Sadler & Erasmus, 2005; Weil & Wegner, 1997; Wiese, 2006).

Internationally, accounting research has focussed more on factors such as students' approaches to learning (Booth, Luckett, & Mladenovic, 1999; Hall, Ramsay, & Raven, 2004; Lucas & Meyer, 2005; Lucas & Mladenovic, 2004; Ramburuth & Mladenovic, 2004; Sugahara & Boland, 2010) teaching practices (Leveson, 2004; Lucas, 2002; Visser & McChlery, 2006), assessment (Basioudis, 2008; Bible, Simkin, & Kuechler, 2008; Watty, Jackson, & Xin Yu, 2010), curriculum design (Christensen, 2004; English, Luckett, & Mladenovic, 2004; Palm & Bisman, 2010), threshold concepts (Lucas & Mladenovic, 2007; Meyer & Land, 2003, 2005) and how students use their accounting textbooks (Phillips & Phillips, 2007).

Thus far only limited research appears to have been undertaken which investigates "relations within knowledge" (Maton, 2007, p. 87) [emphasis in original] in accounting, i.e. factors relating to the nature of knowledge within a discipline. In my study, understanding 'relations within [accounting] knowledge' entailed understanding what the structure of knowledge is in this IA course. This in turn allowed me to investigate how students construct accounting knowledge at first year level and whether this is done in a manner which enables successful learning or not.

Without a clear understanding of the structure of knowledge in IA and what this means for how students construct knowledge in this course and how they construct legitimate texts (Bernstein, 2000), appropriate curricula and pedagogic practices cannot be planned in an optimal and informed manner. As Muller puts it, "contemporary avoidance of knowledge structure … lies at the heart of many current pedagogical dilemmas" (2006, p. 26).
Given the context described above, I was interested in investigating issues such as:

- What is knowledge in this course?
- How do students construct this knowledge?
- How can students be aided in constructing knowledge differently?
- What are the enabling and constraining factors for students when constructing this knowledge?
- How do students recognise and / or realise legitimate texts?[12]

[12] These terms will be explained in the discussion about the substantive theory.

- How is knowledge recontextualised to make it accessible for students?
- Is this recontextualisation done appropriately?

In the following section I describe the theoretical framework used to better understand these questions. To assist me in illuminating the problems experienced by many first year accounting students I chose Bernstein's theory of the Pedagogic Device and Maton's LCT: Specialisation and LCT: Semantics. My particular interest revolved around how students constructed knowledge, whether this was done appropriately or inappropriately.

2.3 Meta-theory – Critical Realism

To be able to put the knowledge claims in any research into perspective, it is important to understand the researcher's ontology; how s/he views reality in the world. The researcher's understanding of what reality is in the world frames and shapes his/her approach to the work and how s/he makes sense of the issues. In addition, it conditions the nature of the knowledge claims that can legitimately be made.

The research which I have undertaken is underpinned by my personal understanding of the world through a Critical Realist lens.

I concur with Danermark *et al.,* that "… there exists a reality which is stratified, differentiated, structured and changing … and our knowledge about this reality is always fallible but … there are some … tools we can use … to inform us about the external reality" (2002, p. 10). My endeavour in this research was to "*investigate and identify relationships and non-relationships, respectively, between what we experience, what actually happens and the underlying mechanisms that produce the events in the world*" (2002, p. 21) [italics in original].

The experience, the event and triggers which lie behind what happens, are the three ontological domains of reality: The Empirical, what we experience of an event; the Actual, the event, whether we experience this event or not; and finally the Real domain.[13] The Real domain is where the causal mechanisms which result in the Actual (the events) are found

[13] To ensure there is less confusion when using the terms Real, Actual and Empirical in this research, I will capitalise them when using them in reference to Critical Realism.

(Danermark *et al*., 2002). While, as researchers we try to isolate factors at each of these levels; in reality the three layers are indistinct but they are analysed separately for research purposes.

Given the context of teaching IA at this institution, the Real domain consists of the underlying causal mechanisms and structures which make it possible for the course to be offered and which account for the way in which the course is taught. The Actual domain constitutes the teaching and learning (lectures, tutorials and on-line discussions) and assessment events for this course. The Empirical domain consists of students'[14] experiences, of these events. In social research, the researcher can only explore the level of the Real through examining events and peoples' experiences of these events. In exploring the level of the Empirical I needed to ask questions which probed course participants' perceptions of the teaching, learning and assessment activities in IA and their experiences of these events. The causal mechanisms which are found at the level of the Real, are relatively enduring and not easily changed. However the events (the Actual) and the experiences (the Empirical) can and do change more quickly.

Rhodes University is a small, residential, research-intensive university. The university is supported by a Senate and a Council, which guide and support the university and the staff at the university in decisions which are made. Academic departments fall under faculties which in turn guide and support academic staff in achieving the goals of the university, as decided by Senate and Council. These structures are all relatively intransitive. Changes which take place at a structural level at the university take time to be discussed, agreed upon and ultimately implemented and these would include changing the traditions and culture of the university. The culture of the university would include how institutional agents view the purpose of the university including the roles of teachers and students in this context.

This research covers all three areas of the Real, Actual and Empirical. In terms of the level of the Real, I will be looking at the relatively intransitive nature of the discipline of Accounting, including the structure of knowledge in the field, and that teaching takes place at an established, well-resourced institution; in terms of the Actual, I will look at the lecturing and tutoring environment and finally in terms of the Empirical, I will be focussing on students'

[14] While the tutors and lecturers would also have experienced these events, it was students' perceptions and experiences that I was interested in.

experiences of these events. Two students sitting side-by-side in a lecture can have a very different experience of that lecture, and in the case of IA, this could be as a result of whether students have studied accounting at secondary level or not, their levels of personal motivation, and whether they are able to work within the constraints and enablements of the knowledge structure of IA.

While Critical Realism provides a perspective on how I view the world, to assist me in my research I needed to have a theoretical lens which would provide a sharper focus on pedagogy within my classroom. This theoretical lens was Bernstein's Pedagogic Device.

2.4 Substantive Theory – Bernstein's Pedagogic Device

Accounting 1 has over a number of years experienced a low pass rate, despite approximately 60% of the registered students having studied accounting for three years at secondary school level. Furthermore, as noted earlier in Figure 5, Novice Accounting Students (NAS) have an unsatisfactory pass rate of around 30%. For these students, physical access to the university has not provided "epistemological access" (Morrow, 1992). To better understand why students, particularly NAS, struggle with this course, it was important to investigate the structure of knowledge in the field of accounting and how students construct knowledge in this field. This would allow me to gain an improved understanding of the pedagogic practices which should be privileged in this discipline.

Bernstein's Theory of the Pedagogic Device (Bernstein, 2000) (see Figure 6) was the ideal theoretical framework for this research. It provided me with the tools and language to better understand the structure of knowledge in this discipline, how this knowledge is recontextualised for the curriculum and for the classroom and the implications this has for how IA should be taught and how knowledge in this course should or could be constructed by students.

Bernstein's theory of the Pedagogic Device suggests the "rules or procedures" for analysing how a discipline's knowledge or theory is produced, recontextualised and reproduced (Singh, 2002, p. 573). Singh tells us that the theory provides us with "explicit criteria/rules to describe the macro and micro structuring of knowledge" (2002, p. 571).

I used these explicit rules to better understand how knowledge in IA is: firstly held in a 'knowledge store' ordered by distributive rules in the field of production; then converted into pedagogic discourse, ordered by recontextualising rules, in the field of recontextualisation; then ordered by evaluative rules and finally acquired by students in the field of reproduction. Each field is 'ordered' by rules, these being the distributive, recontextualising and evaluative rules respectively. Through these rules the discipline's "worthwhile store of knowledge" (Maton & Muller, 2007, p. 18) is recontextualised into "privileged and privileging pedagogic texts" (Singh, 2002, p. 577), these texts are again converted by teachers and become "shared classroom knowledge" (2002, p. 577).

An understanding of the relationship between these three fields provides a framework for examining what knowledge is in a discipline, how it is made accessible in a particular format and at a particular level through a curriculum, and how this knowledge is acquired by students through pedagogic practice. I will discuss each of these fields in more detail in the sections which follow.

Bernstein's theories are based on foundational concepts of 'Elaborated' and 'Restricted' codes and 'Classification' and 'Framing' (1964, 2000). Bernstein uses the terms elaborated and restricted codes to describe how the use of language enables or constrains an individual in providing a precise and unambiguous explanation of an experience, "the code through its planning procedures will facilitate the speaker in his attempt to put into words his purposes … his unique experience in a verbally explicit form" (1964, p. 57). Elaborated and restricted codes are not a measure of an individual's intelligence, but "are generated by particular forms of social relationships" (1964, p. 58). While most individuals will make use of a restricted code when communicating with family or friends, especially where a context does not need to be explained in detail, or where there is a common understanding of a context, children who have only ever been exposed to a restricted code, would not have had the opportunity to acquire an elaborated code.

The following figure, being a visual representation of the fields, may assist in better understanding Bernstein's Pedagogic Device.

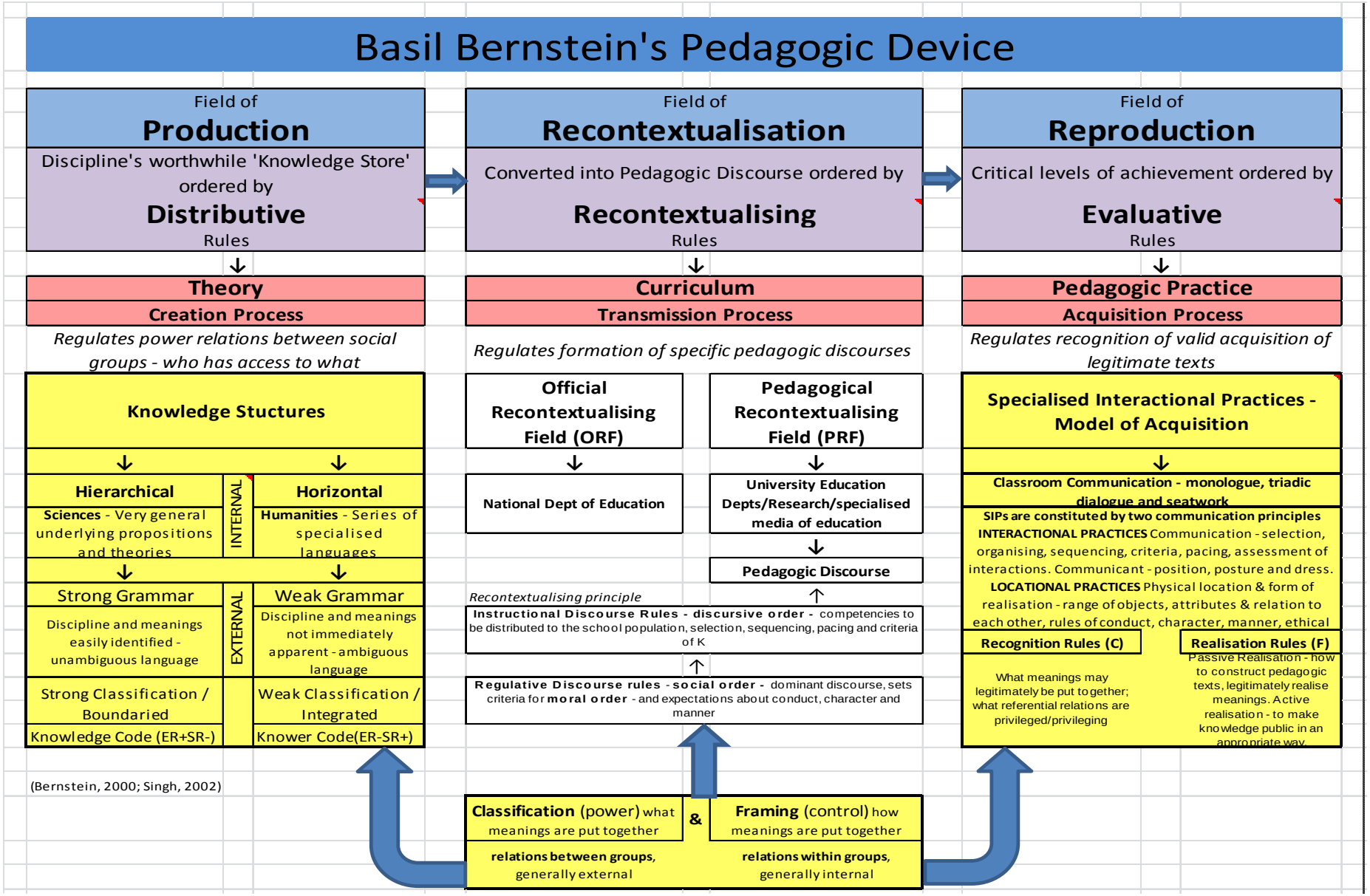

Figure 6 - Bernstein's Pedagogic Device

Bernstein explains that the concepts of elaborated and restricted codes "have not disappeared, nor have they been abandoned: they have been subsumed under higher order concepts" (2000, p. 207), I believe it is important to be aware of and be able to identify these foundational concepts when confronted with them in the course of research.

As a result of understanding these concepts I was able to describe how I use an elaborated code when teaching, and also why it is that I do so. The higher order concepts which have 'subsumed' elaborated and restricted codes are the concepts of Classification and Framing which I explain below.

Bernstein's concepts of Classification and Framing refer to the concepts of power and control found in all human interactions. In this research I am focussing on the power and control found within all strata relating to the pedagogic device and to the IA teaching programme.

> Power relations … create boundaries, legitimise boundaries, reproduce boundaries, between different categories of groups, gender, class, race, different categories of discourse, different categories of agents. Thus power always operates to produce dislocations, to produce punctuations in social space (Bernstein, 2000, p. 5).

Control, on the other hand, "carries the boundary relations of power and socialises individuals into these relationships"; so while 'power' creates "relations *between*", control creates "relations *within*" the forms of interaction (Bernstein, 2000, p. 5). Control or "framing is about *who* controls *what* … [it] refers to the nature of the control" (Bernstein, 2000, pp. 12–13).

The values of classification and framing indicate the strength of power (relations between) and control (relations within) categories. Classification refers to the "strength of insulation" (Singh, 2002, p. 578) between the categories, while framing refers to the "controls on communication" (Bernstein, 2000, p. 12). In the context of educational research, the 'strength of insulation' (classification) can refer to how easily a discipline flows into another discipline; how strong or insulated the boundaries between disciplines are. The 'controls on communication' (framing) on the other hand refers to who controls the communication within a category. Classification and framing refer to the strength of the boundaries between categories and the control within categories, as well as to the relations between groups and relations within groups. These concepts exist in and impact on all areas within the pedagogic device. The varying strengths of classification and framing will impact on the knowledge that

is shared, the curriculum that is planned and pedagogic practices that are used in this pedagogic process. The stronger the classification, the more 'isolated' the subject will be, and the less a student would be able to draw on other knowledge. The stronger the framing, the more control within the course on the part of the teacher and the less control on the part of the student.[15]

Next I will be looking at the three fields of the Pedagogic Device, the Fields of Production, Recontextualisation and Reproduction. Under the Field of Production I will also be looking at Maton's dimensions of Specialisation and Semantics, as they further develop Bernstein's theories in relation to this field.

I will first look at the fields as they are presented in theory, and then in section 2.5 I will discuss how these relate to the discipline of accounting.

2.4.1 Field of Production

The field of production is where the theory or worthwhile knowledge store of the discipline is held. Bernstein (2000, p. 157) speaks about there being two types of discourse, Vertical discourse and Horizontal discourse. Horizontal discourse is "everyday and 'common sense' knowledge". This common sense knowledge is a shared knowledge to which all or most people within a particular context will have access. Common sense knowledge is segmentally organised and differentiated, meaning that the discourse could take place in different knowledge areas (segments) and depending on where it takes place, the discourse could hold a different value. For example, knowledge about the ebb and flow of tides could be less common and could hold a lower value in a land-locked region than for a community living at the coast.

Bernstein contrasts Horizontal discourse with Vertical discourse which "takes the form of a coherent, explicit and systematically principled structure" (2000, p. 157). He goes on to say that vertical discourse is academic or 'esoteric' knowledge, and is subject to "strong distributive rules regulating access, transmission and evaluation" (2000, p. 157). These

[15] Here I have explained classification and framing using a classroom situation, although Bernstein makes the point that classification and framing exist in all walks of life.

strong distributive rules are the rules governing the Pedagogic Device and the fields of Production, Recontextualisation and Reproduction.

Given the context of teaching and learning in higher education, understanding how Vertical discourse is structured in a discipline is critical for understanding how knowledge in that discipline is distributed, recontextualised and reproduced and acquired by students. According to Bernstein there are two distinct knowledge structures within vertical discourse; a horizontal knowledge structure found more commonly in social sciences and humanities and a hierarchical knowledge structure found more commonly in the sciences (1999, 2000).

A horizontal knowledge structure consists of the "specialised languages with specialised modes of interrogation" (Bernstein, 2000, p. 157) of the specific discipline. This means that the knowledge base of the discipline grows by adding a new 'language', a new area of interest or expertise. Creating new knowledge does not necessarily imply integrating existing knowledge, but this new knowledge can often stand independently of other existing 'languages'. Within a discipline like History for instance, while a background in world history may provide an interesting perspective, it would not necessarily be essential knowledge for a scholar investigating the Anglo Boer War.

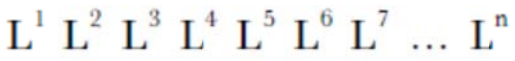

Figure 7 - A Horizontal Knowledge Structure (Bernstein, 1999, p. 162)

In Figure 7, as new knowledge is added it may to some extent integrate with existing knowledge, but it is likely to add a new 'language'.

The hierarchical knowledge structure found in the sciences consists of a "coherent, explicit and systematically principled structure" (Bernstein, 2000, p. 157). New knowledge within a Hierarchical Knowledge Structure integrates and builds on existing knowledge and is likely to deepen or extend a certain aspect of existing knowledge.

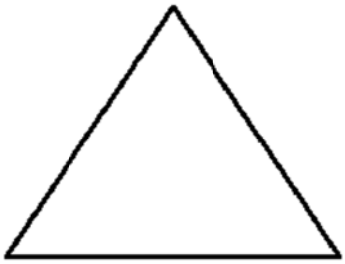

Figure 8 - A Hierarchical Knowledge Structure (Bernstein, 1999, p. 162)

In Figure 8, the apex of the Hierarchical Knowledge structure is where the established scientific concepts which contain the overarching principles are found. These are built on and ever extended by new knowledge, which extends downwards. Less commonly the established scientific concepts are changed or extended, which will result in new knowledge being added or altered at the apex of the triangle.

Hoadley and Muller (2009, p. 75) liken the concept of the "systematically principled structure" in disciplines with a Hierarchical Knowledge Structure to having an "ever-advancing conceptual spine". While there may not be "large numbers of concepts … they have long sequences of hierarchically related concepts". This means that in a Hierarchical Knowledge Structure there may be one or more threads which form a critical 'spine' or chain of knowledge from the apex of the triangle and remain an integral part of the structure of knowledge within that concept within the discipline. Muller (2009) explains the difference between the two knowledge structures by calling a Hierarchical Knowledge Structure "theory-integrating" and a Horizontal Knowledge Structure "theory-proliferating".

In a Hierarchical Knowledge Structure, "what is important is mastering the procedures of investigation and instruments of observation and understanding the theory … the only and sole pathway to 'truth'" (Bernstein, 1999, p. 165).

Muller (2006) suggests the concepts of 'verticality' and 'grammaticality' to explain the "capacity of a particular knowledge structure to progress" (Muller, 2009, p. 71). 'Verticality', explains how knowledge develops in a field; or in Muller's words relates to "*the degree of integratedness and 'subsume-ability' of theory*" (2006, p. 21). The 'verticality' of a discipline describes whether a discipline tends to have a hierarchical or a horizontal knowledge structure. Maton argues that verticality exists on a continuum i.e. that there are "degree[s] of verticality" in disciplines (2011, p. 64). There are thus an infinite number of

'degrees of integratedness' found between the two extremes. While 'verticality' has to do with how knowledge develops in a field, 'grammaticality' has to do with "how theory deals with the world" (Muller, 2006, p. 13). Grammaticality also exists to different degrees in different fields and it affects the extent to which theory can be tested or corroborated empirically.

To bring knowledge structures into a sharper focus it is useful to look at Maton's Legitimation Code Theory and in particular his dimensions of Specialisation and Semantics.

Maton's Legitimation Code Theory (LCT)

LCT: Specialisation

Maton (2000, 2006, 2010) in his LCT introduces the concept of Knowledge and Knower codes which he terms the Specialisation codes of Legitimation[16] (2000, p. 45). These codes are based on Bernstein's concepts of Classification and Framing. To better understand Specialisation codes, it is important to first understand that knowledge has two different sets of relations, one being "knowledge of the world" or 'epistemic relations' the other being "knowledge by authors" or 'social relations' (Maton, 2010, p. 43). Epistemic relations is based on the relations "between knowledge and its proclaimed object", while social relations is the relations "between knowledge and its subject, author or actor" (Maton, 2010, pp. 44 – 45).

In terms of knowledge in a discipline, if classification and framing are both strong, this would create stronger epistemic relations, while weaker classification and framing in a discipline would create weaker epistemic relations.

A combination of stronger epistemic relations and weaker social relations is known as a Knowledge Code field. In this field what is important is knowledge of the discipline and the personal characteristics of the teacher, or knower, hold little value. Equally the personal characteristics of students and how they interpret the knowledge holds little value.

Using the same principle, a combination of weaker epistemic relations (the combination of classification and framing are weaker) and stronger social relations where the 'knowledge by

[16] This dimension of the LCT may also be referred to as specialisation codes or simply Specialisation.

authors' or personal experiences or characteristics of the teacher and the student are highly valued, would be a Knower Code field.

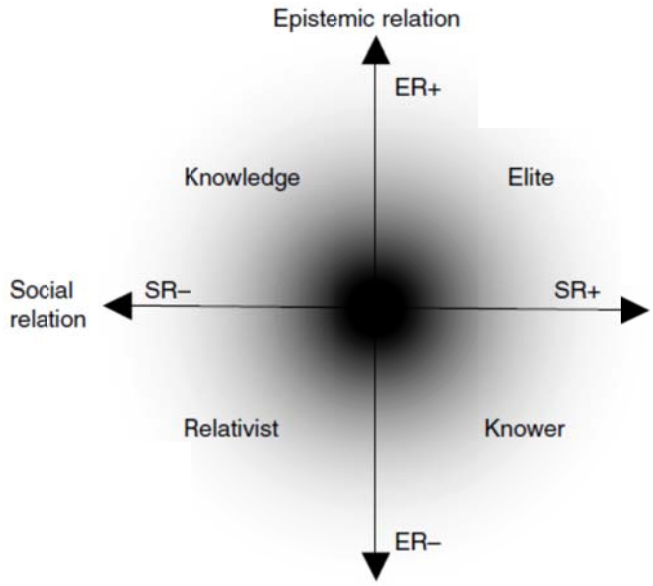

Figure 9 - Specialisation codes of Legitimation (Maton, 2010, p. 45)

Figure 9 illustrates epistemic relations and social relations and how the intersection of the two lines creates four quadrants and therefore four specialisation codes. These concepts may be a little easier to understand with this visual aid. Both epistemic and social relations are on a continuum and the relative strength of the classification and framing in a discipline will determine the strength of epistemic relations and social relations in that field.

We have already looked at a Knowledge Code field with stronger epistemic relations and weaker social relations and a Knower Code field with stronger social relations and weaker epistemic relations. The remaining two codes are an Elite Code field which values both the knowledge which an individual possesses as well as the individual's characteristics, experiences and disposition, in other words it exhibits strong epistemic relations and strong social relations. Lastly a Relativist Code field values neither specialist knowledge nor the characteristics, experiences and disposition of the knower, and has a more *laissez-faire* approach to both knowledge and the knower.

Having discussed the four different specialisation codes, Specialisation being "what makes someone or something different, special and worthy of distinction" (Maton, 2010, p. 44), it should be noted that disciplines will seldom be found neatly in the middle of any of the

quadrants. The relative strength of the classification and framing within the epistemic relations, and degree of the focus on social relations, will result in the discipline being somewhere along the continua of epistemic relations and social relations. This will depend on the discipline and could change during the various academic years within a discipline, and within a particular year depending on the given context. The specialisation code in the field of production could be different to the specialisation code in the field of reproduction.

According to Bernstein (1975, p. 90) strong classification with a relatively strong framing refers to a discipline being a "collection code", i.e. a strongly boundaried discipline and strongly controlled teaching. In an "integrated code" there would be weaker boundaries between disciplines and less control over communication in teaching. In a discipline with a collection code, there would be a "strongly classified curriculum" whereas with an integrated code, with relatively weaker classification and framing, there would be a "weakly classified curriculum" (Sadovnik, 2001, p. 691). The concepts of collection codes and integrated codes, tie in with Maton's concept of epistemic relations. A collection code would have stronger epistemic relations and an integrated code, weaker epistemic relations (Maton, 2007, p. 96).

LCT: Semantics

I have discussed strong or weak grammars, or the 'grammaticality' of a knowledge structure, and I now move on to another of Maton's LCT codes, the semantic codes of legitimation, or simply Semantics (Maton, 2011, p. 66).[17] Semantic gravity "refers to the degree to which meaning relates to its context" while semantic density "refers to the degree to which meaning is condensed within symbols (terms, concepts, phrases, expressions, gestures, etc)" (Maton, 2011, pp. 65–66). Semantic gravity therefore is a measure of how dependent on a specific context a meaning is. The stronger the semantic gravity, the more context dependent the meaning: the weaker the semantic gravity, the more abstract the meaning. Semantic density on the other hand is a measure of how much meaning is contained in one symbol, the stronger the semantic density, the more meaning is contained in the symbol (Christie & Maton, 2011). The greater the semantic density in a term, the more complex and the more difficult it may be to understand the term, particularly when it is first introduced. For instance, the principles of the accounting Conceptual Framework which follow in 2.5.1, provide a very abstract overview of what is required in financial statements and have weak semantic gravity; while a

[17] Semantic gravity and semantic density may be referred to as 'semantic codes' or 'Semantics'.

set of financial statements will provide figures which are absolutely dependent on the context which is being described and will have stronger semantic gravity.

2.4.2 Field of Recontextualisation

In the field of recontextualisation, the theory or knowledge store of the discipline is converted into pedagogic discourse. This recontextualising happens in two phases. It happens firstly through the official recontextualising field where official departments and regulatory bodies determine what will be included in the curriculum. This field is more applicable at school level. Recontextualisation also happens in a second area, the pedagogic recontextualising field where involved parties create the pedagogic discourse to be used in teaching, through educational research and the specialised media of education, the authors of textbooks, and the actual department responsible for pedagogic practice.

Pedagogic discourse is heavily shaped by the recontextualising principle within a discipline. The recontextualising principle explains how the Regulative Discourse creates the rules governing order within the Instructional Discourse. Regulative discourse has to do with the social order and has to do with "the forms that hierarchical relations take in the pedagogic relation and to expectations about conduct, character and manner" (Bernstein, 2000, p. 13). Bernstein adds that regulative discourse is the dominant discourse as it creates the criteria for the moral order. Moral order is what "bind[s] the school together in a distinct moral collectivity" (Bernstein, 1975) in (Gamble & Hoadley, 2010, p. 158). Regulative discourse can also be seen as being similar to the 'hidden curriculum' in a discipline (Hoadley, 2006, p. 17) Instructional discourse relates to the discursive order, referring to the "selection, sequence, pacing and criteria of the knowledge" (Bernstein, 2000, p. 13). However, the recontextualising principle is strongly dependent on the knowledge structure of the discipline, and could differ from one discipline to the next and also between years or between modules within the same discipline.

2.4.3 Field of Reproduction

The third field in the pedagogic device is the field of reproduction, which is ordered by evaluative rules. At its simplest level, this field consists of transmission and acquisition of knowledge and the teaching, learning and assessment activities that impact on these

processes. The evaluative rules of this field establish the "evaluation nodal points that are to be acquired, stipulating the specialised consciousness that should result" (Maton & Muller, 2007, p. 19). This is where the knowledge which is to be acquired by students is made explicit.

To enable students to acquire knowledge, they need to develop the 'gaze' required in the specific discipline. A "trained gaze" in Knowledge Code fields like the sciences is developed through "knowledge of and experiences in the specialised procedures"; in a Knowledge Code field "the possession of specialized procedures generates the gaze" (Maton, 2011, p. 77). What this means is that through learning the rules and procedures required in a discipline, a student develops the 'trained gaze' which is required for a discipline in a Knowledge Code field.

In a Knower Code field, "the gaze defines the legitimate procedures" (Maton, 2011, p. 77). In this instance, looking at the situation being investigated with a particular gaze permits the required procedures to develop.

The field of reproduction consists primarily of Bernstein's "model of acquisition" (2000, p. 16). This model explains the specialised interactional practices (SIPs), which are made up of the selection, organising, sequencing, pacing and assessment of the pedagogic interactions. Part of the SIPs is the recognition and / or realisation of legitimate text. The SIPs will impact on acquiring recognition rules – what meanings can be put together (through the power and classification principles) and realisation rules – how these meanings should be put together (through the control and framing principles). The SIPs work towards enabling a student to *recognise* legitimate meanings which is the first step to being able to *realise* or construct these legitimate texts[18] for assessment. Specialised Interactional Practices were of particular relevance to me as I attempted to identify enabling and constraining factors impacting on the success of students. These practices were examined to see how they should and could impact on the acquisition of this knowledge.

The SIPs are based primarily in the communication between the teacher and the student and communication is grounded in the principle of framing. Framing refers to who selects the

[18] "Legitimate text or meaning, any realisation on the part of the student which attracts evaluation [assessment]" (Bernstein, 2000, p. xvi).

content to be covered during the course, the sequence in which this course content should be covered, the pace at which it is covered and the criteria required for assessment. Framing, or control, refers to the degree of control the teacher and the student have over these teaching, learning and assessment practices. The strength of framing may not remain consistent throughout a programme, but could vary from one aspect of pedagogic practice to the next. For example, the teacher may have greater control over selection and sequencing, but may leave the speed or progress through the course up to the students and therefore will have less control over pacing.

Hoadley and Muller comment that "the more hierarchical a particular discipline, the more restrictions on these dimensions of framing" (2009, pp. 74–76), the stronger the framing, the stronger the control from above. Given the fixed and hierarchical nature of knowledge in the discipline of accounting, students are given little or no opportunity to control any of the aspects of the **selection, sequencing and organisation** in the course.

With regard to **pacing,** Hoadley and Muller argue that "weak framing over pacing is … crucial for facilitating access to school knowledge for working-class learners, creating the opportunity to individualize the rate of acquisition" (2009, p. 73). While this may refer specifically to working-class learners, there is no reason why it should not apply more broadly. In an Introductory Accounting class, this would mean that students are likely to benefit from greater control over the pace of their learning. Given the fixed amount of work which must be covered by the end of the semester, students have little control over pacing in this course.

Within the specialised interactional practices lie the notions of **recognition and realisation rules**. "Recognition and realisation rules are … functions of *classification* and *framing*" (Leow, Macdonald, & Hay, n.d., p. 2). "Classification refers to *what*, framing refers to *how* meanings are put together" (Bernstein, 2000, p. 12). This means that classification refers to recognition rules, determining what meanings may be put together, while framing refers to realisation rules, how these meanings are put together.

Recognition and realisation rules relate to how students understand and construct legitimate text in the subject, 'what meanings may legitimately be put together' and how they are able to "legitimately realise meanings" in set tasks. Having a clearer understanding of the structure of knowledge in accounting assisted me in identifying how students construct accounting

knowledge appropriately or inappropriately. This has allowed me greater insight into how best to assist students in constructing knowledge appropriately, and in assisting them to be able to both recognise and realise the required legitimate text.

It is possible for a student to be able to 'recognise' which meanings are relevant, but not be able to 'realise' this in appropriate (legitimate) text. The student has the understanding, but lacks the realisation rules required to communicate these legitimate meanings in an appropriate manner. For instance in calculating depreciation, a student may know that the purchase price of the assets (and whether this figure is inclusive or exclusive of Value Added Tax) and the useful life of the asset will be used in the calculation, but not know exactly what to do with these figures.

This makes more sense to me when explained in terms of the elaborated and restricted codes. Students who have been exposed primarily to a restricted code, may be able to make legitimate meanings from texts or conversations, but not have the communication skills, the framing, required to realise or construct these texts themselves in a legitimate manner.

I will now deal with the final two aspects of the SIPs, **evaluative criteria** and **assessment** together, as assessment and how you make your evaluation criteria explicit go hand-in-hand.

Assessment normally comprises two aspects, formative assessment and summative assessment. Formative assessment is when a lecture requires students to submit work with the aim of obtaining feedback which will allow the student to submit an improved version of the work on a second attempt. According to Gibbs one of the main functions of formative assessment is to "help students internalise the discipline's standards and notions of quality" (1999, p. 47). This is how a student is guided in correctly recognising (identifying) and realising (constructing) legitimate text in a discipline.

"In any discipline there are a specifiable, necessary, minimum number of incremental steps that must be pedagogically traversed, and each requires the necessary explicit evaluation" (Hoadley & Muller, 2009, p. 74). This has important implications for formative assessment of students' work as without this feedback or evaluation, students will not know whether the texts which they have produced meet the "discipline's standards and notions of quality" (Gibbs, 1999, p. 47).

Through formative assessment a student becomes aware of the criteria required in the assessment of tasks within the discipline, and s/he is able to model future texts on the knowledge obtained from the feedback.

Summative assessment is the result obtained in the final exam or according to Knight, summative assessment results in "feedout", in the form of a certificate or a pass mark; it is "high stakes" assessment, where a student's success in a particular course or module is dependent on his or her performance in an examination or test situation (2002, p. 276). Summative assessment therefore simply advises the student and any other interested parties whether the student has met the minimum levels required for progression to the following level, or for graduation. Summative assessment provides little or no opportunity for the student to learn or model future submission.

Having looked at the frameworks which have guided this research, it will be useful to now look at how these relate to Introductory Accounting.

2.5 Applying these theories to the Introductory Accounting course

2.5.1 The Field of Production as it relates to Introductory Accounting

In accounting, the worthwhile knowledge store of the discipline is the International Financial Reporting Standards (IFRSs). These IFRSs are developed by the International Accounting Standards Board (IASB), previously known as the International Accounting Standards Committee. The IFRSs contain a Conceptual Framework, which provides a conceptual overview of the Financial Statements, as well as detailed technical statements explaining exactly how Financial Statements should be compiled and presented. The IFRSs are the basis or privileged texts on which all financial accounting reporting decisions are based.

Based on the explanations of knowledge structures in section 2.4.1, I would argue that Introductory Accounting has a hierarchical knowledge structure. Knowledge in this course is guided by the overarching principles of the International Financial Reporting Standards' Conceptual Framework, which consists of the:

- Objectives of Financial Reporting
- Qualitative Characteristics of useful Financial Information
- Underlying Assumption
- Elements of the Financial Statements and Recognition and Measurement of these elements (IFRS Foundation, 2012, p. A14)

The qualitative characteristics in turn consist of fundamental and enhancing characteristics. The fundamental characteristics are:

- Relevance (the information should influence or assist decisions) including materiality (any omission or misstatement could have an impact on financial decision) and
- Faithful representation (information should be complete, neutral, free from error) (IFRS Foundation, 2012, pp. 25–26).

The enhancing characteristics for financial statements are:

- Comparability – between entities and over time
- Verifiability – knowledgeable, independent observers should reach consensus on information provided
- Timeliness – must be provided in time to influence decisions
- Understandability – by a user with a reasonable knowledge of business and economic activities[19] (IFRS Foundation, 2012, p. A24)

These abstract principles and characteristics, which are not context dependent and therefore have weaker semantic gravity, are implemented in a set of financial statements by the recording of transactions through entries consisting of debits and credits. Every transaction is dependent on the context which strengthens the semantic gravity.

These concepts have weaker semantic gravity, and stronger semantic density. This means that they are abstract concepts and are not context dependent; but that a great deal of meaning is condensed within the terms. These concepts are applicable in all contexts and are the basis on which all financial statements are prepared.

[19] From the fundamental and enhancing qualitative characteristics, it can be seen that in Financial Accounting there is one truth, this 'truth' should be comparable between businesses and over financial years and should also be verifiable.

A foundational concept in Accounting is the double entry system: for every debit there must be an equal and matching credit. The double entry system has its basis in the understanding that in every financial transaction something *gives* and something *gets*. This is the foundation of all accounting transactions. There will always be at least one debit and one credit (something would always have received (have been debited) and something would always have given (have been credited)). The total of the debits will always equal the total of the credits. This foundation of all transactions in accounting is 'integrated and subsumed' in all future knowledge. This also becomes the 'ever-advancing spine' or as I prefer to understand it, it is the chain with the many conceptual links which runs throughout Financial Accounting. The double entry system is most obvious at the IA level, while in later years as it may become subsumed by more advanced concepts it may become more implicit and less explicit.

The overarching principles, and the rules through which these principles are implemented, are situated at the apex of the hierarchical knowledge structure triangle as shown in Figure 8 in paragraph 2.4.1 above. All other chains of knowledge flow downwards and outwards from this pinnacle.

Before going any further, it would now be useful to give a brief introduction to some of the concepts covered in Introductory Accounting. This will entail moving into the Field of Recontextualisation, but I believe this will make understanding this discipline easier. Financial Accounting is about preparing Financial Statements which will be useful in assisting users in making "economic decisions" (IFRS Foundation, 2012, p. A5). Records need to be maintained with the utmost precision and according to the rules, characteristics and principles contained within the IFRSs.

Moving into the Field of Recontextualisation, within IA one of the first concepts students need to learn, is that it is critical to ensure that in every transaction, there will always be a debit and a credit and the total of the debits should always equal the total of the credits: the double entry system. The Trial Balance will later be used to ensure that these figures do indeed balance and to identify (certain) errors at an early stage.

Next the elements of the Financial Statements are introduced. The elements consist of Assets (A), Liabilities (L), Equity (E), Income (I) and Expenditure (E). Once students have understood the definitions of the various elements, they then move onto the concept of the

Accounting Equation; Assets = Equity + Liabilities. The total of a business' Assets will always equal the total of its Equity and Liabilities.

Income and Expenditure for the year will be reflected in the Statement of Comprehensive Income (previously the Income Statement), with the total Income or Loss for the year being transferred to the Equity account which will result in an increase or a decrease in the value of Equity. From there the Statement of Changes in Equity can be presented and finally the Statement of Financial Position, which is also a financial representation of the Accounting Equation (A=E+L), is presented as at the end of the financial year.

The Statement of Financial Position, previously named the 'Balance Sheet', again reinforces the 'balancing' concept as it requires figures to remain balanced, although in this instance the balancing principle would be that of the Accounting Equation, Assets = Equity + Liabilities. Although the balance sheet has been renamed the Statement of Financial Position, the original term will continue to be used in casual conversation. It is important to remain aware of the original name, as the fact that the figures must balance continues to reinforce the concept of there being one correct solution, one "sole pathway to 'truth'" (Bernstein, 1999, p. 165).

Moving back into the Field of Production, knowledge in accounting is therefore built on the abstract concept of the Conceptual Framework. It is implemented through the context-dependent 'rules of procedures' of debits and credits. In every transaction (financial event), both the Double Entry System and the Accounting Equation must apply and the debits should always equal the credits, and within that, an increase or decrease in Assets will always equal an increase or decrease in the sum of Equity plus Liabilities.

Accounts which are found in the Statement of Comprehensive Income are called 'nominal accounts'. These income and expenditure accounts will have a zero balance at the beginning of the year and at the end of the year the totals in the accounts will be closed off to the Statement of Comprehensive Income. This is where the profit or loss for the year is calculated. Accounts which are found in the Statement of Financial Position are called 'real accounts'; these are the Asset, Liability and Equity accounts. At the beginning of the year, the value of the Asset account will be the value of the Asset account at the end of the previous year, so these balances are recalculated and carried forward from one year to the next.

The process just explained is a brief overview of the Accounting Cycle which is depicted in Figure 10. The Accounting Cycle begins with a financial transaction which will result in a source document being produced. This transaction will be captured initially through a journal entry. The preparer of the journal entry would need to identify the accounts in question and whether these accounts would need to be debited or credited. The debit and credit in the journal entry must balance, and the journal entry will then be 'posted' to the general ledger and at the end of the period the figures can be balanced in a Trial Balance.

When required, but at least at the end of the financial year, a Statement of Comprehensive Income will be prepared, then the Statement of Changes in Equity and finally the Statement of Financial Position. Within Financial Accounting in a very simple form, and certainly as it is covered in IA, this is the full extent of the Accounting Cycle[20].

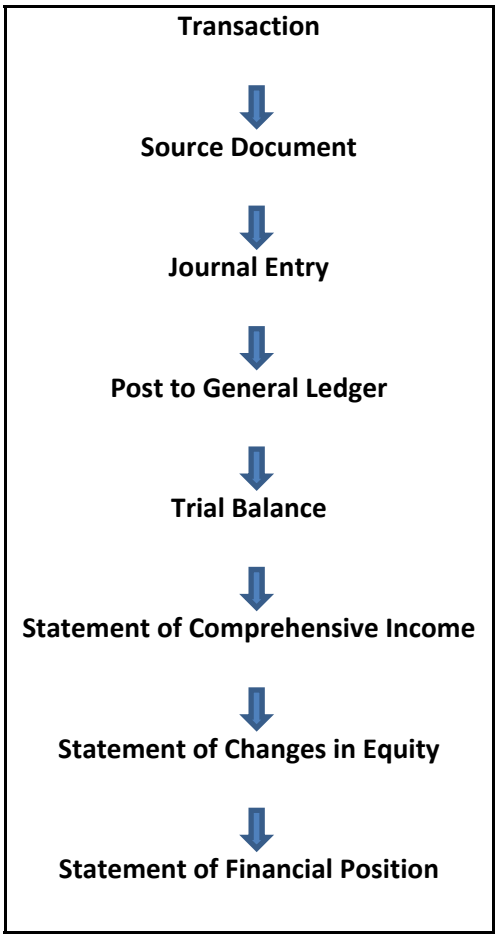

Figure 10 - The Accounting Cycle

[20] For simplicity's sake I have left out the Adjustment process as well as the Statement of Cash Flows.

Moving briefly back into the Field of Recontextualisation, students need to learn and understand under which circumstances accounts will be debited or credited. The specific accounts and the debits and credits required are seldom open to any degree of interpretation or creativity, as there is generally one correct way of processing the transaction. Students will need to know what type of element an account is (Income or Expenditure, Asset or Liability, or Equity (Personal) account) to understand whether it will be found in the Statement of Comprehensive Income, Statement of Changes in Equity or the Statement of Financial Position and whether the account is carried forward to the following year (real accounts) or whether it is closed off at the end of the year (nominal accounts).

In accounting there is one correct answer or 'truth' which should be comparable and verifiable. In the IFRSs, examples are provided of how theory should be interpreted, to limit misinterpretation of these standards. These IFRSs are compiled to ensure that all Financial Statements adhere to the same principles and qualitative characteristics regardless of where and by whom they are compiled.

Within the discipline of Financial Accounting, and particularly at the Introductory level, there is no room for creativity or self-expression, it is clear that, "what is important is mastering the procedures of investigation … and understanding the theory" (Bernstein, 1999, p. 165). When mastering the 'procedures of investigation' a thorough understanding of accounting techniques and practices need to be mastered.[21] Having achieved this, students within this course will be able to find their way to the one correct answer or solution which is required at this level.

As there is little room for creativity in the preparation of Financial Statements, and as these need to be able to be interpreted in the same way, regardless of who has prepared them, there is very little room for variation in the presentation of these statements. The definition of an item cannot be context-dependent; it must be based on the Conceptual Framework, found in the IFRSs as well as the Accounting standards and the interpretations which are provided for

[21] This means having internalised the principles of the double entry system, the accounting equation and the elements of the financial statements, which form the basis of the discipline at this level. To know without having to contemplate, that debits should always equal credits in any transaction and that assets increase on the debit side and that liabilities and capital increase on the credit side; the accounting equation.

these standards. The theoretical basis on which financial statements are prepared within accounting is abstract and therefore has weak semantic gravity.[22] The resulting financial statements which are produced, based on the figures which relate to a specific business, would, however, have stronger semantic gravity.

Semantic density is the degree to which meaning is condensed in a symbol. Accounting terms often have strong semantic density for example, a term like 'Financial Statements'. An IA student needs to learn that the Financial Statements consist of the Statement of Comprehensive Income, Statement of Changes in Equity and Statement of Financial Position.[23] The student also needs to know the underlying assumption and the qualitative characteristics which are implicit in Financial Statements. If instructed to draw up the Financial Statements for a business at the end of the period, a student should know everything that is required to draw up a full and accurate set of Financial Statements and no further explanation should be necessary.

Another example is the term 'depreciation'. Students in this course need to understand the accounting definition of depreciation, why it is calculated, how it should be applied in varying different scenarios, as well as how the actual depreciation figure for the year needs to be disclosed. All of this knowledge and meaning must be packed into a student's understanding of the word 'depreciation', which is quite different to the common sense understanding of the word. In IA a large amount of meaning is condensed into a symbol (in this instance a word or words) and this discipline therefore exhibits strong semantic density.

From this explanation it seems that accounting, like the physical sciences, has a strong grammar where "the acquirer does not have the problem of knowing whether she/he is speaking [Accounting] or writing [Accounting], only the problem of correct usage" (Bernstein, 2000, p. 163). Looking back over the last few pages with the descriptions of the conceptual foundations, terms and concepts to be acquired in IA: debits, credits, assets, liabilities, financial statements, balance sheets, it is clear that the topic is accounting.

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[22] In a lecture environment, all transactions would be completed in an abstract way. It is only when students obtain vacation employment within a firm of accountants that the context of the transactions will have stronger semantic gravity, that the context will become real.

[23] While students will be aware of the Statement of Cash Flows, and Notes to the Financial Statements, these will only be covered in the second semester.

Acquisition of this external language of description, the discourse of the accounting, is a critical first step towards understanding the discipline. Accounting therefore has strong grammaticality.

Finally, in terms of Bernstein's theories and concepts, we need to look at classification and framing, power and control, as it exists within this discipline. Classification, in the Field of Production, has to do with the strength of the boundaries between contents. In accounting, the worthwhile knowledge store is controlled by the IASB, consisting of a group of fifteen full-time board members ('IFRS', n.d.). These board members, appointed by the Trustees of the IFRS Foundation, are responsible for "the development and publication of the IFRSs" ('IFRS', n.d.), while the IFRS Foundation has as its first two principle objectives:

- to develop a single set of high quality, understandable, enforceable and globally accepted International Financial Reporting Standards (IFRSs) through its standard-setting body, the International Accounting Standards Board (IASB)
- to promote the use and rigorous application of those standards

('IFRS', n.d.)

In this discipline, the boundaries between accounting and other interest groups are strong. Power is vested firmly in the IFRS, and the appointed standard setting body, the IASB. The small group of fifteen members of the IASB and 21 Trustees of the IFRS Foundation are responsible for the development and dissemination of the knowledge store respectively and for promoting international adherence to the IFRSs. Accounting therefore shows strong classification between itself and other bodies of knowledge.

Framing on the other hand looks at control; who controls the 'relations within' the boundaries. In terms of the Field of Production, the IFRS Foundation would control the relations within the field, while the IASB is responsible for the preparation of the worthwhile knowledge store. Accounting again shows strong control or framing within the boundaries of the discipline.

As this relates to the discipline of accounting, within the field of Production, the classification, or strength of insulation between this discipline and others, and control over what constitutes knowledge and legitimate texts in this discipline's worthwhile knowledge store, are kept tightly controlled and managed by a small group of individuals within the

international bodies, the IASB and the IFRS Foundation respectively. For accounting, the field of Production, the field's worthwhile knowledge store therefore exhibits strong classification and strong framing.

Having both strong classification and strong framing means that accounting is a "collection code" (Maton, 2007, p. 96). This also means that it has strong epistemic relations. Combined with weaker social relations, this means that accounting is a Knowledge Code field. In an Introductory Accounting course, the wealth of experiences, disposition, and characteristics which either a teacher (or a student) brings to a lecture will be of little value. What is important to students in this field is the knowledge which needs to be acquired. IA therefore is a Knowledge Code field. I believe though, that as students progress through the academic years, the characteristics and experience of the teacher and the student will become increasingly valued. It could be that when students reach post-graduate level in this discipline, that the discipline will have become an Elite Code. It could be that this is a characteristic of Professional qualifications (Accounting, Pharmacy, Law). What was previously a Knowledge Code field moves towards becoming an Elite Code field as the students reach a level of specialisation within the discipline, as the professional experiences of the Knower become more valuable (Shay, 2012).

To summarise what has been discussed in this section. Introductory Accounting is a hierarchical knowledge structure, with a high degree of verticality and strong grammaticality. It has strong classification and strong framing; this means that it has stronger epistemic relations and it is a collection code. Stronger epistemic relations combined with weaker social relations means that the discipline is a Knowledge Code field. In Introductory Accounting words can contain a significant amount of meaning, so the discipline has strong semantic density and looking at the end result of the Financial Statements which are produced for a business and are highly context dependent, it can have strong semantic gravity. However, as was already pointed out earlier in this chapter, semantic gravity is weaker when considering the abstract concepts which govern the discipline.

2.5.2 The Field of Recontextualisation as it relates to Financial Accounting in general and Introductory Accounting in particular

The Field of Recontextualisation is divided into two fields. The Official Recontextualising Field, comprising of the national and local Departments of Education and their research; and the Pedagogic Recontextualising Field, comprising of university departments of education and their research, as well as publishing houses involved in journals and textbook publication (Singh, 2002, p. 576).

The focus in this study lies more with the Pedagogic Recontextualising Field as apart from the granting of accreditation for the degree through the South African Qualifications Authority, there is little influence on the Introductory Accounting course from official or government agencies.

Within the Pedagogic Recontextualising Field, particularly as far as it relates to the four year Chartered Accounting (CA) programme, the regulatory body nationally is the South African Institute of Chartered Accountants (SAICA). In terms of the four year accounting curriculum, SAICA is responsible for "upholding professional standards … by delivering competent entry-level members" (SAICA, 2008). SAICA is responsible for the setting of the Initial Test of Competence and the Assessment of Professional Competence.[24]

The requirements for the four year CA programme dictate the content to have been covered by the end of the fourth year, when the Certificate of Theory in Accounting (CTA) examinations are written. The CTA examination is each institution's exit qualification for the four year programme. More importantly perhaps, passing the CTA examination is a prerequisite for students who wish to be able to write the Initial Test of Competence (ITC), previously known as QE1.[25]

[24] The Assessment of Professional Competence will be written for the first time in 2014. The Initial Test of Competence has replaced Part I of the Qualifying Exam and the Assessment of Professional Competence will replace the Part II of the Qualifying Exam.

[25] Only students who have been successful in the institutionally set and assessed CTA exams are permitted to write ITC the following year. Pass rates in the ITC are critical and are seen nationally and institutionally as a measure of each Department of Accounting's 'success' in terms of teaching.

Only "SAICA Accredited programmes" (SAICA, 2013a) are permitted to offer the fourth year programme which permits admission to the ITC. This means that Departments and Schools of Accounting work hard to retain a Level 1 accreditation.[26]

The pass rates of the ITC examination are scrutinised by SAICA, and the Departments or Schools of Accounting at the various higher education institutions are held accountable for low pass rates. These Departments or Schools of Accounting could equally be criticised for high pass rates. Low pass rates could be a result of poor teaching or departmental management and Departments could be subjected to a SAICA Audit to investigate possible causes for these low pass rates. Equally, high pass rates are scrutinised as it could be that a Department is failing students at the CTA level, to ensure that they are not eligible to write the ITC and that they will therefore not impact negatively on the Department's pass rate. This means that departments walk a very fine line when making decisions about passing and failing students at the fourth year CTA level. The subsequent ITC pass rates become critical for the perceived success of the department, both nationally and institutionally. Students may make decisions on where to study for a fourth year, based on these pass rates.

It is important to look at what needs to be covered at the fourth year in the professional qualification as this puts downward pressure on what needs to be covered in previous years. This means that although there is some flexibility in the curriculum to be covered in the first semester of the first year, this is limited. It is critical that students have obtained the skills and expertise required to continue into, and be successful within, the second semester and ultimately to have laid a foundation which will permit success in the second, third and fourth years.

The Pedagogic Recontextualising Field would be where the authors of textbooks decide what is most sensible to cover at first year level. These decisions would be based on the 'procedures of investigation' which need to have been mastered by the end of the first year, given what needs to be covered during the second, third and fourth years; with the fourth year outcomes having been determined by SAICA.

[26] There are three levels of accreditation: Level 1, Accredited; Level 2 – Accredited, needs improvement; Level 3 – Accredited, subject to meeting SAICA requirements.

Within the Pedagogic Recontextualising Field however, there is some freedom in terms of how the course is presented to a particular group of students. What is important at the end of the semester and at the end of the year is that students should have acquired the required skills and knowledge. The strength of boundaries (classification) between IA and other disciplines remains strong and framing in this particular course still remains strong, but is weaker than the framing seen at the fourth year level.

While teaching in an introductory accounting programme would generally be planned around the prescribed textbook – which would have been chosen by the Course Co-ordinator or Lecturers within the Department - the presenter of the course is likely to have a degree of freedom to change the order of the chapters or to add to or omit sections of a chapter, if these changes are done for good reasons. The pace at which the chapters are covered can also be decided by the lecturer, bearing in mind the constraint of the total amount of work which needs to be covered in the semester or year. What is important is that by the end of the semester students should have covered what is required to progress into the second semester and that by the end of the year students have mastered the procedures of investigation and have started developing a trained gaze which will be necessary for future years.

A selection of first year Financial Accounting textbooks is not likely to show significantly different topics to be covered, but the pedagogical style may differ. Some books emphasise a storyline, others have chapters which have no common theme, while others are more like a series of tutorial exercises. The topics which need to be covered, and how students should be able to present this acquired knowledge, will not differ significantly. Given the strong classification in the field, knowledge in Introductory Accounting is not disputed in any significant way. The framing of that knowledge, how it is made available to students, may vary but the outcomes expected from students will not differ significantly from one textbook to another.

Textbooks are usually planned to ensure that topics are covered in the most sensible way, with topics being covered in the order which the author considers most suitable for the cumulative learning required in this course. In terms of the textbook used in this course, which is one I selected about four years ago, I usually make a slight change to the order in which the textbook is taught. I start the year with the Chapter 4, which is the chapter on the conceptual framework which was described in some detail at the beginning of 2.5.1, to ensure that the matric accounting students have something new to work on, while ensuring the NAS

are able to understand the work which is being covered and that these students are starting to reach a basic understanding about the practical aspects of the subject.

The instructional discourse and regulative discourse are found within the Pedagogic Recontextualising Field. The regulative discourse, as the name implies, regulates the instructional discourse and is therefore the dominant discourse. The regulative discourse shapes "conduct, character and manner", while the instructional discourse refers to the discursive order (Bernstein, 2000, p. 13). While Gibbs may have been referring to formative feedback, his comment of "help[ing] students internalise the discipline's standards" would equally apply to the regulative discourse in this course (1999, p. 47).

Once again this discipline exhibits strong classification and strong framing in terms of the regulative discourse. While I try to create an environment which is as relaxed as possible to encourage student learning, there are certain expectations. Students are expected to be on time for lectures and will be asked to leave if they arrive more than 10 minutes late. They are expected to sit properly in their chairs and sitting with their feet on other chairs is not tolerated. This is to help instil a professional manner in our students, as required by SAICA.

There is equally strong framing in terms of attendance of our tutorials and the completion of assignments. The attendance of all tutorials is compulsory, while the completion of all assignments - given the hierarchical nature of the discipline and the cumulative knowledge-building which is found in a Knowledge Code field - is compulsory for the same reason. In a very real way I am working towards training our students for what would be expected from them in the accounting workplace.

In terms of the instructional discourse, as much as I try to make the lecture environment as relaxed as possible it still takes place within a relatively formal and traditional layout. While we will occasionally do group work, and while I work toward creating an interactive lecture environment using triadic dialogue[27] wherever possible, on the whole I will be in the front of the lecture theatre, and students will be sitting facing me.

Within the Field of Recontextualisation, the boundaries between accounting and other disciplines are again very strong. There is no overlap between what is covered at

[27] This is also known as IRF or IRE where a teacher initiates a question, the student responds, and the teacher evaluates that response.

Introductory Accounting level and what is covered in any other discipline at first year level. Items in the curriculum which need to be covered at every level are relatively fixed as these will generally become the foundation for the following year's work. At third year level, for instance, topics which are covered may be tested in the ITC.

The curriculum at Introductory Accounting level needs to cover the basics of accounting, to allow students to move on to more detailed concepts in the second semester. There is some flexibility in terms of which more advanced items can be covered in the first semester and what can/should be covered in the second semester.[28] Equally, how the planned curriculum is delivered is not strongly framed.

In summary, the field of recontextualisation as it relates to the Introductory Accounting course has strong classification and strong framing regarding the curriculum which is fixed at fourth year level and creates downwards pressure on the earlier years. In the pedagogical recontextualisation field framing is still strong, but it may be slightly weaker given that there are some choices which can be made.

The discipline's standards are reinforced through regulative discourse in the form of behaviour in the lecture theatre and in adherence to the course's requirements of tutorial attendance and assignment submission.

Next I move on to the Field of Reproduction, where the Model of Acquisition is located.

2.5.3 The Field of Reproduction as it relates to Introductory Accounting

I have already discussed the field of Introductory Accounting having a strong degree of verticality and evincing a Knowledge Code field; what is important in the discipline is the knowledge which needs to be obtained. I have also spoken about accounting knowledge having strong classification and strong framing, being a 'collection code' or "the epistemic relations to the knowledge structure [being] central to the field" (Maton, 2007, p. 93).

[28] An example would be that some Introductory Accounting courses may cover Property, Plant and Equipment during the first semester, but this is something we only cover during the second semester.

Some tasks which students have to carry out need to become automated as they become proficient in the various sections. This issue of the 'automation' of tasks was raised by Saloman and Perkins in their paper on *"low-road transfer"* and *"high-road transfer"* (1989, p. 113) [italics in original]. In 'low-road transfer' there is an "automatic transfer of highly practised skills", while in 'high-road transfer' there are "consciously formulated abstractions" (1989, p. 118). Mastering the "procedures of investigation" (Bernstein, 1999, p. 165) is the basis of how students develop "low-road transfer" (Salomon & Perkins, 1989, p. 118).

Teaching and learning activities relating to a particular topic occur in three cycles in this course. The topic is first taught in class and relevant introductory examples are completed. The same topic is then covered during a tutorial session, where students have the opportunity to interrogate these issues in greater detail and to complete more advanced questions on the topic. These are the "incremental steps that must be pedagogically traversed" (Hoadley & Muller, 2009, p. 74). Incremental steps are required both for the level of difficulty within each topic, but also given the hierarchical nature of the course, to lead students from one topic to the next. Finally students will be required to complete an assignment, which will guide them in determining whether they have acquired both the recognition and the realisation rules required to construct legitimate text in this section. Formative feedback on these assignments from their tutors will guide students further in deciding whether they have acquired the 'trained gaze' required and in helping students to internalise the discipline's standards and notions of quality" (Gibbs, 1999, p. 47).

To be successful in this discipline it is necessary to develop a "trained gaze" which is generated by the discipline's rules and specialised procedures (Maton, 2011, p. 77). A trained gaze is developed through the regular completion and practising of specialised procedures, in the form of engagement in the weekly tutorials and completion of the weekly assignments which are set and on which essential formative feedback is provided. Understanding and practising these procedures will lead to an IA student being able to read a question and identify what is required, which should allow highlighting of the relevant information in the question; this is the "trained gaze" which is required. Developing a trained gaze will allow realisation of legitimate text.

Being a discipline with a high degree of verticality which would have "long sequences of hierarchically related concepts … getting stuck at any rung of the hierarchy usually means that conceptual learning stops" (Hoadley & Muller, 2009, p. 75). This means that students

need to have access to experts who can assist them when they experience difficulty somewhere within the hierarchy. Inter-active lectures where student participation is encouraged and actively sought, is the first opportunity to assist when students are stuck. Assistance is also provided in the form of small-group tutorials, where students can pose questions and receive feedback in an environment less intimidating than a large-class lecture. The small-group tutorial allows for increased control on the part of the students, and therefore has weaker framing. Students also have the option of posing questions on-line in the Discussion Forums which again has weaker framing, but additionally provides the opportunity for fairly prompt feedback on problem areas and has the additional benefit of many other students having access to understanding how to deal with that particular problem. Many student residences on campus have academic mentors, and as a final resort students can ask questions of their mentors if they experience difficulty with a concept. Interaction with academic mentors is likely to also take place in an environment with weak framing.

I have previously noted the significantly different prior academic experiences of students in this course, and reasons for registering for this course, but it may be worthwhile repeating them here. 60% of the students registered for this course have already passed a Grade 12 level accounting examination. The standard of teaching experienced by and the level of engagement from these students while at school would have varied significantly. Only approximately 40% of the cohort of students each year intend following the professional four year qualification, and have both the extrinsic and intrinsic motivation to pay serious attention to the subject and to what they need to do to be successful in accounting. Almost 50% of this cohort is registered for the subject as it is a pre-requisite for their degree. This diversity of interests in the communicants and given the large class size, makes teaching this group a challenge.

Regarding the Specialised Interactional Practices (SIPs), the teacher has control in terms of selection of the textbook(s) and sequencing of the course content, pacing and assessment of student learning, as long as students are prepared academically for the second year of study. Given the rigidity of the curriculum and the fixed time in which the content needs to be completed, students have very little control over pacing within this course. While research speaks about the control over pacing of acquisition being essential for working class students (Hoadley & Muller, 2009, p. 73), as 40% of these students have not before studied

accounting, they are dealing with terms and concepts as foreign as an elaborated code must be to scholars more accustomed to a restricted code so the same principle should apply.

The strong control on the part of the teacher, suggests that there is strong framing in this course. The curriculum is fairly fixed due to the SAICA curriculum, the hierarchical nature of accounting and therefore the flow of the chosen textbook. This means that both classification and framing within the course are strong. There is a fairly hierarchical line of authority and therefore control within the course.

Students who register for the IA course all have significantly different reasons for being part of this class, they would be registered for very different courses and would have vastly different experiences of accounting prior to becoming part of this group. This is quite unlike the fourth year accounting students, where the reasons for being in the class would be similar, they all intend following the CA route, the fourth year students would be studying the same courses and should have exactly the same goal, i.e. to become Chartered Accountants.

SIPs impact on a student's ability to acquire both recognition and realisation rules; what meanings can be put together and how these meanings are put together. In accounting terms, acquiring recognition rules means that a student knows which figures are important in a given scenario, and is able to highlight or mark them as being relevant; while acquiring realisation rules means that the student is able to put these figures together in the required or legitimate format to demonstrate understanding.

In summary, Accounting is a discipline which requires a student to develop a 'trained gaze'. This trained gaze is developed and generated through practising the specialised procedures required to become familiar with the accounting practices. This practising takes place during lectures, tutorials and during the completion of weekly assignments. It is important that students attend all lectures and tutorials to ensure that they are taken through each of the "incremental steps that must be pedagogically traversed" and to ensure that they do not get stuck on any rung, with the resultant halt in learning (Hoadley & Muller, 2009, p. 74). At the same time students need to be able to access "low-road transfer" (Salomon & Perkins, 1989, p. 118) when answering questions, so that they can reason through more complex issues being asked, and not focus on the basics like, for example, what should be debited and what should be credited.

Practising the procedures of investigation will allow students to develop a trained gaze and to access low-road transfer. This in turn will permit students to realise the legitimate text necessary to be successful in the course, and to proceed into future years.

Having looked at what it is that students need to do to be successful in this course, it was important to obtain students' perspectives on how they approached their studies to understand what it was that they did appropriately or inappropriately. Next I will examine my research methodology. I discuss the selection of participants, data generation, including student perspectives on their learning, and analysis of the data.

Chapter 3 - Research Design and Methodology

3.1 Introduction

Research is a journey of exploration into the unknown. Previous travellers may have had glimpses of the terrain from different angles, but it often felt to me that I was the first person to be walking this path, with these tools. While I had an approximate idea of where I wanted to be heading, I found there were often unplanned and sometimes extended detours in my journey. I sometimes wondered whether I was still moving in the right direction, or indeed whether I was moving at all. Such was my research journey.

Given the hierarchical nature of the structure of knowledge in accounting, I am accustomed to the 'rules [of a discipline] generating the gaze'. I like to have a clear set of rules, a very clear context, before embarking on any new challenge and that was certainly true for this research. What I was looking for was neatly labelled boxes into which I would be putting my clearly identifiable student comments; but neither box nor label immediately revealed themselves.

This journey was, however, a journey of immense learning and growth, of seeing and understanding my students, and *their* journey through Accounting, in a very different light.

3.2 Aims of the study

The aim of this study was to understand what the nature of knowledge is in the Introductory Accounting (IA) course at Rhodes University and how students construct knowledge in this course. I also wanted to know whether students who had studied accounting at school construct knowledge differently to novice accounting students, and to identify what enables and constrains students in realising legitimate texts.

In reviewing existing research into knowledge structures I noted that IA has a hierarchical knowledge structure. Being aware of the knowledge structure in a discipline has significant implications for understanding how the course should be presented to students and it is critical for how students should construct knowledge in this course.

The second part of this research project was focussed on investigating how students construct knowledge in the discipline to understand in what way some students construct knowledge differently and perhaps inappropriately. Additionally I wanted to investigate what allows students to obtain recognition rules and realisation rules. Acquiring realisation rules would allow students to construct the legitimate answers required in assessment.

To enable me to investigate how students obtain recognition and realisation rules, I asked the entire 2011 Accounting 101 class to complete a questionnaire which I had posted on-line (see Appendix 4). The feedback from this questionnaire gave me some idea of the type of responses I could get from the interview participants and allowed me to start thinking about areas which I could probe. In the questionnaire, students were also asked whether they would be interested in participating in the interview part of this project. From those who indicated an interest in participating in the interview process, I interviewed a group of thirteen students from this class to obtain their insights into the structure of knowledge in IA, how they constructed knowledge in the discipline and how they constructed legitimate texts. I also wanted to know what this cohort of students felt were enabling and constraining factors during this course.

Having obtained these responses I next analysed how students attempted to construct legitimate texts, in an assessment scenario, by examining their June examination papers. This gave me the opportunity to assess whether their interview responses were supported by the answers provided in the examination. To equip myself in analysing the student examination responses, I first examined the questions which had been set, to determine a degree of difficulty for each question. In Introductory Accounting, given the hierarchical nature of the knowledge structure, the difficulty levels are layered and one level of knowledge provides access to the next, often more complex, level of knowledge.

This research was undertaken not only to gain a better understanding of the structure of knowledge in Introductory Accounting, and to understand how students construct knowledge in the course, but also to inform teaching and learning practices in the course, to better assist struggling students.

3.3 Research Orientation

3.3.1 Values underpinning the research

This research is framed within a Critical Realist paradigm. This means that I believe that there is a structured, stratified reality which is always changing (Danermark *et al*., 2002). Within a critical realist frame there are three levels of reality: the Real, the structures and mechanism which frame reality; the Actual, the events which occur, whether we are aware of these events or not; and finally the Empirical, the experience of the event.

The knowledge structure of a discipline exists at the level of the Real. This knowledge structure has an impact on teaching and learning events which are planned, (which take place at the level of the Actual) and therefore on the experiences of (in particular) the students who are registered for the course. These experiences of constructing knowledge occur at the level of the Empirical. It was for this reason that it was important to conduct interviews as part of this research project. It was only through an interview that a deeper insight could be obtained into how students experienced and understood the process of learning and of making sense of knowledge in this discipline, fallible though this understanding may be. This was an opportunity to gain students' varying perceptions of their experiences of the events generated by these structures and mechanisms.

3.3.2 Relationship between the researcher and the researched

I have been lecturing on the Accounting 101 programme at Rhodes University since 2007. I have also been the Course Co-ordinator since 2007. While I have also taught on the Accounting 102/112 programme, my main teaching focus has been in the Accounting 101 programme and in helping students bridge the gap from school to university. It was my concern about the mediocre pass rates in the Accounting 1 year that led to this research.

While "power sources outside the interview situation" (Wengraf, 2001, p. 197) could have been a problem, students would have become accustomed to seeing me during lectures, and possibly chatting to me after a lecture, but the interview process would have been quite different to our normal interactions. From the number of volunteers who offered to

participate in the interview process (66 out of 121 respondents) and from their relaxed manner and language during the interviews, I don't believe this was a significant problem. In spite of the interviews being conducted in a different environment and the presence of a voice recorder, most students seemed to settle into a reflective mode quite quickly and seemed very willing to share their thoughts and experiences.

I often discuss the value of student feedback during my lectures, as I usually ask my students for feedback on the course and on my teaching twice in the first semester. Prior to handing out feedback forms I list changes which have been made to the course as a result of feedback received from previous years' students. I always provide students with a summary of the feedback which they have provided, once I have received this. This may have convinced participants that their thoughts and experiences were valuable to me and it may have encouraged them to participate and to be relaxed in the interviews.

3.4 The study

3.4.1 Context

Accounting 1 at Rhodes University is a prerequisite for many undergraduate degrees within the Commerce Faculty. Accounting 1 is divided into the first semester Accounting 101, and the second semester 102 (for a continuing credit) and 112 (for a terminal Accounting 1 credit). According to research I conducted in 2008 four out of every ten students registering for Accounting 101 had not taken accounting at school and six out of every ten students did not wish to major in Accounting, but had registered for it as it is a prerequisite for their degree (48%), or because they thought it would be an interesting course (12%).

3.4.2 Unit of analysis for this study

In this study I was looking at the structure of knowledge in Introductory Accounting and how students constructed knowledge in the course. The unit of analysis was 'accounting knowledge', either in how it was structured, or in how it was constructed by students. It is important to be aware of the unit of analysis when conducting research in the social sciences,

to ensure that the researcher remains guided by the research goals, otherwise it would be easy to shift focus from the unit of analysis to studying another interesting aspect of the research.

3.4.3 Analysing 'accounting knowledge'

In analysing this interview data, I was looking for any descriptions about how students made sense of understanding the discipline, how they studied, how they revised, how they made sense of new knowledge, how they constructed solutions. I was also interested in what they thought was the foundation of knowledge in IA and what they felt were the easiest and most difficult topics, and why.

3.5 The interview process

As I needed to hear from students what they understood about the nature of knowledge in accounting, how they constructed knowledge in this course and whether they developed a 'trained gaze', I felt that a semi-structured interview would be the best method of obtaining this information.

In a semi-structured interview participants are asked the same questions, but the interviewer has the opportunity to probe responses to obtain additional information or clarification on a topic. This has the added benefit of responses to questions being comparable which can help with the analysis phase.

3.5.1 Questionnaire and request for volunteers

During the third term of 2011, all Accounting 1 students were invited to complete a questionnaire asking for feedback on their "study and learning approaches"[29] in this course. Students were also asked to indicate if they wished to make themselves available as participants for the interview stage of the research.

[29] This questionnaire can be found as Appendix 3 and was developed for this research and is not related to any existing "approaches to learning" questionnaires.

Additionally, all students who were registered for Accounting 101 and who had failed to obtain the sub-minimum (in this case 35%) required to continue into the second semester were also invited to participate. There were 48 students in this category. It appears that those who were not permitted to continue with Accounting in the second semester, as a result of poor results in the June examinations, elected not to participate in this survey as no responses were received from this category of students.

An on-line questionnaire was completed by 121 respondents[30]. The questionnaire was useful for giving me a sense of the sort of responses which might be forthcoming from participants. It was also useful for confirming and shaping my interview questions. The questions provided other useful information for verifying students' comments on hours spent revising or on lecture, tutorial or assignment preparation. Interesting comments made by participants in the questionnaire were discussed further during the interview process and were therefore included in the interview transcripts.

3.5.2 Stratified purposeful selection of participants

From the 121 respondents, 66 volunteered to participate further in interviews. From this group of 66, fifteen students were selected to be interviewed. To ensure that I obtained a wide range of responses I used a stratified purposeful sampling approach. Stratified purposeful sampling, according to Patton (2001, p. 240), is useful to capture "major variations rather than to identify a common core, although the latter may emerge in the analysis", while Wengraf says that it "facilitates comparison" (2001, p. 102). Identifying the variations and being able to compare responses, I was able to gain some understanding of how some students on this course were successful and others were not. Using stratified purposeful selection I chose the fifteen participants by identifying five students from within each of three academic bands; 'very successful' students, 'moderately successful' students and 'less successful' students. This purposeful, stratified selection allowed me to compare levels of academic success against the various methods of constructing knowledge to determine whether there were commonalities and to identify differences.

[30] See Appendix 4 for a sample of the questionnaire.

Broadly speaking the 'very successful' students obtained 70% or more as a final mark for Accounting 101, 'moderately successful' students obtained between 50% and 69% and 'less successful' students obtained between 35% and 49%. At no time were students informed of there being any groupings in this research and they should therefore have had no awareness of being seen by the researcher as being anything other than someone who participated in the Accounting 101 programme during that particular year.

Participants 1 – 5 were 'less successful', participants 6 – 10 were 'moderately successful' and participants 11 – 15 were 'very successful'. The "participants" who had been numbered 2 and 9 did not respond to invitations to set a date and a time for an interview, despite reminders being sent out and therefore did not form any part of the interview portion of this research.

Within each of these three bands I endeavoured to have an equal mix of Novice Accounting Students (NAS) and Matric Accounting Students (MAS) as well as between female and male students, and black and white students. Unsurprisingly, but equally unfortunately, no NAS in the 'less successful' category volunteered to be interviewed.[31] Two students from this category, who had completed the questionnaire, but had not offered to be interviewed, were approached and asked if they would be interested in being interviewed. This was to ensure that there were adequate responses from NAS in this group, which is where my particular research interest lay. Although both students agreed to participate, only one responded to my requests to set a day and a time for the interview and only one participant in this category was therefore included in the interview portion of this research.

While I would have preferred only to have interviewed students who had volunteered to participate, and to have interviewed more NAS, it seems that the psychological burden of not having passed the course meant that some students chose not to participate, or perhaps felt that their contribution would not have added value. As the research progressed it became clear that the similarities which existed between participants were based primarily on their level of success in the course, and were less dependent on whether the student had studied accounting at school or not. I therefore believe that neither the validity of the data nor the

[31] I believe this was because these students could have been demotivated by the experience of Introductory Accounting, and may have believed that their contribution would not have been useful, despite my explanation to the contrary when introducing the research to students during lectures.

conclusions which were reached have been compromised in any way as a result of a limited number of NAS participants, although more NAS participants may have resulted in richer data.

3.5.3 Interview questions

Prior to the interviews taking place, students who had indicated their willingness to participate in an interview were contacted and a time and date for the interview agreed upon. Interviews followed a moderately structured depth interview model[32] (Wengraf, 2001, p. 60). Instinctively I had contemplated what Wengraf refers to as Theory Questions[33] (2001, pp. 61 & 62) and based on what I wanted to find out I had designed Interview Questions.

When taking my proposed questions to my supervisors for approval, additional over-arching questions regarding enabling and constraining factors were included. The follow-up questions to these included issues around Bernstein's specialised interactional practices, i.e. selection, sequencing, pacing and assessment. I was now consciously building my Interview Questions around my Theory Questions. The interview questions are attached as Appendix 2.

The interview was designed to be semi-structured and according to Wengraf this suggests "a certain degree of standardisation of interview questions, and a certain degree of openness of response by the interviewer" (2001, p. 62). While at the beginning of the process I was open to the possibility of changing the structure of the interview, being a new researcher I felt that I needed the security of as much structure as possible initially and apart from where this is explicitly discussed, the structure was not changed.

3.5.4 Framing the Interview

Wengraf speaks about the importance of how the interview is 'framed' for the participants (2001, p. 192); the importance of the researcher's interaction with the possible participants

[32] Wengraf (2001) speaks about lightly and heavily structured interviews and these interviews fell somewhere between the two.

[33] Theory Questions are questions which are linked directly to the theory which is being used. In this case it would be questions around how participants 'constructed knowledge' or developed a 'trained gaze'.

from initial contact. In my e-mail posted on the Accounting 102 RUconnected site, I asked students to assist in research which would 'guide' and 'assist' future students. (See Appendix 3.) In my formal introduction to the interviews I advised participants that "there are no correct or incorrect responses. I am really just trying to understand how you made sense of the accounting module. How you made sense of knowledge in accounting … it's just a matter of getting your perspective" (Participant 1 interview transcript).

In the reminder e-mail sent to the participants the day before their interview, I deliberately adopted an informal manner, "Just confirming our meeting tomorrow at 09h00 am. Room 301, Department of Accounting. See you then. :-) Peta". (Email to Participant 15 on 22 September 2011 at 13h49.) While I could not overcome all of the participants' reservations and anxieties about participating in the interview process, I tried to make the period prior to the interview as informal and relaxed as possible.

3.5.5 Management of the technical aspect of the Interviews

Preparation for each interview was important to ensure that the interview was conducted in a professional manner, without interruptions and without technical failures; and to ensure that the relevant information was obtained from the participants who had given up valuable time to be part of the research project. For this reason careful attention was paid to the "technical management" of the interviews (Wengraf, 2001, pp. 191–193).

Prior to the participant arriving I posted a notice on my door asking for no interruptions as a meeting was in progress. My office telephone was taken off the hook, my personal cellphone was put on silent (and away from the recording device), the digital recording device was checked to ensure it was functioning, that there was space for the interview to be captured and that the battery was not running flat.

The relevant consent documentation was ready for completion and signature and I had reviewed the participant's comments in the questionnaire. I also ensured that the Question-Schedule (Wengraf, 2001, p. 193) was on hand. This documentation can be found as Appendix 1 and 2.

3.5.6 The Interviews and process of transcribing

Interviews were scheduled for and completed within the first two weeks of the fourth term of 2011. During the interview I employed "active listening" techniques (Ruane, 2005, p. 152) to encourage the participants. Wengraf adds that it is important to maintain "double attention" (2001, p. 194), to listen to the interviewee while paying attention to how the responses were related to the research question.

During the interview process I practised "reinforcement and feedback" (Patton, 1990, p. 329). For example in the interview with Participant 6, I noted "So you read through the textbook, make sure you know your definitions, you discuss it with other people, you relate it to real-life scenarios…". I also used "idiolect" (Wengraf, 2001, p. 64) where appropriate to get a student to explain a concept. For example when Participant 11 spoke about using a "recipe" to explain the process through which he would, for example, calculate depreciation, and I was trying to get him to identify the accounts required in the calculation – based on the accounting equation - I asked what the "ingredients" for the recipe would be.

After each interview I took a couple of minutes to reflect on the interview and the participant and to jot down any thoughts I had which could be relevant to the research.

I transcribed the first interview immediately after the event. This allowed me the opportunity to reflect on my interview style, to recognise nervous tendencies which I had, which resulted in not listening to the participant and in some instances actually cutting off the participant's comments, and to learn to relax a little more during the interview. Transcribing the interview myself also allowed me to reconsider the order in which some of the questions had been asked as they had not flowed smoothly during the interview and I was also able to identify interview questions which were important but had initially been overlooked (Ezzy, 2002). This resulted in an additional question on 'control' being added and questions on basic concepts and building blocks being combined into one question.

The interviews were recorded digitally and I personally transcribed these manually using transcription freeware obtained on-line called Express Scribe. Immediately after the interview process was over, the digital file was downloaded onto my computer and a backup copied onto a second off-site location for safe-keeping. Interviews were transcribed as soon as possible after the interview, usually within a day or so, to ensure that the interview was

still fresh in my mind. After transcribing the interview, I checked the transcript against the electronic recording of the interview and made corrections where necessary.

The transcript was then e-mailed to the participant for verification and I also used this opportunity to ask additional questions which I felt were necessary or which had not been covered satisfactorily in the interview. Asking follow-up questions was particularly relevant for the first two interviewees who had not been asked the question about control, as this only occurred to me during the third interview. All interview transcripts were returned to the participants for verification within six days of the interview, with most transcripts being returned within three days of the interview.

Participants were given ten days in which to provide feedback on the transcript. Any corrections were made directly on to the original transcript. This version of the interview became my "Version Zero" (Wengraf, 2001, p. 213) which was used as the basis for all further research. Additional comments made by a participant after the interview, were added to the end of the transcript, with a note clarifying how the additional comments were made.

Where student comments have been quoted, this has been done by using a 'P' followed by the student's participation number.

3.5.7 Use of participants' June examination papers to examine how participants constructed solutions

Participants' June examination scripts were examined to understand how solutions were constructed. This allowed me to evaluate whether students showed evidence of obtaining mastery over the 'procedures of investigation' leading to these students developing a 'trained gaze'. I was able to see whether the participants had acquired recognition rules and/or realisation rules. I was therefore in a position to correlate what the participants had said during their interview, with what they had actually done during the examination. It is also possible that participants may have started developing recognition and/or realisation rules between the time of the June examination and the interviews which were held in September of that year.

As I had not obtained permission to examine participants' examination scripts at the time of the interviews, special permission was obtained from participants later in the process to

utilise these examination scripts as part of this research as well as to comment on their academic progress. The relevant permission was obtained from all participants.

3.6 Data Coding and Analysis process

I initially coded all data using NVivo and found this to be fun but initially challenging. I had no prior experience of coding and I had no idea how and where to start. Using my questions to the participants as a guide, I started off with the main themes or ideas that had arisen during the interviews, and as the coding progressed, I added sub-themes where this seemed useful. During the process I found that some themes were similar and I would merge these 'nodes', I also found that some sub-nodes were actually independent nodes and these would be moved as well. I was reverting back to my familiar territory of creating rules to assist me in analysing the data; to assist in developing a trained gaze.

Finding a sensible way to turn these many nodes of information into a form which would assist me in answering my research questions, proved to be problematic and I spent a year looking at my coded data and not making any progress. What had happened was that the "richness" of my data had been lost through deconstruction (Ezzy, 2002, p. 132) and it had lost meaning.

With a new pair of eyes, a second attempt at analysing my data resulted in grouping the responses from participants according to the questions asked. As the interviews were semi-structured the transcripts were easily sorted according to the interview questions and responses and this gave me the starting point I needed. Before pooling the responses, the beginning of every response by a participant was preceded by the participant's identifier, (for example) P2LNBF.[34] Preceding each response with an identifier was done to ensure that students' responses could not be mixed up. Using the letters relating to each participant allowed me to immediately see whether this was a novice or matric accounting student and whether s/he had been less/moderately or very successful in the June examinations.

I found this approach far more useful and was able to compare responses to the same question according to the two main groupings (of academic success and whether the participant was a

[34] These codes will be explained in the introduction to the Data Analysis.

novice or a matric accounting student) and I had the option of looking at whether there were differences in responses based on race and gender. When analysing data in this way themes soon began emerging, but it was an iterative process.

3.6.1 Round one – grouping responses to each question

In round one I began with electronic versions of the transcripts for all interviews and with each participant's responses to the questions preceded by an identifier to ensure that quotations remained linked to the relevant participant. I opened a new document or file for each of the interview questions and using a simple cut and paste process worked my way through every transcript making sure each comment was placed in a document. In this way I realised that there were some topics which had been raised by participants which did not fall under the original interview questions and these were placed in a 'Miscellaneous' document for later review. In this process I was a "Lumper" (Bryman, 2008, p. 94), looking only for bigger differences in themes. My hours spent toiling over the fine grained analysis in NVivo had not been forgotten.

Responses to each of the questions were saved into different files to allow responses and themes to be dealt with separately. This initial sorting was however not fool-proof as participants would often comment about issues which were relevant to the research but not directly linked to the question asked. This meant that when reading through responses it was occasionally necessary to move responses, or portions of responses, into other files.

I had used thematic analysis to identify the themes in my data. These themes were based on my Interview Questions which had been informed by the Research or Theory Questions (Wengraf, 2001). The Interview Questions formed the basis of the sorting of the indexed transcripts into the various documents.

3.6.2 Round two – reading transcripts and highlighting and extracting relevant comments

In the first round of data analysis I worked from the original transcripts, which were sorted according to the interview questions. In round two I worked on paper copies of the various responses, sorted according to the interview questions. I highlighted responses which were

relevant to my focus areas, i.e. the structure of knowledge in Introductory Accounting, how students construct knowledge in the course, and how they construct the legitimate texts necessary. I was trying to identify 'units of analysis'. Relevant comments were copied by hand onto a separate sheet, and these were added to the beginning of each file. I grouped comments according to the three categories of academic performance (less, moderately and very successful), but each comment was still traceable back to the original participant, according to the identifier which had been used. I later went back to these handwritten comments and highlighted those appropriate to NAS, to allow these to be identified easily during the next round of analysis.

3.6.3 Round three –summarising relevant comments

In the third round of data analysis I started examining the extracted comments and I was now solely working with what I felt was information relevant to my research goals and questions. These responses were still sorted according to the students' academic performance during the semester. In examining these comments common themes started emerging from within the various groupings. A second round of summarising took place; this time according to whether the student was a novice or matric accounting student. In this second round of summarising, working from the highlighted notes, only subtle behavioural differences and differences in how novice and matric accounting students constructed knowledge were noted.

3.6.4 Round four – discussion on emerging themes

In the fourth round of data analysis I started making sense of the themes I saw emerging from the grouping of comments by participants within the various groupings. Where relevant I started noting possible theoretical bases for discussion of these comments.

3.6.5 Round five – merging comments, discussion and grounding these in theory

The final stage of data analysis was iterative. In this stage I merged comments from the participants, my discussion on these comments and the theory that seemed to explain these students' comments. This became a spiralling exercise with me interrogating in ever-increasing detail the theoretical explanations of participants' comments and actions.

This was the process of "reconstruct[ing] this multifaceted, multidimensional" (Ezzy, 2002, p. 139) mix of comments and themes into a cohesive, theorised explanation of how these students perceived the structures of knowledge in accounting and how they constructed knowledge in the discipline, whether this was done appropriately or inappropriately.

The steps I followed in analysing my data were steps I followed intuitively and with the guidance of my supervisors, but they are not too dissimilar to the six steps described by (Bryman, 2008, pp. 131–135) of Coding the Material; Identifying Themes; Constructing the Networks; Describe and Explore the Thematic Networks; Summarize the Thematic Networks and Interpret Patterns.

3.7 Validity and reliability of the research

There is some debate about the terms to use when discussing the quality of qualitative research (Long & Johnson, 2000, p. 30). Following Long & Johnson (2000), I have retained the traditional terms of Validity and Reliability even though these may be a little discordant for some qualitative researchers.

According to Hammersley, validity is when an account "accurately [represents] those features of the phenomena that it is intended to describe, explain, or theorise" (1992, p. 69). It would be fair to ask whether the themes which I identified were valid. As these themes were based on the Interview Questions, which in turn were based on the Research or Theory Questions (Wengraf, 2001), and as participants were responding to the Interview Questions, I believe these themes were valid.

Definitions of reliability on the other hand relate to "confidence in data collection" (Long & Johnson, 2000, p. 30) and "replicability and repeatability of results" (Golafshani, 2003, p. 598). Long & Johnson suggest that it is difficult to prove reliability as this can only be guaranteed by perfect validity (2000).

As social research takes place in an open system (Danermark *et al*., 2002), there are a number of potential threats to the validity and reliability of this kind of research. Here I discuss possible threats to this research under the main areas of participation in the research; selection of participants; the interview; and of analysis of data.

3.7.1 Participation

One of the forms of selection bias (Collier & Mahoney, 1996), which is a threat to reliability, is that a certain type of student might be more willing to take the time and effort to participate in the research. It could be that this student has had a very good experience, or a very bad experience, of the semester and his or her input could be biased accordingly. Of the almost 300 students who elected not to participate in the process, some could have had very different ways of constructing knowledge in this course and they could also have had very different experiences of the semester's planned teaching and learning activities.

3.7.2 Selection

In an attempt to improve reliability, purposeful stratified sampling was used to ensure a wide range of participants and therefore experiences and responses. A possible threat, in terms of the selection of participants for the interview process, was that once I had identified students within each of the categories of academic performance, prior accounting experience, race and gender, I looked at the responses which the students had provided in the open-ended questions. I selected participants who were able to reflect back on their learning processes over the semester and who would be able to share these reflections with me. This is a potential threat to the reliability of this research since it is possible that other students with different experiences may not have been as articulate in their responses and may therefore not have been selected.

Another potential threat to the reliability of these results, is that when I was transcribing the interviews I realised that of the fifteen students who had been selected for participation in the process, seven had attended private schools, five had attended government schools, two had attended schools which wrote the Cambridge final examinations and one student had attended a school overseas. As this would not accurately reflect the schools attended by the first year body across all faculties, this potential imbalance in responses could skew my results. However, given the large number of responses received from the lecture feedback questionnaires and in the on-line questionnaire, I have reason to believe that this did not result in any significant impact on the information obtained or any conclusions reached.

An additional potential threat to the reliability of the outcomes of this research, is that according to my initial data, on average around 30% of the NAS pass this first semester course. This means that there is a NAS failure rate of around 70%. However, in the purposeful sampling I chose to balance the NAS and MAS participants in each of the less/moderately and more successful categories, instead of weighting the less successful category with 70% NAS. There was only one NAS out of the three participants in the less successful category and this student had to be asked to participate in the interview process, as no NAS had volunteered to participate. In spite of this being a potential threat to the reliability of this research, from the information obtained from the analysis of the interviews, this does not seem to be a significant threat, although it is something which needs to be borne in mind when making claims based on this study.

3.7.3 Interview

It is possible that the participants in this research could have exhibited response bias (Furnham, 1986), where they gave the responses which they felt that I wanted to hear. Looking at the responses which participants gave, I am confident that most of the time these students gave their personal opinions or experiences on the topics being discussed. Occasionally one or two students referred to 'friends' instead of speaking about their own experiences, and one or two participants felt the need to refer to my own contribution as their lecturer during the first semester. I do not believe that there were enough of these comments to impact on the reliability of the findings.

A form of interviewer bias (Bailar, Bailey, & Stevens, 1977) could also potentially be a threat to the reliability of these results. By the time I met with participants for an interview, having gone through the participant's June examination mark and responses to the on-line questionnaire, I could have formed some preconceived ideas about the individual and therefore treated him or her in a particular way. Having become aware of this possible bias during the planning stage, I was extremely cautious during the interviews to ensure that I did not allow preconceptions to affect the manner in which I interviewed students or the way in which I probed responses. Any impact of this bias was also limited given that the interviews were semi-structured, the same questions were asked of each participant and their responses were probed in similar ways and with similar questions. It is my belief that my focus in the

interview became entirely directed towards the participants' responses and in most cases their genuine willingness to share their experiences, and this threat was not realised in any way.

3.7.4 Analysis of data

There is a potential threat to reliability in the form of reporting bias (Dwan et al., 2008). In reporting bias the researcher may omit data which does not support the anticipated research outcome. While I tried to be aware of this, it is possible that potentially relevant or valuable comments were overlooked as these were deemed to be insignificant.

Given the possible biases mentioned above and given that this is social research and it is therefore conducted in an open system, these results can therefore only be said to be valid and reliable insofar as these potential threats to are taken into account.

3.8 Triangulation of data

Regarding triangulation of data, participants were selected according to their Accounting 101 final examination marks. Participants were then placed into three groups according to whether they were less successful, moderately successful or very successful in these examinations. In most questions, there were strong similarities in responses within each of these groups, which supported the use of these three groupings within the research.

Triangulation was obtained by being aware of students' comments on their questionnaires before the interview process, comparing these to their responses during the interview and comparing these responses, particularly regarding how they constructed solutions, to solutions provided in the participants' examination scripts.

3.9 Ethical considerations

Students in the 2011 Accounting 1 group were asked to complete a questionnaire providing information about their study methods and ways of understanding Accounting 101, during the second semester of the year. Those who were interested in volunteering to participate in an interview to examine these methods further, were asked to indicate this on the questionnaire. Students who participated in the questionnaire gave permission for their comments to be used

in the research, while those who participated in the interview process gave "informed consent" (Ruane, 2005, p. 19) that their responses could be used and that the researcher could access details about their academic results to validate the data analysis. One student was asked to participate in the interview process as there were insufficient numbers from that particular category of participants who had volunteered. This student agreed to participate in the interview process and no coercion was used to secure her participation.

My aim was to ensure that participants felt that they could "respect and trust" (Ruane, 2005, p. 16) the research process and that they in turn were respected during the process.

Only on the original consent form was the participant's name linked to a participant number, and these forms are held in safekeeping. From when the interviews were transcribed, participants were referred to by their participant number (P#) and all references to identifiers during the interview process, like names, home towns and schools attended, were deleted.

In respecting participants' "right to privacy" (Ruane, 2005, p. 22), I ensured that the interview questions and discussions remained focussed on the topic of the interview. Where participants asked a question or made a comment which was outside of the research arena, I made a note and after the formal interview had terminated, when our roles were no longer that of interviewer and interviewee, we discussed the issue.

As I did not teach and therefore did not assess students' work in the second semester, when the interviews were held, there could be no possible prejudice, whether positive or negative. Additionally there would not be an occasion in the future where I would be teaching these participants as my role in the department is limited to teaching at Accounting 1 level.

When completing the on-line questionnaire, students were asked to confirm that any information they provided could be used in future research. Prior to the commencement of the interview process, students were asked to read and sign the Interview Consent Form which covered issues of confidentiality, the use of a recording device, access to exam results, the opportunity to confirm the validity of the transcript and lastly the right to withdraw from the research at any time.

Finally, in terms of the dissemination of the findings (Ruane, 2005, p. 24), while participants' comments have been recorded, these can in no way be linked back to any individual

participant. However, a participant may be able to identify himself or herself from the descriptors and may recognise comments made during the research interview process.

3.10 Generalisability of findings

Given the earlier discussion on validity and reliability of the research and potential threats or biases, and given the structure of knowledge in IA and that this is uncontested amongst teachers, I believe a similar cohort of students, with similar exposure to accounting, would have provided similar responses to these questions. The small sample size in this study, however, reduces the generalisability of these findings. To increase the generalisability of these findings, it would be beneficial to test these amongst similar groups of students at other institutions before assuming that these findings are applicable to all IA students.

I do believe, however, that had there been a greater weighting of novice accounting students in the less successful group, there would have been more access to information on how these students struggled to made sense of accounting, and the frustration which they felt in their attempts to do so. Unfortunately, due to the lack of responses from this group of students, this was not possible.

3.11 Conclusion

In this chapter, I have described how volunteers were selected to participate in the interview process, how the interviews were conducted and how the recorded transcripts were transcribed and how these transcripts were sent to the participants for verification. I have also discussed the validity of the process and potential threats to this validity. I have discussed the issues of maintaining confidentiality regarding the identity of the questionnaire respondents and the interview participants. Finally I have discussed the ethical concerns in this research and the generalizability of the research findings.

In the next chapter I will be looking at the analysis of the data from the initial questionnaire and the interview transcripts as well as analysing the participants' examination scripts.

Chapter 4 - Data Analysis and Discussion

4.1 Introduction

In Chapter 2, I discussed the structure of knowledge in accounting. There I showed how Introductory Accounting (IA) has a hierarchical knowledge structure. This high degree of verticality means that in accounting "what is important is mastering the procedures of investigation[35] … and understanding the theory … the only and sole pathway to 'truth'" (Bernstein, 1999, p. 165). Mastering these 'procedures of investigation' is the basis of how students develop the 'trained gaze' referred to by Maton (2011, p. 77). In accounting the "ever-advancing conceptual spine" has "long sequences of hierarchically related concepts" which are "best learnt in sequence under the guidance of an expert" and "getting stuck at any rung of the hierarchy usually means that conceptual learning stops" (Hoadley & Muller, 2009, p. 75).

This means that in IA, lectures need to be planned carefully to ensure that one topic builds on another. These are the "incremental steps that must be pedagogically traversed" (2009, p. 74). Lectures are supported by tutorials where the aim is for concepts to be developed and expanded upon, one step at a time. This is the process of cumulative learning. Students are required to write a weekly assignment on a topic which tests their understanding[36] of the principles and concepts; after which feedback is provided by a tutor. This "necessary explicit evaluation" (Hoadley & Muller, 2009, p. 74), is important to guide students in an accurate understanding of the topic and to "help students internalise the discipline's standards and notions of quality" (Gibbs, 1999, p. 47). Each of these learning opportunities is designed to allow students to work towards developing a 'trained gaze', with the rules of accounting and

[35] The procedures of investigation were discussed in detail in section 2.4.3.

[36] Having an 'understanding' of the basic concepts is discussed in section 2.4.3. As students grow in knowledge and expertise this 'understanding' will extend to having a thorough understanding of all concepts taught, for example an understanding of why adjustments are necessary; how to calculate adjustments including interest calculations and depreciation; understanding how inventory is recorded and measured; how to manage VAT in a set of accounting records; how to reconcile a bank account with a bank statement; amongst other concepts, all of which are guided by the Conceptual Framework as laid down by the IFRS.

procedures of investigation generating the gaze. This learning cycle is complemented by mini-tests and formal term tests to allow students the opportunity to confirm their actual understanding against perceived understanding before the high-stakes end-of-semester examination.

While there is one lecturer who is responsible for lectures at any one time, there are many tutors managing their own tutorial groups under the guidance of the lecturer. So while there is relative consistency within the lecturing programme, it is likely that there could be less consistency within the tutoring programme. At the time that this research was being conducted, twenty tutors had been appointed to assist in tutoring in the twenty tutorial groups needed for this programme. Most of the tutors were third and fourth year Accounting students.

Within Bernstein's Pedagogic Device, how students acquire knowledge within a discipline falls under the Model of Acquisition, found in the Field of Reproduction. The Model of Acquisition is managed by the Specialised Interactional Practices which are the selection, sequencing, criteria, pacing and assessment of these interactions. The framing or control of these practices is important for student learning. Weaker framing allows control to shift to the acquirer, the student, while stronger framing allows control to be retained by the transmitter, the teacher. Weaker framing allows students to learn in a sequence which they choose and at their own pace, and to manage their assessment, but this is not always possible given the strong framing (control) over the structure of the IA curriculum. Under the Model of Acquisition we also find Recognition and Realisation Rules. Recognition rules allow an acquirer to understand which meanings (in IA, this would often refer to 'which figures') may be put together, while Realisation rules enable a student to put these meanings together in a legitimate manner.

In this chapter I will be looking at the information generated through the interview process to determine the degree to which students understood the hierarchical nature of the discipline, the degree to which the structured learning opportunities were utilised and to what extent, and under which circumstances, a 'trained gaze' was cultivated amongst this group of students. In examining the interview data I have tried to describe how students construct knowledge in Introductory Accounting, whether novice and matric students construct knowledge differently, and to identify trends in the recognition and realisation of legitimate texts by students.

I have already mentioned that in selecting the students for participation in the interview process, I tried to achieve a balance between Novice and Matric Accounting Students, between males and females, between black and white students and between the three academic levels mentioned above. I decided to code these categories against the participants' numbers so that I immediately knew which category each participant fell into. The following is the key to the participants.

P1	LNBF	
P2	LNBF	Did not participate
P3	LMBM	
P4	LMBM	
P5	MMWF	
P6	MNBF	
P7	MNWF	
P8	MMWM	
P9	MNBM	Did not participate
P10	MMBF	
P11	VMWM	
P12	VNBF	
P13	VNWF	
P14	VMWM	
P15[37]	VMBF	

Figure 11 - Key to Interview Participants

First letter L/M/V - Academic Success; Less/Moderately/ Very Successful
Second letter N/M - Novice or Matric Accounting Student
Third Letter B/W - Race, Black or White, these are the two more prevalent races in this class
Fourth letter M/F - Gender, Male or Female.

Participants were numbered according to their academic performance in the Accounting 101 semester with P1 being the lowest achiever academically and P15 being the highest achiever. This was done for convenience, so that by looking at a participant's number I would immediately know whether they were less, moderately or very successful in the course, without having to refer to a schedule. This was particularly useful initially, before I became more familiar with each participant's details.

[37] Participants in the 'L' or less successful group obtained between 35% and 50% overall for Accounting 101, in the 'M' or moderately successful group, between 50% and 70% and in the 'V' or very successful group, 71% or above.

Based on the initial research as discussed in Chapter 2, there was no significant difference in academic performance between male and female students and no significant difference in performance between students of colour and white students. I felt that it would not be necessary, initially, to analyse responses according to these demographics. What I did instead was to first look at students' responses according to their academic performance, grouped according to whether they were less successful, moderately successful or very successful, based on their Accounting 101 semester mark. I did this to understand whether those who were successful constructed their knowledge differently or whether there was a difference in their understanding of recognition rules or their control over realisation rules. Once I had completed this exercise I went back and looked at participants' responses again, this time based on whether they were novice or matric accounting students. I have only discussed differences in the responses received between these categories as and when these occurred.

What this means is that while acknowledging that there could be differences in students' responses based on demographics or past experiences, which would be students' 'relations to' knowledge, I was primarily focussing on responses based on 'relations within' knowledge; how each student engaged with the structure of knowledge within this course (Maton, 2007).

I will now look at participant responses during the interview process.

4.2 How students acquire knowledge and both recognise and realise legitimate text in Introductory Accounting

This section looks at how students understood their acquisition of knowledge and how they were able to recognise and / or realise texts, in IA. I have generally structured the participants' responses according to the three groups of the participants being less, moderately and very successful (academically) based on their final Accounting 101 results. I wanted to see how it was that students with varying academic achievements acquired knowledge and recognised and / or realised texts differently and perhaps sometimes incorrectly. Where there were differences in how the Novice Accounting Students (NAS) and Matric Accounting Students (MAS) constructed knowledge and produced legitimate texts I have highlighted these differences.

4.2.1 Success in Accounting

One of the first questions I asked during the interview, which was partially to allow the students to relax into the interview but also to understand what the participant's goal was when registering for Accounting 101, was around being 'successful' in IA. I did not explain what I meant by being successful and left it up to the students to ascribe their own meaning to the term and respond accordingly. Each participant's Accounting 101 semester mark is indicated in brackets after the participant number.

"What do you see as being 'successful' in Accounting 1?"

Participant 1 (P1)(35%) said that being successful would be "being comfortable enough to continue to the next level", but she felt that she had not attended enough lectures[38] and attributed her low performance to limited lecture attendance. Recent research has shown that a student's average matric mark as well as the matric marks obtained for Accounting and Science, combined with attendance of lectures, "were the most accurate factors predicting success or failure in the module" for a first year accounting course (Baard *et al*., 2010, p. 138). P3 (38%) felt that a successful Accounting 101 student would be "someone who never did accounting but managed to pass it very well" while P4 (42%) said that being successful would be "laying a foundation that I can use to gain confidence within accounting". P4 felt he had not been successful in accounting and said this was because he had not been motivated and therefore had not been "in the zone" and without that "feeling" he knew he would not do well in the exam.

The responses from the less successful group of students were quite varied. While P1 and P4 recognised IA as being a foundation for proceeding to the second semester, they did not indicate any understanding that the foundation is important for second semester work, rather that it is a foundation for 'building confidence' and being 'comfortable'. P1 took responsibility for being less than successful in the course, and acknowledged that it was through lack of lecture attendance. It seems that P3 excluded himself from success in this course. In his opinion, to be successful he would need to never have done Accounting

[38] Interestingly, P1 when asked what she would do differently if she were to do the course again responded "I still wouldn't attend more lectures". She changed this response to "I still would attend more lectures" and finally to "I would attend more lectures" when I queried the response with her.

before, and to have passed well. As he had taken Accounting as a school subject, he could not fall into that group. P4 did not take responsibility for his academic performance in the course saying that he was not in 'the zone' and without this he knew he would not succeed. None of the participants in this group believed that they had been successful in their Accounting 101 semester.

The moderately successful and very successful groups of participants (all of whom were academically 'successful' in IA in that they obtained 50% or more) answered this question very similarly and are therefore grouped together.

P5 (51%) felt that being successful was "maintaining a good average throughout your assignments and your tuts" or "improving on that average". P5 felt she had not been successful as she had not practised enough. P6 (57%) felt that being successful in this course was "understanding the concepts and being able to apply them", P8 (62%) felt it was "Practise, practise, practise and making sure you understand those concepts of always debit credit, debit credit", but also "understanding those concepts and being able to apply them in any situation". This is a reference to the cumulative learning[39] which needs to take place in a hierarchical knowledge structure like IA. A similar comment was made by P12 (75%) who felt that being successful was "understanding [the work] and being able to apply it to different situations and scenarios". This theme was continued by P13 (76%) with "being confident in your knowledge and your ability and being open to new concepts and accepting them and applying them in terms of what you do know". This was echoed by P15 (94%) who said "understanding all the basic concepts and letting your mark prove that you understand". P14 (84%) takes this theme slightly further by saying "building as solid [a] base as I can for … the coming years".[40] This was supported by P15 "You start from the mini-tests, to the assignments we hand in, to the test we write, the termly tests and it's not about just getting a credit to just go on".

In responding to this question, the more successful group starts looking at 'success' more in terms of being successful in IA and what this means in terms of knowledge in this course and

[39] Freebody, Maton & Martin explain cumulative learning as "where knowledge builds over time by integrating and subsuming previous knowledge" (2008, p. 193).

[40] Of the thirteen participants, six continued into the Accounting 2 year in 2012, while four are currently registered for the Accounting 3 (CA stream) year this year (2013).

for future years. P5 acknowledged that she did not practise enough. It is only through practice that cumulative learning can be achieved and a 'trained gaze' can be developed; through understanding the rules of accounting and obtaining mastery over the 'procedures of investigation'. This is a common theme among the moderately and very successful participants' responses; that being successful was understanding the principles or concepts which had been taught and being able to apply these principles in changing scenarios. This point was elaborated on by P14 and P15 who realised that Accounting 1 is not just a stand-alone credit, but a foundation for future years. One participant demonstrates an awareness of the cycle of teaching, learning and assessment activities which are planned for the year, to assist students in reaching the requisite understanding.

P7 (59%) felt that being successful in the course was "understanding how accounting is useful towards a business", while P10 (69%) felt that it was more a sense of satisfaction or achievement, "if you are not successful, you are kind of discouraged". This view was shared by P13 who said "and I guess just working hard and reaping the rewards". In explaining his low mark, P8 said, "I was a typical first year, over confident, ach, I can study for it tomorrow, it's fine, kind of thing and I think for the exam I ended up studying probably a maximum of 3 hours the night before".

P7's response was fairly vague, demonstrating a flawed understanding of the strong classification of accounting as many disciplines could be 'useful towards a business'. P10 and P13 referred to the emotional reward or otherwise of the mark obtained in a test or exam. P8 referred to the first year experience, but particularly as it relates to IA, where some students have studied Accounting for three years before attending university and initially find IA very easy and do not put in the required time and energy to stay interested in and informed about the course. According to P8, students who have taken accounting at school often find the pace in the first term very slow and find that they cannot control the pace in any way. Most of the participants in the moderately and very successful groups believed that being successful in IA, in terms of understanding the subject, had to do with understanding the concepts in a theoretical way and practising until able to apply the concepts learnt and developing a 'trained gaze'. Participants also cautioned that for many students, accounting should not just be viewed as a first year credit, but rather as an essential foundation for future years in accounting.

In the next section, I look at how students constructed knowledge, in a process facilitated by planned teaching and learning activities, in this discipline with its high degree of verticality.

4.2.2 Making sense of knowledge in Introductory Accounting

Having gained some understanding of what students were aiming for in terms of being successful in IA, I next wanted to get some sense of the participants' awareness of how they made sense of knowledge in IA: what building blocks they used in acquiring this knowledge; what they understood the core concepts in IA to be and what the most conceptually challenging concept was in this course.

As stated earlier, given that IA has a hierarchical knowledge structure, "what is important is mastering the procedures of investigation …and understanding the theory … the only and sole pathway to 'truth'" (Bernstein, 1999, p. 165). I wanted to discover whether students were aware of there being one 'truth' in accounting and how they worked towards achieving mastery in the 'procedures of investigation', which are the rules which generate the 'trained gaze'.

As many participants talk about memorisation and the tools they use for remembering, I think it would be useful to first look at the topic of 'memorising' before looking at participants' responses. According to Meyer (2000), memorising is often understood to be learning without understanding. Meyer differentiates between "memorising before understanding" and "memorising after understanding", with 'understanding' being the critical divide between the two actions. Marton, Dall'Alba, & Lai's work on the "paradox of the Chinese learner" suggests that the difference lies "*within* memorisation, rather than *between* memorisation and understanding" (Marton *et al.*, 1993, p. 15) in (Meyer, 2000, p. 165). Research into Accounting Education, particularly at the Introductory Accounting level, has shown that accounting students often initially memorise work. However this does not always remain at the rote-learning level, but can move to understanding (Birkett & Mladenovic, 2009; Dahlin & Watkins, 2000; Hall *et al.*, 2004; Jackling, 2005; Kember & Gow, 1990; Lucas & Meyer,

2005; Lucas & Mladenovic, 2004; Meyer, 2000).[41] Other accounting education research has shown how IA students "first must learn terminology, basic concepts and procedures before being able to apply knowledge to novel problems" (Hall *et al*., 2004, p. 502). IA students will often first memorise the procedures required for a certain calculation, but memorising needs to shift to understanding for the student to become successful in this discipline.

To allow a student to concentrate on the challenging aspects of a question or topic, some aspects of IA, like which elements should be debited or credited, which elements and accounts are found in which statement, and what type of element a certain account is, need to become automated.[42] These automated processes constitute the low-road transfer referred to by Salomon & Perkins (1989).

In IA, while new principles are being taught and existing principles are being added to, the foundational concepts of the double entry system and the accounting equation remain the same, and students need to be able to automatically access these underlying rules and use them in differing scenarios. This course requires students to learn and understand the rules and procedures to such a degree that accessing this knowledge only requires "low-road transfer" (Salomon & Perkins, 1989, p. 118). Accessing the understanding of the rules and procedures should become automated as a result of "incremental extension" and practising of these procedures in slightly varied contexts (Salomon & Perkins, 1989, p. 120). These underlying rules and principles need to be practised in varying ways until a student is able to read a scenario in a test or exam and the required response will automatically be triggered when the problem is viewed with a trained gaze. This does not imply that all processes at this level are or should be automated, but the basic concepts[43] need to become automated, so that students can focus on the concepts being tested in the various questions.

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[41] Many of these authors conducted research using approaches to learning as a focus. While I do not wish to focus on approaches to learning, or on the critique of these approaches (Haggis, 2003), what is relevant for this research is that Introductory Accounting students very often begin by learning the work through rote-learning or memorising and that this can move to understanding when constructing knowledge.

[42] It is difficult to give an example of the processes which would become automated, because it always depends on the context. A transaction which should be automated in one instance, may require consideration in another.

[43] These 'basic concepts' would be things like: when paying cash for something the bank will be credited and the item purchased debited; when receiving money the bank will be debited and the other account (sales, receivable, capital) will be credited. When calculating depreciation, depreciation should be debited and

MAS, who would have studied accounting at school for three years, would already have reached a stage where many processes had become automated. Although recent feedback[44] from students shows that perhaps this automation may come at the expense of understanding. Comments from students included the following: "Even though I did accounting in High School, it was actually during the accounting [workshops] that I started to understand … accounting." "I did accounting at school, but there were things that I didn't really understand, but during the workshop, I felt I knew accounting so much [better]." "I benefited a lot because at school I did accounting but I did not have the concept behind the transactions. Now I can identify what [account] is debited and credited and even provide a reason for it".

NAS on the other hand, would have been confronted with a discipline which is totally dissimilar to any other they have already encountered. This is as a result of the strong classification of the discipline; there are strong boundaries between accounting and other disciplines. Learning accounting is therefore not likely to allow for much, if any, assimilation from an existing schema.[45] Even those NAS who had heard comments in shops of 'debit my account' (charge me for the item) or 'credit my account' (reduce the amount I owe), would have to reframe this understanding, as when buying on credit, the creditor's account in our books would be CREDITED and when paying that account, the creditor's account in our books would be DEBITED. This is a difference in perspective in running a business and producing a set of Financial Statements oneself, and having an account in someone else's business.

While bearing the above theoretical concepts in mind, it should be remembered that the 'rules' of accounting are the means through which the 'principles' are enacted. While

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accumulated depreciated credited. These are just some examples of what should become automated so that students can focus on the calculation of the purchase or sale (does it include/exclude VAT?) and the depreciation of the asset.

[44] This feedback was obtained from the 2013 group of students, after introductory workshops were held at the beginning of the year. The feedback included here was from a few students who had studied accounting at school but had also attended the introductory workshops. MAS who had performed well in the subject at school may not have seen the need to attend these workshops, which were only compulsory for NAS, and perhaps their understanding of Accounting was not compromised in the drive to automate processes. As the feedback was anonymous, there is no way to correlate comments with academic performance.

[45] In Piaget's schema theory (1964) assimilation is the process of using an existing schema to understand a new situation.

accounting internationally has moved from a rules-based system to a principles-based system, the principles still require underpinning through common understanding of rules like the double entry system and the accounting equation.

Finally it should be remembered that theory would be introduced, and therefore memorising of new concepts would take place, at an abstract level where semantic gravity is weak. The practising of examples would strengthen the semantic gravity to a certain degree, and would provide the theory with far more context, but this would still be taking place at an abstract level. It is only when working in a business and 'seeing' transactions take place that the semantic gravity could be said to be strong. It is only once the theory is understood and examples or practise has taken place and the procedures of investigation are thoroughly understood that true 'understanding' of a topic can be said to have developed.

Having had a look at some of the theories and principles which will be useful in understanding participants' responses, I now move on to the questions I asked the participants on this topic.

"When you think back to your first memory of studying accounting, how did you make sense of the new knowledge which you were required to obtain?"

P1 struggled with the question eventually responding that "it was a lot more like reading and understanding" and that she "didn't get into the practical side of it… it was more of knowing all the terms and understanding it that way". P3 said he was "more into words and essays and stuff" so he would "make notes in an essay form" and "try to read" and this was done to "try to describe what you are recording in accounting". However, in these notes he would not go into the detail of recording whether there was a debit or a credit. P4 could not explain how he made sense of the new knowledge, as he "always found it to make sense" and "everything just fell into place". P4 also felt that if he "had a good teacher … who understood me as a student and [how] I thought things should be done" then he would understand the subject.

These 'less successful' students appeared not to be aware of the need to master the 'procedures of investigation', feeling that they could be successful in accounting by only understanding the theory and engaging with the topic at an abstract level, i.e. with weaker semantic gravity. Mastery over the 'procedures of investigation' is critical for a student to develop the 'trained gaze' and to be able to access low-road transfer in a Knowledge Code field like accounting. This was discussed earlier in section 2.4.1. These students were

interested only in "selective acquisition" (Bernstein, 2000, p. 3), which in this case was inadequate. P1 and P3 seem to feel that that knowledge in this discipline remains at an abstract level; that the practical aspects of accounting requires weaker semantic gravity; while P4 seemed to want to work within a discipline with strong social relations, where the characteristics, experiences and disposition of the individual are important. A discipline with strong social relations and weak epistemic relations would be a Knower Code field, while the discipline of Introductory Accounting, with its strong epistemic relations and weak social relations is a Knowledge Code field. P4's response regarding having a good teacher was interesting; he seems to be absolving himself from any responsibility for his poor performance in the semester. According to P4, if he had a 'good teacher' who 'understood' him and how he 'thought things should be done', then he would understand the subject. It all rests on P4 having a good teacher, he does not take responsibility for his own learning and understanding within the course. P4 also shows little evidence of metacognition,[46] as according to him his understanding 'just fell into place'.

The next two groups which were more successful academically show a far more developed understanding of what was required to 'make sense of knowledge in accounting', with P5 responding that she normally purchased an additional textbook and would work her way from more "simplified examples" up to the more "complex" ones and would in this way build up her knowledge. This was P5's way of mastering the 'procedures of investigation', of learning the rules of accounting, and of working towards cumulative learning, or the "incremental extension" of low-road transfer as this is referred to by Salomon and Perkins (1989, p. 120). This demonstrates P5's understanding of the hierarchical nature of knowledge in IA. This is also how our lecture, tutorial and assignment examples are structured, from relatively simple questions to more complex questions. This allows students to slowly become accustomed to increasingly detailed questions, while they grow in confidence in and mastery over the procedures.

P6 said she made sense of knowledge in Accounting by "reading, doing the theory and doing calculations". This participant was aware of there being a flow from theory to practice. With

[46] The concept of metacognition, which at its simplest form is "thinking about thinking" or "knowing about knowing", was introduced by Flavell (1971; 1979). Metacognition deals with an awareness of one's own thinking processes when engaged in studying.

theory being at an abstract level, with weaker semantic gravity and strong semantic density, and practise being at a level of stronger semantic gravity and weaker semantic density, this would create the first half of a "semantic wave" (Macnaught, Maton, Martin, & Matruglio, 2013, p. 50). A 'semantic wave' is a flow from weaker to stronger semantic gravity with a return to weaker semantic gravity and stronger semantic density as the student returns to the theory with an altered understanding. This would be a matter of discussing an issue at an abstract level and then providing it with a context. Some students were very clear on there being 'rules' in accounting, P8 elaborates with "just the general concept of how it all makes sense, the debit side will always equal the credit side, and when there's a transaction there, the same thing happens on this side, no matter what" and, according to P10 "if you do this, [then] this is what you do". This refers to the rules of accounting; in a particular situation there are certain expected responses or actions. For instance if depreciation is being calculated; depreciation will always be debited and accumulated depreciation will always be credited.

P11 explained his approach in a little more detail, "what I did was that I write down almost a recipe for how to do the transaction so I know each step to follow". P11 was identifying the rules or 'procedures of investigation' in IA which he refers to as a 'recipe'. He then explained how he develops mastery over the 'procedures' by saying "and then once I've got that and I understand that then I just practise to reinforce that", P11 was now working on developing a 'trained gaze' and towards being able to access 'low-road' transfer. P13, a NAS, spoke about how "[I] kept reminding myself of the definitions and then the formula of A=E+L that helped me a lot, because I … still use that, I always relate the whole debit and credit to it balancing out, that's kind of like the foundation". P13 was explaining how she focussed on the theory and the 'procedures of investigation'. If P13, a NAS, was still needing to remind herself about the debits and credits, it seems that low-road transfer was not being accessed, as the thought processes were still conscious.

Continuing along this theme P14 said "I think initially you try to remember it through the little tricks like word rhymes in your head or some or other study technique, but in the end you have to understand it … so to initially memorise it and regurgitate it … but I find that is just memorising and repeating … so most of the time, I will try and see why they are doing that and then understand how it is affecting the books". This again confirms that successful IA students memorise topics initially until they are able to move on to understanding. He

went on to say that when finding "something that I don't understand … I will sit and practise that question". P14 was showing an awareness of how he needed to move from memorisation to understanding and to developing a 'trained gaze' through mastery of the 'procedures' and that it was only through repetition of these procedures that understanding develops. P14 was also demonstrating metacognition, an awareness of how he studied and how he needed to study.

In looking at more advanced questions in accounting, P15 said "it now needs more practical examples, [it is no longer] a theory subject like in the first years … now you have to know different ways questions can be asked, get used to all the ways". P15 was showing how, having established a foundation of theory, she is ready for more diverse and complicated examples to fully establish her mastery over the procedures. This is an example of her demonstrating the cumulative learning required in this course. She is also demonstrating a metacognitive awareness. In recognising the time constraints in an exam situation P15 commented "if you have got some understanding you will be thinking fast and writing fast". In using the word 'understanding' P15 was referring to having developed a 'trained gaze', having looked at a question and having understood what was being asked and being able to identify what is required in the solution. 'Thinking fast and working fast' refers to how P15 has automated some of these responses, showing she was using low-road transfer which had become "fast, effortless" (Salomon & Perkins, 1989, p. 121).

While the less successful group seemed unaware of the need to master the 'procedures of investigation' and focussed more on theory, the moderately and very successful groups showed greater awareness of the requirements of the discipline. Participants in these two groups showed an awareness of the need to build up from simple examples to more complicated ones; the need for a flow from theory to practice, creating the first half of a 'semantic wave'. Some explained how they put together 'steps' or a 'recipe' which needed to be followed, or used mnemonics until understanding grew.

Moving from obtaining an overall perspective on how students saw knowledge in IA, I then moved on to a more detailed question, trying to see whether students were aware of the hierarchical nature of accounting and what the core concepts of the discipline were.

Before presenting my analysis of student responses to this question, a few of the terms used in accounting need to be explained. The double entry system is the accounting principle that

for every debit there must be a balancing credit. There can be more than one debit and more than one credit, but the total of the debit entries must always equal the total of the credit entries.

The accounting equation is the equation showing that Assets will always equal the total of the capital or Owners' Equity plus Liabilities, i.e. A=O+L. This also reflects the format or structure of the Statement of Financial Position (more commonly known as the Balance Sheet), Assets are totalled, then Equity and Liabilities are totalled, and these two figures should balance.

The five elements of the financial statements are the Assets, Liabilities, Owners Equity, Income and Expenditure. Every item included in a business' financial statements would meet the definition of one of the elements. As already mentioned, Assets, Liabilities and Owners Equity are found in the Statement of Financial Position, while Income and Expenditure are found in the Statement of Comprehensive Income, previously known as the Income Statement.

Having provided a background to some accounting terms, I now move into the area which I asked students to explain.

What were the building blocks you used in making sense of Introductory Accounting? What do you think the most basic concept is in Accounting? [47]

When looking at these responses, it should be borne in mind that Introductory Accounting, in the Field of Reproduction, is a Knowledge Code field. What is valued in the field is knowledge of the discipline. IA has strong boundaries and strong framing. It has fixed rules or 'procedures of investigation'. When students have mastered the rules they will have started to generate a 'trained gaze'. When looking at an exam or tutorial question with a trained gaze this should trigger low-road transfer, which is necessary for mastery in IA. This is particularly critical for those students who intend majoring in accounting.

In the first group of participants, P1 again struggled to understand the question, eventually saying that 'money' was the foundation of accounting. She moved on to saying that "the

[47] These questions were initially asked separately during the interviews, but so many participants answered the second part of the question when responding to the first, that they have been combined in this analysis.

main thing is making sure your accounts balance". This demonstrates that P1 had not yet acquired the academic discourse of the discipline, as she was referring to the double entry system, but did not use the correct term and she was referring to the double entry system in a very simplistic, restricted way. P3 felt that "the first thing that everyone should know maybe in accounting is the accounting equation" he went on to say that "the terms are also important as well" as he felt that the English used was different.[48] P3 was unable to explain how he remembered which of the elements went into which statement, explaining that he "was used to it". This statement is most likely an indication of P3's limited metacognitive awareness. P4 felt that the foundation of accounting was "probably the accounting equation, because that sets everything in motion".

P1 was unable to move beyond 'money and 'balancing' being the foundation of accounting. In a discipline with very strong boundaries (strong classification) (Bernstein, 2000), suggesting that something as abstract as 'money' is a basic concept, seems to imply that P1 does not have a clear understanding of these strong boundaries. P3 and P4 felt that the accounting Equation, A=O+L, was the foundational concept. P3's inability to explain which elements would be found in which statement shows a limited grasp of the procedures of investigation, most likely due to the absence of practising, which means that accessing this information would have remained "slow, effortful" (Salomon & Perkins, 1989, p. 121).

P5 said that the most basic concept was that "the debit side has to equal the credit side and the double entry rule". In expressing the double entry system in words P6 said "you need to check where the money comes from and where it goes to … the double entry system".[49] Using a slightly different perspective, and demonstrating the use of memorising initially to remember what needed to be debited or credited, P7 spoke about using DAXLIC[50]. According to P7 "right in the beginning that is what pulled me through … once I grew in understanding … it was alright, but I needed like a rhyme". P7 confirms that she initially memorised the formula until her understanding of the concept had grown. P7 also referred to

[48] This is discussed further in 4.3.3.

[49] This refers to my explanation of the double entry system to my students at the beginning of the year, which is based on 'what gets' and 'what gives'. We always debit 'what gets' and credit 'what gives'.

[50] DAXLIC is a mnemonic to assist students to remember that Drawings, Assets and eXpenses increase on the Debit side, while Liabilities, Income and Capital increase on the Credit side. The variations on this are DAELIC, DAXCIL, AEDCIL, AEDLIC, EAOIL.

the definitions of the elements, found in the theory of the discipline, and any other formulae which are provided, as being important core concepts. In providing his understanding of what being successful in accounting meant, P8 said "making sure you understand those concepts of always debit credit, debit credit". In repeating the words, P8 was showing an awareness of how these concepts have become automated for him. Here he was referring to the foundational concept in accounting, the double entry system, that there is always a debit and an equal and balancing credit. Additionally, P8 referred to the mnemonic given by his teacher at school, AED=CIL (see footnote below). Following the same trend, P10 said that she felt that the most basic concept was "for every debit there is a credit" and knowing that "an asset increases on the debit side and a liability will increase on the credit side". P10 spoke about her teacher at school using EA OIL (see footnote) as a mnemonic to assist in learning the rules initially. Using a mnemonic or any other learning tool will aid a student in memorising a concept until understanding grows.

Within this moderately successful group, participants all referred to the double entry system, with some speaking about the mnemonic, formula or other learning tool they used to help them remember the accounting equation. These participants were very clear about the rules or procedures of investigation as these relate to accounting at this level.

From the 'very successful' group, P11 said that identifying the elements involved and whether they would be debited or credited was important, but he added that the most basic concept in accounting was "debits and credits". P12 felt that what was important was identifying the elements, that "there are debits and credits … that they have to balance too", while P13 added "the two basic concepts that are needed most are A=E+L [the accounting equation] and the double entry system". P14 said that he would only use a 't-account'[51] if he was very confused, and if necessary he would use the Bank Account as a starting point. He did this as he always knew when the Bank Account would be debited or credited. He also felt that the accounting cycle was important. In using the Bank Account as a starting point, P14 was trying to trigger his automated learning on the topic, which would allow low-road transfer to take place.

[51] A 't-account' is an informally drawn up ledger account where students can quickly see what has been and what should be debited and credited. It allows for a visual depiction of the balance in an account at the beginning of the period, the debits and credits which have been passed during the period, and the remaining balance at the end of the period.

While believing that the basic concept in accounting was "to a large extent, debits and credits", P14 also recognised the need to be able to identify the elements and understand the double entry system, accounting equation and to understand the questions asked. He said "before you can understand which is a debit and which is a credit, you must be able to logically work through the [question]" and adding that what is important is "language ability in interpreting the question to a large extent". Here P14 is referring to a student's ability to decode the academic discourse in a question. Again giving a slightly broader overview, P15 said "for every debit there is a credit if you can identify the debit you will also be able to identify the credit. Everything revolves around that, the journal entries, the general ledgers, the trial balance, closing entries."

The participants in the very successful group all understood that the double entry system, for every debit there is an equal and balancing credit, was the most basic concept. Participants went on to include comments about identifying the elements or actual accounts involved, and that understanding the question was also essential in accounting. This group was showing evidence of moving from not just showing mastery over the 'procedures of investigation', but also in developing a 'trained gaze', which will allow automated low-road transfer to take place.

While some participants in the first group identified the accounting equation as the most basic concept, most students in the second and third groups recognised the double entry system as being the basis of accounting, followed closely by the accounting equation. Students in the second and third groups also spoke about the learning tools or aids they used to assist them in remembering what should be debited and what should be credited initially - these were either mnemonics, using t-accounts, or starting with one account they were certain of (like the bank account).

When analysing the responses from NAS and MAS, fewer NAS reported using a mnemonic or other learning aid to assist them in answering questions. MAS were more accustomed to using these and knew how to use them.

Having gained an understanding of what students saw as the core concepts in Accounting, I next wanted to know which concepts students struggled with and which concepts they found the most difficult. This was the basis of the next question.

Before moving on, it would first be valuable to be aware of the notions of a 'threshold concept' and 'cognitive overload' which will be useful in understanding aspects of students' responses in this section. A threshold concept is where a lack of understanding causes a block and the student is unable to make progress; where a student needs to open up a "new and previously inaccessible way of thinking about something … a transformed way of understanding". Having understood the threshold concept, the student is likely to have "a transformed internal view of [the] subject matter" (Meyer & Land, 2006, p. 3). In terms of cognitive overload, Miller's Law (Miller, 1956), in which Cognitive Load Theory (Sweller, 1994) has its roots, suggests that students are able to remember seven (plus or minus two) one-dimensional pieces of information. Anything more than that results in too many ideas, mistakes and can confusion arise.

What do you believe is the most difficult aspect to understand in Introductory Accounting?

While P1 felt that subsidiary journals were the most difficult, she was not sure whether this was the subsidiary journals themselves, or whether it was when a VAT component had been included in these journals. Adjustments were seen as being the most difficult by P3, who said they were done completely differently at school, but he could not explain how it was that these were done differently. At university we teach from textbooks which are kept up to date with the IFRSs, so we teach using the most up-to-date terms and principles. Schools lag behind by about ten years and this is what P4 found frustrating, the changes in the names of the various statements, from Balance Sheet to Statement of Financial Position, from Income Statement to Statement of Comprehensive Income. P4 said "I like words and having to change that felt like I was having to get rid of my high school tendencies".

Neither P1 nor P3 had sufficient understanding of the rules of the discipline to be able to explain why and where they had struggled. These participants were showing limited metacognitive awareness. P4, who wanted more creativity in the subject, was resistant to the change in statement names. In this instance P4 was struggling with a threshold concept, [52] moving from the familiar to the unfamiliar, from what was known to the unknown (Lucas & Mladenovic, 2007). While P4 was not prepared to engage with the academic discourse of the discipline, he was also showing that there was a 'code clash' as he was engaging with the

[52] Threshold concepts are discussed in more detail in the next paragraph.

subject field as if it were a Knower Code field, where social relations are more important, but IA is a Knowledge Code field with epistemic relations being valued. According to Freebody *et a.l*, a code clash is when "students' beliefs and practices embody contrasting measures of achievement to those required for success" (2008, p. 194). From an Introductory Accounting perspective, this dissonance is viewed by Lucas & Mladenovic as a clash "between motive and strategy… occurs where a student shows a non-congruent, or problematic, form of learning engagement" (2004, p. 404).

P5 found the most difficult area to be when she was asked more complex questions; where a couple of transactions needed to be calculated and processed, or when there were more than two entries within a transaction. Here P5 was experiencing a cognitive overload; she was able to cope when there were limited concepts to remember, but going beyond a certain point she got lost. This cognitive overload may have been as a result of the basic concepts not yet being automated, which limits cognitive processing capacity (Salomon & Perkins, 1989). Had these tasks become automated through practice, P5's responses would have required significantly less cognitive processing. Adjustments were found to be the most difficult aspect by P6 and P7, with P6 feeling the interest calculations were difficult and P7 struggling with the depreciation calculations.

A different approach to how discount was dealt with at university drove P8 "crazy, it was horrible", as these were aspects which had been taught differently (and in an outdated manner) at school and now had to be relearnt. In this instance P8 had to block the low-road transfer, as the automated responses needed to be reversed. P8 also felt that Bank Reconciliations were difficult as when looking at the Bank Statement the rules governing debits and credits were reversed. Having learnt that a deposit into the business' bank account meant that the bank account should be debited, and a payment from the account means that the bank account should be credited, it can be difficult to understand, when dealing with Bank Reconciliations, why on the Bank Statement the debits and credits are reversed. This is again an instance of needing to block the low-road transfer, to block the automated responses. P8 also found the difference between Periodical and Perpetual methods of recording inventory in a business difficult.

P10 felt that being able to understand the double entry system - what should be debited and what should be credited - was the most difficult aspect as it would restrict her progress. "If I

don't understand something I can't move on so I stay there until I understand it"[53]. Given the high degree of verticality in the subject, and the "long sequences of hierarchically related concepts", when there is a lack of understanding on a hierarchical 'rung' within those long sequences, it "usually means that conceptual learning stops" (Hoadley & Muller, 2009, p. 75). It seems that this student had reached a hierarchical rung and was unable to progress without that conceptual understanding. The double entry system is a foundational concept for success in Accounting. Without this concept being understood as a foundational concept in Accounting, "fast, effortless" (Salomon & Perkins, 1989, p. 121) low-road transfer cannot be accessed.

Adjustments were also seen as the most difficult concept by P11, but in this instance it was "from the way the questions are asked, very often it is hard to identify what you are working with and what you have to do". While at a certain level this is an issue of language and understanding the scenario provided in the question and the student understanding what is required, this is also an issue of cognitive overload. Some questions have many aspects which need to be borne in mind when performing the calculation and these sometimes push students over 'the magical number seven, plus or minus two' (Miller, 1956). P12 also said that adjustments were difficult, but in this case it was finding the contra account (the balancing account in the double entry transaction).

For P13 adjustments were also the most difficult concept, as "the questions were often quite long and sometimes seemed a bit ambiguous". This is again a reference to the language used but also to cognitive overload.[54] P13 added "I think the questions are made like that because it's like that in real life, you are not going to be given straight figures to work with all the time, you have to fish out information, but I struggled with that". P13 was recognising that learning the procedures of investigation did not simply happen at an abstract level, but that it was in preparation for 'real life' where actual transactions were taking place. P14 also felt adjustments were "tricky sometimes" as was VAT in the beginning, but practising VAT it "makes sense". P14 added, "when you get used to the way things work and you have a deeper understanding of it, then generally it's not that hard to grasp". Having practised the

[53] This comment is particularly interesting as P10 was a MAS and she seemed to still not feel that these concepts were firmly grounded.

[54] The issue of 'Language' is covered more fully in 4.4.3 towards the end of this chapter.

concepts he would have been developing mastery over the procedures of investigation and would have been developing a trained gaze and the procedures required in a VAT question would have become a matter of low-road transfer.

P15 found that inventory was the most difficult concept, as "we had mark-up on sales [and] mark-up on cost, that was confusing and we had to know the difference between those." The terminology regarding mark-up was a confusing aspect of teaching from our current textbook and I changed the terminology to try to make it easier for students to understand. This is again an issue of language which will be covered more fully in 4.4.3, towards the end of this chapter. Regarding adjustments, P15 had the following to say "there were many adjustments that you had to know, but if you practise[d] it was easier to understand [as] it was the same concept being put across in different ways." This is again the principle of understanding the rules of accounting, mastering the procedures and developing the 'trained gaze' required.

Most of the participants seemed to struggle with adjustments, but for different reasons. In the first group there seemed to be a lack of understanding about what adjustments were, in the second group certain aspects of calculating the figures for the adjustments were problematic, while in the third group the complexity of the scenario was often difficult to understand.[55] As P13 correctly pointed out, this is because "in real life" trying to understand the scenario often means having to extract or calculate information which is not provided. In a more real world environment however, the individual trying to obtain the information would most likely be able to ask someone additional questions to get the clarity required in a given scenario, whereas in an examination situation this is not possible.

My next goal was to understand how students developed mastery over the procedures of investigation and how conscious they were of developing this skill. These procedures enable the generation of a 'trained gaze' which is so important for success in the course.

[55] Very often an adjustment question will include a scenario where something has been processed incorrectly which needs to be reversed, and the transaction then captured correctly. Alternatively a figure could have been over or under-calculated and would need to be adjusted to correctly reflect the income or expenditure of the business for the year.

When you are faced with a new concept in accounting, how do you make sense of the topic? How do you identify the main factors in the topic?

P1 noted that she made sense of the topics by "just taking notes and reading and watching and listening". Keywords were important to P3 while P4 indicated that it was important to "get my own understanding of accounting".

None of the students in the less successful group seemed to have a sense of the rules of accounting, and the need to practise these rules when making sense of a new topic or in identifying the main factors in a topic. Given that Accounting evinces strong classification and framing, and that mastering the procedures of investigation is critical, these participants had not invested the time necessary for success in the discipline. They were demonstrating a vague understanding of the topic, when what is required is to master the rules. These students were experiencing a code clash, where what they were prepared to invest in the discipline was not what the discipline required of them. In looking for 'keywords', P3 was looking for a trigger to access low-road transfer, to stimulate the automatic processes. This is important to note, as P3 was the only participant in this group who was ultimately successful in obtaining an Accounting 1 credit.

For P5, "accounting is about balances … one side has to balance [with] the other side, and that led to the double entry rule". When at school she was given "basic rules for what you debit and what you credit, whether it's an asset, liability or equity, so if it's something new, a new concept, you determine under which category that falls". P5 was using definitions to determine which element an item was. P6 took a slightly different approach, saying she would "read through the chapter and then use the dictionary and discuss it with friends and people who have done accounting before". P6 felt that working in a group[56] assisted her as "I can tell others and help others and that way I will never forget it".

To determine whether she understood the work P7 would "usually use the assignment as a basis of 'do I actually understand it or not?' … then I would use my textbook, while going and doing the assignment … I would make sense of it in lectures, and if not I would ask my accounting friends, they have been really good to me explaining concepts I don't understand". In trying to understand a new topic P7 said she would "use the examples at the

[56] Group work is discussed more fully in 4.4.1 towards the end of this chapter.

time … [and] look for [concepts] I already knew". This is again an example of looking for a trigger. P7 is looking for the familiar in the example, which will allow the automated low-road transfer to start. If she struggled with a concept, P7 hoped that "later on that light would just click". Here P7 is referring to a threshold concept, and being able to access a "transformed way of understanding" (Meyer & Land, 2006, p. 3).

P8 would use the textbook when confronted with a new topic "then I do it in the assignment, then when we get to the tutorial I will see if it was correct and if it was good, then that's fine, I understand the concept, then if I did something wrong then I will go back to the textbook to see what I have done wrong". Here P8 is confirming that he has understood the procedures of investigation correctly. He went on to add "no matter what, the accounting equation is going to come in, no matter what new concept you bring in, that equation is fixed … for me the accounting equation is law". This student had a fixed understanding of the accounting equation being one of the foundational concepts in the discipline. P10 felt that she would "just do it and later on I kind of got the gist of it", which is again a reference to students initially memorising the work and then moving on to an understanding what they are doing.

The second group had a fairly varied understanding of how they made sense of a new topic. Moving from P5 who fell back on the foundational concepts of debits and credits, to P6 who would read through the chapter in the textbook and refer to friends for clarification on specific topics and group work when doing exercises, P7 who would also read through the textbook, but would use assignments to clarify whether she had understood the topic, and would look for familiar concepts within the new topic. Using much the same technique P8 would use his textbook to understand a new topic and the assignment to test his understanding, but for P8 it was clear that 'the accounting equation is law', regardless of what happens in the new concept, the accounting equation and the double entry system upon which it is based will remain unchanged. P8 was also aware of there being certain procedures and ensuring that he had grasped these. P10 also worked from the textbook, sometimes not understanding initially, but eventually 'got the gist of it'. This group was moving from understanding the theory towards starting to obtain mastery over the 'procedures of investigation'. In this move they were also starting to access the automated low-road transfer.

On the whole, the third group had a much clearer understanding of how they made sense of new knowledge in the discipline. P11 would "categorise the accounts to identify what

[element] you are working with". P12 would "read the textbook and then do the examples, do the tut questions … and do the past papers". She said "before a tut I made sure that I read the textbook, I understand, but then my problem was application … I would know, but then I wouldn't know that I have to credit this, I have to debit this, I should calculate it in this way, look at this". This is an example of a student having the recognition rules, knowing what was important and at a theoretical level what she needed to do, but the application or realisation of the rules in a legitimate form was problematic. She understood which meanings could be put together, but lacked the realisation rules required to put the solution into legitimate text.

P12 was an interesting case as she was a NAS who hired a private tutor to assist her with IA. From her responses and from analysing her June exam paper, it seems that much of her learning was still happening at the rote-learning level, as her tutor was 'drilling' certain topics into her and also assisted her in trying to identify likely topics, or 'spotting', for the examination. It meant, however, that at the time that I interviewed the participants, her rote-learning had not yet shifted to understanding,[57] and it seems that she could not identify the building blocks required to construct new knowledge. P12 had not yet practised the procedures of investigation sufficiently to access low-road transfer. Seemingly as a result of a lack of metacognitive awareness, P12 was unable to answer most of the questions in this section on acquiring knowledge and realising and / or recognising legitimate text.

P13 used the internet, with the multiple and varied explanations found there, to assist with new concepts. She would "make a step-by-step process for how I answer it, but that is normally just initially and then when I start to understand the concept, then I don't really use the steps anymore". This again is an example of IA students first learning by memorising and then moving to understanding and finally moving to automation of the processes and low-road transfer.

P14 said that he gained understanding through "practise mostly, I think I usually read through [a new topic] a couple of times and … then I will practise it". Practising a concept in varying scenarios is an essential step in the procedures becoming automated, allowing low-road

[57] See previous discussions about understanding. While P12 had obtained some level of understanding, of Accounting rules and procedures of investigation, this had not developed into the deeper or more complete level of understanding which would have been expected from a 'very successful' student. Put another way, P12 understood the classification requirement, but lacked the framing at this point in her studies.

transfer. This is also another example of a "semantic wave" (Maton, 2013), where an abstract concept (strong semantic density and weak semantic gravity) is given a context (strengthening semantic gravity and weakening semantic density) and this results in an improved understanding of the abstract concept for the learner. The wave is completed when this understanding is taken back to an abstract level with an altered understanding. P14 found he was very frustrated when he did not get feedback on an assignment where he had made a mistake "and the tutors don't always have time to go through it with you, so you can't always see where you went wrong and if I have gone wrong it means that I didn't understand the concept properly, so I want to understand it before I move on". P14 felt that if he had an incorrect understanding at a cognitive and procedural level, this cognitive dissonance[58] would only be resolved through a tutor identifying where the error was made, for P14 to be able to modify his understanding.

P15 again saw and understood things at a very different level. She would read the topic to be covered, in advance of the lecture, so that she had an understanding before the lecture started. She not only used the textbook prescribed by the department, but also used another two South African textbooks and from the three books gained a more complete understanding. According to the Dreyfus (1980) model of skill acquisition as discussed by Flyvbjerg and Sampson, an expert "achieves intimate experience from different situations, all of which touch upon the same goal and the same perspective, but which demand different tactical decisions" (2001, p. 17). I would like to suggest that in using three different textbooks, P15 was obtaining exposure to the same topics from the perspectives of different authors, which would have had slightly different approaches, and that in so doing, she was starting to exhibit signs of being an expert at this level. P15 found the learning outcomes provided in the textbook useful in identifying the main concepts in a topic and also in breaking a topic down when revising.

As with the second group, the third group was aware of the learning cycle which was required to obtain mastery over the procedure in this course, that they should first read the textbook to understand the theory (weaker semantic gravity / stronger semantic density) and to go through basic examples (stronger semantic gravity / weaker semantic density) and refer

[58] According to Festinger, cognitive dissonance is a "condition" which leads to an action which is intended to reduce the dissonance (1962, p. 3).

this back to theory to ensure that the new found knowledge is understood at a theoretical level (weaker semantic gravity / stronger semantic density). This is the full cycle of the "semantic wave" (Maton, 2013). Students should then go through additional examples to ensure understanding in slightly differing contexts, when necessary using step-by-step instructions to assist until understanding develops. In this way they would be working not with the theory, but with examples which have stronger semantic gravity and are more context dependent. Assignments and tutorials should be used together with feedback from tutors, to confirm understanding and proficiency. See the section on recontextualisation (2.5.2) for more information on how textbook authors recontextualise the discipline's worthwhile knowledge store via the pedagogic recontextualising field.

Apart from P12, this group had accomplished the next step of developing the 'trained gaze' necessary and being able to access the automated low-road transfer which would result in success in the course and which is essential for continuing in the accounting field. The process is: learn the theory, learn the rules, practise implementing the rules, develop mastery over the procedures, develop a trained gaze and in doing this be able to allow low-road transfer to be accessed and through all of this, acquire both recognition and realisation rules.

There were differences in how Novice and Matric Accounting students made sense of knowledge in accounting. NAS seemed to rely more on MAS friends to ask questions and confirm their understanding. MAS understood that there were times that they needed to "just do it" (P10), to memorise and repeat until a deeper understanding grows (P14). NAS seemed to feel that if they did not understand it was because they were NAS or as put by P7, "I think some people might feel you are a little bit stupid", rather than because this is a threshold concept or a case of cognitive overload, the demands placed upon learning by the structure of knowledge in accounting. MAS were more likely to identify a 'recipe' or 'word rhyme' to help them understand a topic.

Having gained an understanding of what the participants saw as being important in accounting and how they made sense of knowledge in accounting, what I next wanted to understand was how these students made sense of the questions asked in the June examinations and how they constructed solutions to an accounting question.

4.2.3 Developing a 'Trained Gaze' and acquiring both recognition and realisation rules

In an accounting adjustments question,[59] very often a list of figures is provided, a scenario is skteched, students are given the adjustments which need to be taken into account and lastly the student is provided with a 'required' section. In the required section students will be told what it is that they need to do in the question, literally what is 'required' of them. It is the 'required' section which should direct the student's gaze. Once students are aware of what is 'required' in a scenario, they should understand what is important in the question and should be able to focus a 'trained gaze' on the relevant aspects of the question.

What was interesting to me in asking students how they approached answering a question, was to find out how students read and understood what was 'required' differently, in some cases incorrectly, and in some instances seemingly not at all. To assist me in understanding this from both the 'acquiring knowledge' and the 'recognising and realising legitimate text' perspectives, I first looked at what the participants said in their interviews, and then analysed how they answered the questions in the June 2011 examination. My reflections on the June assessments are made in *italics* to guide the reader as we move from one participant to the next.

Before looking at the participants' responses, it may be useful to first look at how I would typically try to construct an Introductory Accounting examination paper. I try to ensure that there is a fair spread of marks across the paper so that less knowledgeable students are able to prove minimum levels of competency and so that those who have achieved a high level of understanding can demonstrate this level of competency. I also try to set the first question in the paper at a level manageable for most students with basic to more developed competencies, so that students gain confidence at the beginning of the examination period. This means that the paper would be constructed with questions testing basic competencies; more developed competencies and advanced competencies.

[59] I have used an adjustments question as an example as it is the area most students seem to find difficult and it is probably the most complex in terms of how a question is constructed, and therefore how it needs to be understood.

At the level of basic competencies, students are asked questions requiring a basic understanding of the double entry system and the accounting equation and the elements in the various financial statements. There could also be basic formatting questions not requiring much modification. Students who can only answer questions testing basic competencies are not likely to pass the paper as a deeper understanding of accounting is necessary to demonstrate competency at this level.

At the more developed level of competency, students would be asked questions requiring understanding of a particular context; an ability to make a decision about what transactions are required to carry out the instructions required; and an understanding of the correct format in which this should be presented. Here the cognitive demands are increasing and some students could start struggling with cognitive overload, if they have not reached the level of automatic processing provided through low-road transfer. Students who can cope with questions asked at the level of more developed competency should pass the examination paper.

At the level of advanced competency, students would need to have a deep understanding of accounting procedures and would need to be able to follow a transaction through various scenarios and finally to know how to convert the various processes into debits and credits to the various accounts, and be able to present these transactions in the required format. Students who are able to answer questions set at a very challenging level are likely to obtain upper second or first class passes.

Any question could contain sub-questions and these sub-questions could be set at the various levels. A full question is not likely to be set at only one level, particularly not at a level of testing only advanced competencies.

The reality is that students are likely to have both successes and failures at all of these levels. It is only students who have fully mastered the procedures of investigation and who can concentrate adequately during each question, who are likely to perform exceptionally well in an Introductory Accounting examination.

Next I will focus on students' responses to how they approached answering an accounting question.

When you are given an accounting question, how do you go about answering that question?

P1 seemed to struggle with the question, needing clarification and guidance, eventually saying she would "break it down and see what they are asking" and "to see which accounts apply". This response shows little understanding of what is required for academic success in a hierarchical knowledge structure like accounting. *In the exam P1 did not understand, or perhaps did not read, the 'required' section, which meant that a trained gaze could not be triggered. It could also be that the procedures of investigation had not been practised enough for low-road transfer to become automated. She was not able to carry out the required transactions for basic concepts, which shows there were gaps in her basic conceptual understanding. Where there were basic format exercises*[60] *with no calculations, P1 was able to do what was required. She had in some instances obtained the recognition rules, but not realisation rules.* P3 said he would first change the name of the business to one he was familiar with, to make it feel more comfortable to him, he would then "first read the information, read the question, then read the information again … to understand really what they are saying" and to look for keywords and dates. He would then try to get a deeper understanding of what actually transpired in the scenario before attempting the solution. In changing the name of the business to one that was familiar to him, P3 was trying to increase the semantic gravity of the question to assist him in making meaning of the scenario. This was, however, a very superficial strategy with limited effect. In looking for 'keywords' P3 was trying to trigger the low-road transfer which would assist him in automating his responses. *In the exam P3 demonstrated that he had recognition rules, he knew which figures had meaning, but he did not have the realisation rules which would allow him to present these figures in an appropriate way. P3 had gaps in conceptual understanding, but where basic formatting and no calculations were required, marks were obtained.*

P4 would "read through the extract first, then highlight key points before actually seeing the question to it", once he had done that he would read the 'question', the required, and then highlight "the even more significant points". He would then look for a "trigger" to identify

[60] In these basic formatting questions students were provided with a scenario and were required to use the figures provided to complete a portion of a financial statement, with little or no calculations required. The aim here was to build confidence at the beginning of the paper and limited marks were allocated to this part of the question.

which of his learnt structures he should be using. Highlighting the text before reading the required section in a question was of little value to P4, as he could not know what was important, and therefore what needed to be highlighted, before reading the 'required'. In looking for a trigger, P4 was trying to find something familiar in the context provided which would stimulate the automated procedures. While P4, like P3 in an earlier question, was looking for a 'trigger', this was not as useful for P4 as he had not practised sufficiently to access "low-road transfer". *P4 mixed up the basics of the double entry system, the foundation of accounting, in his exam. While finding basic formatting with no calculations manageable, he showed that he had a problem with moving from recognising text which had meaning, to being able to realise this in a legitimate manner.*

The less successful group of students struggled with answering assessment questions. Having not read the 'required' section first they were not sure how to direct their gaze at the question and occupied themselves with highlighting keywords. *All of these students had significant gaps in their basic conceptual understanding of accounting. All three mixed up simple debits and credits. While P3 and P4 understood that adjusting journal entries needed to be reversed they did not know how to do this and P1 did not attempt this part of question 1. These three students were also quite competent when it came to producing a statement in a format which did not require any analysis or interpretation, showing that they had developed recognition rules in some areas, they could see which meanings (figures) could be put together, but they had not developed the realisation rules required to put these meanings together in the form of legitimate text. They had not obtained the required mastery over the procedures of investigation or developed a 'trained gaze'.*

In the second group P5 said she would highlight the key points and try to understand what was being asked in the question. *While P5 understood the need to reverse the adjusting journal entries and did this correctly, she then deleted all of these entries. There were a few basic errors, but these seemed to be mistakes rather than a lack of understanding. She seemed to have rushed through the last question and provided the wrong statement which meant she lost thirteen marks (13% of the paper) which most other students had managed successfully.* In her response P6 demonstrates that she is developing a 'trained gaze', "I try just to look at the required first, then go through the information which is given then the additional [information] and try to extract what applies to that question. This latter statement points to an understanding of recognition rules, knowing which meanings can be put together.

In her exam P6 demonstrated that she understood the basics of accounting,[61] *but she struggled with some questions testing advanced competencies*[62]. Being an English second language speaker, who had previously had little exposure to English, P6 may not have had the English vocabulary and comprehension to understand some of the more nuanced aspects of the questions. While P7 did not refer to the 'required' section, he demonstrated that he understood that it is important to fully understand all aspects about the question saying "I will identify what [element or account] it is first, then do the calculations, make sure I have included everything that I can find about that and then I will answer the question". This comment also seems to refer to recognition rules, to knowing which meanings may be put together. *P7 did not seem to be guided by the required section, or otherwise simply left sections out. The double entry system was not always adhered to, and P7 struggled with more challenging aspects of the questions.*

What was probably the most comprehensive response from all participants on how to approach a question came from P8 who said he would first look at the 'required' then he would do "a quick 5 second skim through what kind of information they have given us, then I would read the requirements, then I would go back to the information and read through it thoroughly, looking for exactly what I am looking for and I find everything that I need and then compile the answer". Showing that he had developed a 'trained gaze', having read the 'required', P8 scanned the question to identify important information which was required for his solution, which meanings (figures) could be put together through recognition rules. For critical information in the question P8 would go to his "knowledge base on all the formulae or steps to take to working out something". P8 was now putting these meanings together in a legitimate text. As P8 was consciously accessing his 'knowledge base' it is clear that he was engaging higher order thinking and this was not an instance of accessing low-road transfer.

[61] By the 'basics of accounting' I mean that on the whole the student seems to have understood the double entry system and the accounting equation. The student should also have on the whole understood the basics of depreciation, the calculation of interest, and the treatment of inventory.

[62] By 'advanced competencies', I am referring to a difficult interest calculation, or an understanding of how to deal with the return of an inventory item sold, which included a VAT component (something few students managed to calculate correctly). When testing more advanced competencies, there would be the normal transaction, but with an added layer of understanding required, and therefore a greater level of difficulty.

When a question or topic was a little difficult P8 would use a t-account[63] to assist him in deciding what to debit and what to credit. *From an analysis of P8's examination responses, it seems as if he had not invested the time necessary to allow all of the procedures of investigation to become automated through low-road transfer. In his June paper, P8 deleted figures which he had calculated correctly, he totalled columns which did not need totalling which may have resulted in him wasting time. He left out more complex questions and was not able to answer the theory section. Not attending many lectures and limited time spent revising,*[64] *had resulted in him not completing an uncomplicated "Statement of Changes in Equity" which he needed to present as part of the financial statements.*[65] *Using a t-account was P8's way of trying to trigger the automated responses of low-road transfer.*

A t-account was also used by P10 when struggling to decide what to do, she would start with the account she understood and try to determine what the other (contra) account was. As with P3, P10 would also try to make the business more real, but in this case more effectively, by visualising the transaction. Visualising the transactions is a more successful strategy to strengthen semantic gravity in an otherwise abstract transaction. *With a large section not completed properly as P10 seemed not to have revised this topic, just one minor mistake in terms of debits and credits, and one more complex question omitted, the rest of the paper was well answered.*

Most of the participants in the second group show evidence of developing a trained gaze. Most participants were aware of the need to understand the 'required' first before being able to identify what is important in a question. In this group, participants showed that they were starting to gain mastery over the procedures of investigation and to develop a trained gaze and they were moving towards being able to access automated low-road transfer of processes. They also showed greater awareness of the need to put meaning together through recognition rules, as well as a demonstration that realisation rules had also been acquired in some instances.

[63] The purpose of a t-account was explained in the section under 'Making sense of knowledge in Introductory Accounting'

[64] This is according to both the interview and the information provided in the questionnaire.

[65] This is discussed in the section on constraints.

P11 would "first try to get a grasp of the question and what is involved", by reading through the question in its entirety. He would then "focus on what we are required to do … look back to the additional information and see what is relevant". In seeing what was 'relevant', P11 was demonstrating having acquired recognition rules. *P11 had not revised a section of the curriculum and lost marks as he was unable to answer a question fully. He also appeared not to have revised the section of theory which was tested, and had made some basic errors, but the rest of the paper was answered well.* In the same way P12 would "go to the required and then just look for the words that cover, like interest expense, look for interest and then with interest look for date and the time and whether the loan is repaid every time". P12 was also showing that she had acquired recognition rules; she knew which meanings could be put together. In looking for words which relate to a topic, P12 demonstrates that she was looking at the question with a trained gaze, looking for items which needed to be included in a solution, which meanings could be put together. *P12's tutor had forgotten about changes from matric accounting to university accounting and P12 therefore calculated some figures incorrectly and lost marks as a result of that.*[66] *P12 did not understand some questions which required advanced competencies in the exam and lost marks as a result of that, but the rest of the paper was answered well.* When constructing her solution, P13 would first draw up the skeleton of the answer to ensure that she obtained any formatting marks,[67] and she would then simply fill in the figures. For example with a journal entry, she would first write in the accounts to be debited and credited and then calculate the amounts to be included. *In her responses P13 showed her lack of experience in IA. In some instances she totalled columns incorrectly, and it is difficult to determine why, there was a lack of basic understanding in some questions, some questions were answered correctly and then deleted, while some more advanced competencies seemed to be missing. In drawing up the journal or general ledger format required for the solution, P13 was providing the trigger for the automated procedures, which permitted access to low-road transfer where possible. Overall this was a very good effort by a NAS.*

[66] As P12 was a NAS, it could only have been through the additional tutoring which she obtained from her private tutor that she learned an incorrect (and old) way of dealing with discount.

[67] Formatting marks are given to ensure that student present (format) the question correctly. Correct presentation of the solution is important at the Introductory Accounting level.

In constructing his solution, P14 said he would only use a t-account if he was really struggling, but mostly he just used the bank account as his point of reference, if money was deposited the bank account would be debited, if money was withdrawn, the bank account would be credited. If the Bank Account was debited, the other (contra) account had to be credited. *P14 seemingly missed aspects focussing on advanced competencies in one question and lost some marks in a theory question. On the whole P14 demonstrated the ability to both recognise and realise legitimate text at a high level.* P15 said she felt it was important to be clear on the concept being tested and to understand the structure of the question. She also felt that it was important to understand where the figures came from and how they relate to the question being asked. For P15, understanding was a recurrent theme. It was not enough for her to be able to just do something; she felt she had to truly understand what she was doing. *In the exam, P15 missed one or two advanced competencies in one question, and made a few errors but the rest of the paper was answered with a deep level of understanding, showing her ability to both recognise and realise the legitimate text required at a very high level.*[68]

The less successful group of students did not appear to read the required section and therefore struggled with answering the questions. They also showed limited understanding of the procedures of investigation and therefore limited acquisition of recognition rules and little evidence of having acquired realisation rules. In the moderately successful group most students used the required section to direct their gaze at what was needed in the question, demonstrating that they were moving towards developing the trained gaze required, at having obtained mastery over some procedures of investigation and of developing a trained gaze. Participants showed evidence of having acquired both recognition and realisation rules. Participants in both the moderately successful and very successful groups used a strengthening in semantic gravity to give the question more context, to assist them in constructing a solution. Most participants in the very successful group demonstrated a high level of competency in the acquisition of both recognition and realisation rules; that they had successfully developed the trained gaze necessary for this Knowledge Code field, allowing low-road transfer to take place where appropriate.

[68] By this I mean that P15 fully understood and implemented all the intricacies of the questions asked, and only failed to understand the procedures in the returned inventory including a VAT component discussed earlier.

Developing a trained gaze is linked to acquiring recognition rules, which is a function of classification. This means understanding the strength of the boundaries between information provided in a question when answering certain aspects of the question and understanding therefore which meanings can be put together.

Having asked how students acquired knowledge and constructed legitimate text in Introductory Accounting, I next wanted to understand from the participants, what they saw as being helpful in the course and what was not helpful in the course. More than that, what did they feel was obstructive? I was trying to identify the factors enabling and constraining students' learning; the students' perceptions of the planned teaching and learning activities in the course and in particular the pace of the course: I wanted to understand which practices were effective for some students and not for others and why. This would enhance my understanding of how students perceived and experienced aspects of the course and if necessary it would guide me in making decisions about possible improvements which could be made to the structure of the course.

4.2.4 Enabling and Constraining factors in the Introductory Accounting course

In this question I wanted to understand students' perceptions and experiences of the various teaching and learning activities which were planned for the semester, what students found useful as well as what was not useful and why.

I will first look at what participants found helpful during the semester of the IA course, the enabling factors; and then I will look at what the participants found was not helpful, and possibly obstructive, i.e. the constraining factors. Again I will start by looking at the responses sorted into the three groups according to academic performance.

What assisted you in making sense of Introductory Accounting this semester? If students needed prompting, they were guided by 'in terms of the planned teaching and learning activities; lectures, tutorials, assignments'.

Enablements

In the less successful group P1 found the tutorials useful, as in tutorials she and her peers "worked together and we did the questions together", she also found the assignments - which

she also completed with a group of friends[69] – useful as "we were able to discuss and help each other". Working in a small group of friends gave P1 the weaker framing which she wanted as her inclination was to work in a less structured environment. When preparing for exams P3 found he made sense of work he had struggled to understand initially, so he found his exam preparation time useful, as well as going through exercises during lectures and the revision lectures. The pressure of exams forced P3 to apply himself and to spend time on the subject. P4 found the support on campus, in terms of the tutorials, tutors, and simply being with other students in a similar position, very useful. It seems that while P4 was aware of the support and opportunities available to him, he was not able to make use of these in a manner beneficial to him in this discipline.

Three very different and seemingly unrelated enabling factors were identified in the less successful group. There seemed to be little awareness that the purpose of the planned teaching and learning opportunities was to support learning. Although P1 refers to the group work within tutorials and in doing assignments, her focus seems more on the friends within the groups, than on the work being completed.

Within the moderately successful group P5 said "I actually don't think there was anything that was not useful". P6 said that she found "practice" to be the most useful as well as "asking for help when needed and doing the exercises [with] friends, teaching each other". P6 recognised the importance of mastering the procedures and spent her time trying to do just that. She also found the assignments useful, and she continued attending lectures despite feeling stressed as she would "grab something and then that thing will stay in me forever, I will always recall that definition or that tip".[70]

For P7, lecture attendance "especially if you haven't done accounting before [was] very, very beneficial". P7 felt that with the lecture slides being made available only at the end of the section, that students would pay attention to the slides during the lecture and listen to and understand the lecture better. P7 seemed to be aware that it is important to learn accounting "in sequence under the guidance of an expert" (Hoadley & Muller, 2009, p. 75) and that active engagement during lectures is more beneficial than sitting passively. P7 also felt that

[69] Group work is discussed in more detail in 4.4.1 towards the end of this chapter.

[70] This is discussed in more detail in the next section on Constraints.

having an Academic Development (AD)[71] session before tests and exams "was really useful". She felt that assignments, if done properly, "test your understanding". Regarding the use of DAXLIC to help students remember the elements and whether elements increase on the debit or credit side, P7 said "right in the beginning when you really don't understand what is going on … that just gives you something that you can refer to, it's like a formula in maths, you might not understand what you are writing, but you know what that value is so you can plug it in there". From this comment it seems that P7 felt that in the beginning IA students started from a point of rote-learning, using mnemonics to assist in memorising. P7 implies that she moved from this rote-learning to understanding.

P8 felt the most beneficial was "the tutorial with the tutor and the tutor presenting on the board and discussing it" as there was more "personal engagement". Weaker framing in the tutorials also seemed to feel more comfortable for P8. He also found the assignments useful, even though at times they were "tedious, horrible", he felt that "in the end you are practising these new principles; they are getting stuck into your head nicely". The value of practice and learning the procedures of investigation seem clear to P8. While he felt that the lecturer was very good, P8 did not like the lecture environment and therefore did not attend many lectures, but found that overall "lectures were good, the few that I did attend, I thought that they were well set out, going through the examples on the projector". While there is a strong similarity (superficially at least) between what took place in the tutorial and what took place in the lecture theatre, the stronger framing in the lecture theatre meant that P8 did not feel comfortable in this environment. Both lectures and assignments were useful according to P10, although she found she preferred to do her assignments in a group "not just copying each other, just [so] that someone is there … if I need to understand something or they need something"; the weaker framing permitting greater interaction during an informal study group also suited P10.

Within the moderately successful group, participants were aware of the opportunities offered by the teaching and learning activities, with lectures, assignments and tutorials seen as being useful by most of these group members.

Within the very successful group P11 felt the tutorials and the assignments were the most useful. He found the assignments useful as they were used to prepare for tests and exams and

[71] An AD session or class is a revision class.

he found the tutorials useful as they were interactive and "you are forced to think about it more because you are actively participating". In both tutorials and in preparing assignments, P11 would have been focussed on practising the procedures of investigation and on developing a trained gaze. It seems that P11 needed to be forced to spend the 'time on task' necessary, but there is also recognition that active participation in teaching and learning activities was useful.

P12 found that the tutorials were the most useful to her, as well as working consistently throughout the semester. She also felt that a fear of failure, when told that that NAS did not perform well in Accounting 101, strengthened her resolve to be successful. Instead of allowing a student's comments to demotivate her, P12 converted these comments into additional motivation to work hard and pass the subject. P13 found the lectures the most useful, as well as the textbook – but she said the textbook was most useful at the beginning of the semester. She also found the tutorials useful when she was given guidance on how to approach a question. Assignments were useful as they "forced me to apply myself to a question [and] if I didn't understand be forced to re-look at it and re-look at it until it started to make sense". This has to do with agency, and needing to be forced to engage with the discipline. P13 is also referring to practising until she reaches understanding. P13 continued that often while "in lectures if I didn't understand something, an initial response was to kind of just shut [myself] off". This refers to either getting stuck on the hierarchical 'rung' where learning ceases, or it could be being confronted with a threshold concept, which she had not yet understood. She found it useful to be taught to first draw up the structure of the solution, like journals and general ledger entries as well as the financial statements, as a way of starting a question. This was because "we were taught that basic structure just to begin with as [once] you've drawn the lines and filled in and you know that you have got somewhere". This refers to P13 activating a trigger for the automated processes she had learnt.

P14 found helping other students the most useful. In helping others he would need to "break it down to a more simple form" for himself which would often reveal his own errors. Helping others would also mean that he would need to have a better understanding of the concepts himself and often led to him doing additional exercises to make sure he could help his friends. He found tutorials useful when they were divided into smaller groups and everyone was involved in the work.

Interestingly, P15 had also formed a study group and she found this group useful, as was completing the assignments. She says that students who do not work through the assignments themselves not only lose out on the benefit of identifying what they do or do not know, but when the tutors go through the work in tutorials, "if you have no background of how it was in the … questions, you won't make much sense of it". She goes on to add that completing assignments is "not about just writing and submitting and not losing your DP[72] … it is about trying to understand slowly, but making sure that at the end of the semester you [understand] what was required". P15 is clear about the goal for the teaching and learning activities in the course, which is to provide opportunities for students to engage with and to understand the work which is to be covered during the semester. She also found tutorials useful, as the smaller tutorial environment allowed for more interaction and a space to ask questions more easily, while the revision of past exam papers was also useful. Again, weaker framing was found to provide an easier space for students to learn at their pace and to ask questions about topics they are struggling with.

Within the very successful group, most participants felt that assignments and tutorials were useful. The focus here has shifted to practising the procedures of investigation, as opposed to learning during a lecture, as most of these students were MAS. Here some students speak about the benefit of group work from the perspective of being a 'teacher', or the additional time spent on exercises in preparing to help other students.

The less successful group felt they had benefited from having a group of friends to work with during tutorials as well as exam pressure to force study time and other support on campus; while the moderately and very successful students recognised the value of the teaching and learning activities and the learning opportunities that these activities presented in the form of: lectures, assignments and tutorials. These participants also mentioned the value of 'practise' in ensuring that they fully understood the procedures required.

Having obtained some idea of what students found useful, next I needed to find out what was not useful.

[72] A 'DP' is a reference to a Duly Performed Certificate. Every student needs a Duly Performed Certificate to be able to write the end of semester / year examinations. The default is that every student has a 'DP', but students can lose their DP by not meeting the course requirements, in this instance submitting all assignments.

What did not assist you in making sense of Introductory Accounting this semester, or was possibly even obstructive to your learning?

Constraints

The fast pace of the course seemed to be a problem for most students, and was mentioned frequently by the participants as a constraint. In terms of Bernstein's Pedagogic Device, pace would fall under framing (control), what students felt they have control over. While in this course most participants seemed to feel that the pace was too fast, "weak framing over pacing is … crucial for facilitating access to … knowledge … creating the opportunity to individualize the rate of acquisition", (Hoadley & Muller, 2009, p. 73). Pace seemed to be a constraint on learning for most students, but particularly for the participants in the less successful and moderately successful groups and for NAS. This is discussed separately below.

P1 said she only attended about one lecture a week as she lived too far from campus.[73] This comment by P1 seems to show a lack of motivation to attend lectures. P3 felt that when assignments were too long they hindered his learning as he had less time to spend studying. He saw his study time as revision time and not as time for learning and practising the concepts. He said that when he understood a section he often did not need the recommended time allocation given for the example, but when a section was difficult, which he said could mean that he did not understand it, it took him longer to do the assignment. P3 did not seem to see the value of the assignments, despite realising that the better he knew his work, the quicker he completed the assignment.

P4 felt a little uncomfortable in lectures "surrounded by so many people" and felt that lectures were "too condensed". In saying that the lectures were too condensed, P4 could have been speaking about the language in the lectures evincing stronger semantic density, that too much meaning was contained in a word; it could have been that he was experiencing cognitive overload, or that there were too many threshold concepts for him to cope with, or any combination of these three. Unlike P6 and P13 who would remain in a lecture, even though they felt uncomfortable, P4 elected not to attend lectures. As assignments were more like "homework" and were not "exciting" he did not feel they had much value and felt they

[73] Student lived 1.5km from campus and had a family member who drove to campus on most days.

were not interesting as they had to be submitted on a weekly basis. P4 also struggled with the "textbook approach to doing things". This seems to be indicative of the student experiencing a code clash between his preferred way of doing things and the demands of the discipline. With Introductory Accounting being a Knowledge Code field, it has a fairly structured approach to the required teaching and learning activities. The steps which students are required to traverse are clearly described, and for cumulative learning to take place there are definite steps which need to be understood. P4 on the other hand wanted a more 'creative' approach, he wanted more emphasis on the knower, and so he would have been more comfortable studying in a Knower Code field. P4's approach to studying in IA was incongruent with the approach needed to be successful in the discipline.

P5 felt that having one AD class[74] before the test was not useful as there were still too many unanswered questions.[75] AD classes seem to be viewed as additional teaching slots by P5, and not just an opportunity to go over the major topics. There is a limited amount of work which can be covered in one or two revision sessions. This is an example of two students (P5 and P7) being at the same event (at the level of the Actual), but experiencing the event (at the level of the Empirical) very differently. P5's comments do not imply that the AD class was not useful, but she is suggesting that more classes were needed. P5 also felt she did not have control over what was asked in an exam. From this it seems that P5 would have preferred weaker framing over the assessment of the course.

Time was a constraint for P6; who felt there was limited time to practise accounting without the additional pressure of there being a test or exam or an assignment to submit. Being a NAS, it could be that simply doing the minimum work which was required, was immensely time-consuming for this participant. P6 sometimes struggled during lectures as she would "go into the lecture knowing something and thinking that I understand it and half-way through the lecture I am blank and stressed and I think maybe I should even stop attending lectures". It is unclear from these comments whether P6 was stuck on a hierarchical 'rung',

[74] At the time that these interviews were conducted, AD classes were an ad hoc add-on to the teaching programme. From 2013 an additional lecture was planned per week, which in effect also became a regular 'AD class'.

[75] P5 spoke about this in the third person, there were 'other people' who had unanswered questions, but it seems that she had unanswered questions as when I asked why did she did not follow up on these questions earlier, she responded in the first person.

where learning stops until understanding develops, or whether this is an example of cognitive overload. P6 also felt that her tutor was not helpful as he did not make himself available for additional revision over the weekends.[76]

The tutor was also a problem for P7 who said "my tutor in first semester wasn't a very good tutor … he literally came in and if you wanted to you could copy out the solution … if you've got a bad tutor, you've got a problem". Again this is an example of students experiencing scheduled activities differently. It is more understandable that students' experiences will differ when relating to the tutorial programme, as there would have been different tutors and different tutoring events. Attitude was a constraint for P8, "my over-confidence" was obstructive, "I think again it comes down to being a cocky first year student". This resulted in P8 missing the first weeks of lectures, and then falling into a habit of not attending lectures. P10 felt that tutorials were not useful. "Because … the atmosphere of wanting to do it just isn't there." It seems that this tutorial environment was not conducive to learning as the tutor would be "answering … just random questions, so they will be talking there and usually making a noise and we are trying to do this". At the end of the tutorial the solution would be put up, but there would be little or no time for explanations or questions. P10 would have preferred a tutorial environment with stronger classification and framing, more boundaries and greater hierarchical control within the tutorial environment.

While P5 went into tests with too many unanswered questions, P6 and P7 had problems with their tutors with P6 feeling that he should be available after hours and P7's tutor seemingly did not add value to the tutorial. P6 also spoke about being 'blank and stressed' during lectures. P6 would also have liked more time to spend working on accounting exercises outside of assignments and tests. By his own admission, P8's attitude to learning was problematic. P10 also struggled with the tutorial environment.

In the third group, P11 said that all of the planned teaching and learning activities were important. "I don't think any of those could work in isolation. I don't think you could remove lectures and still gain an understanding. So I think you need all of them." P11 was aware of the value of the planned teaching and learning activities in this course. P12 felt that the assignments were not useful as "they were not for marks". P12 did not see the value of

[76] I explained to P6 that tutors were not expected to be available over weekends, it seems that a promise was made to assist at a group study session and this promise was not met which led to her frustration.

assignments as a learning opportunity, or an opportunity to learn the procedures of investigation. This is an indication that for P12 "assessment defines what students regard as important" (G. Brown, 2001, p. 4). She also said that "accounting is the one [subject] that I found more intimidating than anything else" and yet there were no regular revision classes for the subject.[77] P12 also found it difficult when MAS commented on how easy an exercise was, when she could not understand what she was supposed to be doing. While saying that she had not found anything particularly unhelpful, P13 found that she would have preferred to use her tutorial time for self-study, as the [tutorial] time was not used effectively. As P13 was able to work without external controls, she would have preferred to control how tutorial time was used. P13 felt that sometimes when the lectures felt a little fast she would get lost. She did add that her perception of the speed of the lecture was linked to her understanding of the topic being covered. When her understanding increased, the pace of the lecture felt more manageable. P14 also felt that tutorials were sometimes a waste of time when he could hear the questions being asked but not the answers and if he was not participating "then I get distracted". He added "I think with accounting it is too hard to unpack without the help of other people. I don't think [that tutorials are] really obstructive, it's more helpful than [not]". P14's comment about needing the help of others to 'unpack' accounting supports Hoadley & Muller's suggestion that hierarchical knowledge structures should be learnt "in sequence under the guidance of an expert" (2009, p. 75). For P15 the number of lectures per week was problematic. "I think the lectures are few. Maybe they should be increased to four. Because you find you do not have time to do more examples in class." She also felt that AD classes should be held more regularly.[78]

Among participants in the less successful group, long assignments, large group lectures and the hierarchical nature of knowledge in accounting were mentioned as constraints on learning in this course. In the moderately successful group, time pressures, poor tutoring practices and personal attitude were listed as constraints. Participants in the very successful group found

[77] It is unclear from this comment whether P12 missed the planned revision classes, or whether she would have preferred additional revision (AD) classes.

[78] As the lecture timetable is planned centrally, it is relatively fixed and making changes to this programme takes a long time to organise. While enquiries about additional lectures were made at the time of the interview process in 2011, it was only in the 2013 academic year that an additional lecture became reality.

that forced tutorial periods and tutorial periods where students are not participating, as well as the limited number of lectures a week, were a constraint on learning. These constraints were not necessarily supported by all participants within each of these groups, but were simply mentioned by a participant.

Some of the items which are raised as constraints cannot be changed, or in fact are useful to students. For example, the long assignments which according to P3 could have indicated that he did not understand the work, were seen by many as an aid rather than a constraint, as in doing the assignments students identified areas of poor understanding. Large group lectures and fixed tutorial periods are unlikely to change. The structure of knowledge in accounting which largely determines what is taught and in what sequence is even more intransitive. Personal attitude and how students reacted to problems like time constraints and negative comments from other students are outside of the control of the Course Co-ordinator. However areas like poor tutoring practices and the limited number of lectures a week are serious constraints on student learning and can be addressed.

Pace

Regarding pace, P1 felt "in the beginning it was slow and after a few chapters it sped up a bit". She went on to add that had she attended more lectures "it would have been easier for me to keep up" seemingly implying that she did eventually get left behind. While according to P3, the speed with which we covered work "was very fast", and he "had a problem with that". Although he clarified that he was speaking more for NAS friends than for himself, while he found the pace was fast, for NAS it was "extremely fast".[79] P4 felt that the pace was "a bit quick, because … there is a lot … to learn". While P1 said she found the pace slow to begin with, it seems it became too fast for her, while both P3 and P4 found the pace fast.

When asked about the pace of the course P6 said "because I was stressed so I can't really judge, but according to me at that time I would say it was too fast". P7 said that she was "a bit bewildered right in the beginning", but that "once you get through that first term then … in second term you sort of like balance out with them (the MAS)". P10 also felt the pace "was very fast". All three of the participants in the moderately successful group who

[79] This seems to be another instance of a student ostensibly speaking on behalf of others, but seemingly speaking for himself.

answered this question found the pace fast and even bewildering. P5 had unresolved questions at the time of the AD class, so perhaps she also found the pace of the course a little fast, as according to her responses in the questionnaire, this did not seem to be as a result of low lecture attendance.

While P11 felt the course was manageable in terms of pace, it "went a lot quicker" than he had been accustomed to at school. However, he did not feel in control of the pace during lectures where he found the slow pace of lectures would sometimes make him frustrated and cause him to miss lectures.

When asked about the pace of the semester, P12, a NAS, gave a comprehensive response:[80]

> I think that the overall speed was all right. The course started off slowly, giving me time to get my head around accounting terms and the way of doing things. It made it easy for me to revise/study and understand because I would focus on a few things at a time (those that were covered in class), without any pressure. Of course as time went on things became faster and I understood that it was necessary so that we cover the relevant sections within the pre-determined time. That's when it became more difficult for me to cope with the workload but once I got used to it I was able to adapt and even work well under the pressure.

While P13, also a NAS, found the pace of the semester "more than often a bit fast", she said "with new concepts I often find it a bit fast, then obviously when I understand it, it seems like we are going at a normal pace, it's just when it's all new it seems very fast." While P14 felt that the pace of the semester was reasonable for MAS, for NAS he said "I don't know how they pass to be honest … the amount [of work] that they had to cover is very intense". P15 felt that the introductory two week period[81] was very slow (she had attended all of these lectures) while the NAS were given the time and space to become accustomed to the concepts, but thereafter she felt they had to move out of their "comfort zone".

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[80] This response was e-mailed to me after the interview, and it seems that P12 took more time to contemplate her response than other participants had available to them during the interviews.

[81] When these interviews were conducted, at the beginning of the academic year, one week was spent going through the Conceptual Framework, to give the MAS something new to work on. The next two weeks were spent going through the basics of Accounting, debits and credits, the elements, journal entries, ledger accounts, financial statements, to help NAS gain a basic understanding of the discipline.

In the very successful group the responses were different. Most seemed to feel that the pace was manageable for them, although perhaps 'quicker' than expected. While P13 felt that the pace was 'often a bit fast' she linked her perception of the pace to her understanding of the work being covered, as her understanding grew, so the pace seemed to slow down. P12 gave an all-encompassing response detailing how she had time to settle into the course and when the pace increased, she was able to deal with the increased pressure. This sentiment was supported by P15, but P14 felt that the pace was simply too much for NAS.

Pace of the course is a problem for both the less successful and moderately successful students, but in particular for NAS. It seems that pace is especially a problem when a student does not understand the work. Once understanding develops, the pace seems to become more manageable.

4.2.5 Control

This question was asked from a Bernsteinian 'framing' perspective. I wanted to get an idea of participants' perspectives on what they felt they had control over and what they did not have control over. In answering this question, participants often took a slightly different, more agential, perspective. This allowed me a better understanding of the degree to which students were aware of and took responsibility for their personal engagement within this course and the degree to which they were aware of their ability to make changes which could impact on their academic performance. As this was asked as more of a reflective question I have approached the analysis of this question slightly differently. I first looked at the responses individually as opposed to within groups, and then only looked at the collective responses according to the three groups.

What did you feel in Control of during the Introductory Accounting semester?

P1 felt most in control of her tutorial work; that she could discuss the work with her fellow students within the tutorials. She thought she understood the work the best during tutorials and considered herself in control over her approach to studying. However she believed that she was not in control of her marks. It seems that P1 felt she was more in control when the framing was weaker, in other words during the tutorial periods. It makes sense for students to feel that they understand the work being covered while during a tutorial, as the tutor could make doing the work seem easy and they would have peers to ask when they do get stuck.

Understanding the work when in a supportive environment, but not being able to understand it on one's own, is partially due to students acquiring recognition rules, but not acquiring realisation rules. From her responses and from an analysis of her June exam paper, it seems that P1 had some idea of which figures were important and what meanings may be legitimately put together, but not know how to do this in a legitimate manner. Additionally it is easier to decide what meanings may be legitimately put together, when you have a fellow student prompting you when you get stuck "if someone explains [something] to you, they might make it look easier [than it is], when actually you do not understand" (P15). When you are working on your own, however, there is no-one to prompt you, as when you are writing a test or an exam, "in the end it's just you and the paper" (P4).

P4 felt frustrated in this course. He felt he was a "very creative person" and that he was "doing something that doesn't require a lot of creativity, to not be given any degree of creativity, especially in terms of questions and how I should answer questions". He therefore felt he was not in control of how "to do things … how I should express myself in accounting". P4 struggled with the hierarchical structure of knowledge in accounting, that there was one 'truth' in accounting, one correct answer. He wanted more flexibility, to be creative, to put his personal touch on the work he needed to do. Introductory Accounting is a Knowledge Code field, and P4 might have been better placed in a discipline which was more of a Knower Code field, with less focus on epistemic relations, and a greater emphasis on social relations. There was a clash between the structure of knowledge in accounting and how P4 was prepared to engage with the course.

P5 felt that she had no control over the content of a test or exam, "because there is so much to study that you have to study everything and you might not necessarily use everything in a given test or exam". She also felt that she had no control over the appointment of tutors who were sometimes difficult to understand. P5 felt that she was in control of her lecture attendance, the "effort put into your work" and "how prepared you are for a test or exam". While taking responsibility for her final mark in the semester, and acknowledging that it was important to be spending time learning the procedures of investigation, P5 would have liked to be able to focus on certain areas of work and be able to ignore other areas, for there to have been weaker framing over assessment. This is not possible in accounting, where all topics taught during the semester could be tested during an examination and students do not have the option of choosing to answer one of two or more questions which have been set.

Some of these comments were supported by P6 who said she was in charge of "study, taking the initiative to study and work hard until I understand something, maybe that's what I felt I could control", but that she was not in control of "time and stress". P6 would have liked more time to be able to revise accounting without being under pressure to complete an assignment, or study for a test or exam. The stress of this semester of accounting, particularly for those like P6 who have not done accounting at school, is enormous. As P14 puts it "for those that haven't [done accounting at school] I don't know how they pass to be honest". P7 and P13, both NAS, put it in perspective by saying that they found the first term to be the particularly hard, and thereafter the work started making more sense and everything felt a little easier. P6 lives in a "little village" and attended school in this rural area. She therefore struggled with the shift to English as her language of instruction. I remember her coming to me after lectures, after about three weeks of term, and asking me to explain what the word 'expense' meant. She had never heard the word before.[82] Every time I mentioned the word 'expense' during those first weeks, P5 would have been lost.

P7 felt that she was in control of her weekly assignments and the quality of the work she submitted, because she knew she "had the resources available … in order to complete it". She also believed she was in control of her attitude during tutorials; the level at which she chose to engage during the tutorial. However, she was not in control of the level at which the tests and exams were set or the time constraints under which the tests and exams would be written.

P8 believed he was in control of passing the Accounting 101 course, based on him having performed well in accounting at school, which gave him confidence, and that he was in control of his knowledge of the basic concepts. After the second test he realised that he was not in control of the "new concepts" which he had not spent much time trying to learn. This realisation prompted P8 to take more responsibility for his work ethic in the second semester of the year and to become more engaged with the teaching and learning opportunities provided in the course.

[82] After this incident I realised that I could not assume that students understood any terminology used in Accounting, and I now explain all words when I first introduce them. For P6, she learnt to use google to help her understand words she had not previously encountered. This I discovered towards the end of the second term, when I tried to explain a word to her, and she told me not to worry, she understood what the word meant.

P10 considered herself in control of her lecture attendance and the degree to which she participated in lectures, as well as the degree to which she engaged with the assignments. She felt that there were occasions when she did not have the time she would have liked to devote to her assignments. She also felt a need to read every aspect of every chapter in the textbook as "if I couldn't read the whole textbook I just felt like I didn't understand". This seemed to be quite debilitating for her. This frustration of P10's is better understood when looking at Flyvbjerg & Sampson's (2001) writings on the Dreyfuss Model on human learning. Under the third of five levels, we find that of "Competent performer" (2001, p. 12). Flyvbjerg and Sampson note that "[this] individual is unable to prioritise" and will apply a rule-bound, hierarchical protocol to making decisions (Flyvbjerg & Sampson, 2001, p. 12). Given this explanation, it could be that P10 was operating at the level of the "competent performer". She was operating within a rule-bound environment, and not yet able to move beyond the security of these rules, and prioritise and make informed decisions about her approach to studying.

Due to the small number of students in tutorials, P11 felt that during these periods students had greater control over what was covered and the time which could be spent clarifying problematic areas. This again refers to the weaker framing during tutorials, where students assume more control during tutorials through the questions they ask, their responses determining to a degree how long a topic will be discussed. He also felt he had control over his engagement in tutorials and with assignments.

P12 considered herself in control of everything, and that she used everything that was given to her and "had to make the most of that". She believed that she was not in control of the course content, but the course content was not likely to change; but that she was in control of her studying.

P13 said she was "quite in control of learning and understanding of accounting … at first it was quite a lot of self-study because I felt that I had to catch up with everybody else who had done accounting before". She also believed she was in control of her "work ethic towards accounting in terms of going to lectures and handing in assignments and everything, and of my response and participation in lectures and tutorials in terms of asking questions." However she did not feel in control of the nature of the work, or the fact that she started off at a disadvantage being a NAS.

P14 believed he was in control of what he did with his free time, the decisions he made on how to spend this time. While not in control of the course content, P14 still thought he was in control of how he responded to difficult concepts.

P15 considered herself in control of lecture attendance, completion of assignments, the use of the on-line discussion forums and engagement with friends. It was very important to P15 that she balance her academic life with having a social life. She also believed she was in control of how much additional time she spent on the topic outside of assignments, tests and exams. She did not feel that she had control over what was covered in lectures, particularly when students refused to move on from a topic. This implies that P15 would have preferred stronger framing in lectures on occasion; with the teacher terminating a discussion which P15 believed had become pointless, and moving on to the next topic.

Both P1 and P4 felt that they had little control over critical areas within the course. P1 felt she did not have control over her marks, while P4 felt he did not have control over how he needed to answer questions in accounting. The reality is that P1 did have some control over her marks, but this would depend on her level of engagement within the course. Due to the structure of knowledge in accounting, P4 could not be creative in providing legitimate texts for this discipline.

From P5 to P15 virtually all participants spoke about having control over how they approached their studies, their lecture attendance, their participation in lectures and in tutorials, and the degree to which they engaged with the weekly assignments. The higher the academic achievement, it seems the more the participants felt in control during the semester, with P12 saying she was in control of 'everything'. This applies to both NAS and MAS. Although P12 and P13 were both NAS, both felt quite in control over the semester, in spite of the fact that they had "to catch up with everybody else who had done accounting before" (P13).

4.3 Other themes

Three 'other' themes emerged from the interview process, which had not initially been anticipated. These include the role of group work in student learning in IA, the copying of assignments and the 'language' used in the lecturing and assessment processes. As these are

all important themes I did not want to weave these into existing headings, but thought it would be more appropriate to deal with these issues as stand-alone topics.

I shall first discuss the impact of group work on student engagement and performance. Many students had mentioned working in groups, whether they liked doing this or not. This was something students chose to do, so it was not a course requirement, except occasionally as a suggestion for an alternative method of working during tutorials or lectures.

4.3.1 Participants' views on working in groups

As she felt that when working in a group, members of the group were able to discuss the topic and help each other, P1 preferred working in a group, both for assignments, during tutorials and for revision. P3 felt that he worked better on his own, as he was "good with understanding things very fast" and "when you study by yourself you are going to concentrate, you don't have to be distracted or anything". However, P3 was comfortable asking those friends who had done well in the tests for assistance when necessary. P4 felt comfortable working in a group as long as you get someone "who understands your views … it also helps to get someone who does things differently [because] you can almost re-evaluate what you do".

P6 preferred to work in a group because "you learn other tips to understand something [and] I can tell others and help others and that way I will never forget about it as well". This comment speaks about using a mnemonic or other tool to help in constructing a solution, but also speaks about learning through teaching. When preparing for a test or exam, P6 preferred to first study on her own and then work in a group. Being a NAS, P7 found she needed to sit with students who had done accounting before, commenting that in the beginning she needed to ask many questions. She advises that students should "sit with someone that is patient, don't sit with someone who just wants to get the work done". P10 preferred to work on her own first and then to work in a group.

P11 preferred to work on his own, finding that it went more quickly, but he was happy to help those who needed assistance, but found that it was "easier to do that if you are not also trying to do the work". P13 found she needed to make sure her understanding of the concepts was firmly grounded before listening to others otherwise "it would throw me off a bit". P14 also preferred to do an assignment first on his own, and then to work in a group. He found the

group work extremely beneficial as in teaching others he found his own understanding grew. It also meant that he did extra work. P15 felt that "if someone explains [something] to you, they might make it look easier [than it is], when actually you do not understand", so she preferred to gain an understanding on her own first. Having gained that understanding she was happy to work in a study group. Her study group set three questions on a weekly basis, each group member prepared the solutions to the questions and the group came together to discuss their individual solutions. While P15 had been approached by NAS to co-ordinate the group, she did not give the sense of being the 'teacher' in the group, rather a co-learner.

P1 and P4 were happy to work in groups, but P3 found this distracting. P6 and P10 both preferred to work on their own first and then to work in a group to confirm and challenge their understanding, while P7 liked working with MAS in the beginning as she had so many questions. She found that she obtained higher marks than some of her MAS friends in the tests. For the first two groups, group work meant working together, sometimes with an 'expert', to improve their learning.

In the very successful group, the concept of 'group work' starts shifting. Apart from P13, who was a NAS and who does not mention assisting others, in this group the understanding of group work becomes assisting others. All students in this group first worked on their own and only when required to do so, would they move to group work. P14 was very explicit about how helping others during group work benefitted him, from having to understand the topics at a deeper level, to having his mistakes pointed out to him, to doing additional exercises to make sure he understood the concept thoroughly before helping others. P15 would do an additional three exercises every week with her group, which consisted of NAS, to assist them in understanding the concepts.

Where students relied on working in a group to construct meaning in a topic or in an assignment, it seems that they could struggle to make these meanings when working on their own. Additionally, as mentioned by P15, the person explaining the topic may make it seem easy. In my experience, this is a problem many students face during lectures. When the lecturer explains the topic it looks so easy,[83] students think they know which figures are important and need to be used in the calculation, they seem to have obtained the recognition

[83] Over the years many students have lamented that they thought they had understood a topic or exercise when I explained it, but were not able to complete the same exercise on their own at home.

rules. In trying to construct the same solution on their own, they find that they do not understand why some meanings are put together, and that they do not have the recognition rules necessary to perform the calculation correctly on their own.

Most of the moderately and very successful students first work on their own, obtain an understanding of the principles being taught, and only once they have an understanding relatively securely in place, do they move into a group to confirm or challenge this understanding.

On this topic, most NAS students seemed to differ from MAS. With the exception of P13, all NAS seemed to prefer to first work with MAS to gain the understanding necessary, and only thereafter some chose to try to do the work on their own.

While it may be necessary in accounting to work with peers at times to help construct meaning in a topic, especially for NAS, as according to P14 "accounting is too hard to unpack without the help of other people", it must always be remembered that as put by P4 "in the end it is just you and the paper and you've got to do it". Each student must be able to produce the legitimate text required, unaided, to pass this course.

Group work (or peer-assisted learning) on the whole is seen as being advantageous to students for two main reasons; firstly students show improved academic ratings; and secondly students benefit from "improved interpersonal relationships" and "personal and social development" (Maheady, 1998, p. 52).

The next theme which will be discussed is the issue of the copying of assignments. This had been a significant concern for me given participants' comments which are mentioned below.

4.3.2 The impact of copying assignments

Setting of assignments in support of student learning is part of the planned teaching and learning activities within this teaching programme. Assignments are set on a weekly basis and are planned carefully to ensure that the topic has first been covered in lectures, then in a tutorial, and only then are students asked to attempt an exercise, without a solution, to be handed in for feedback from their tutor.

An assignment gives students the opportunity to see whether they understand the concept which they have been working on, and to guide them in any revision work they need to do. It also guides the tutors in feedback which needs to be given to the tutorial group. Having marked their tutorial group's work, tutors should be aware of gaps students may have in their knowledge as well as areas of cognitive dissonance.

While the department, and the lecturers on this course, are aware of the problem of students copying solutions from each other, it is very difficult to identify those participating in the practice, as in accounting we are looking for "the only and sole pathway to 'truth'" (Bernstein, 1999, p. 165), every correct solution is likely to look much the same. This means that while we use our current system of a manual submission of assignments, the situation is unlikely to change and this additional opportunity for learning is going to be lost to some of our students.

During the interviews some participants raised the issue of students copying assignments and some participants were asked about the prevalence of the practice. These are the participants' perceptions of the problem of students copying each other's assignments instead of working through the assignments themselves.

According to P4 "you'll find a couple of people doing their assignment on a Thursday and because of that and the time and pressure of knowing that the next morning you have to hand it in, you will probably get people who will pass assignments around to benefit others, which they think will be beneficial". P5 said "a lot of people copy. They just borrow a friend's [assignment] and then they copy and you don't actually learn anything from just copying. In my res [copying is] very widespread", P7 commented, "in the beginning I think everyone did their own work, then once you start forming friendships and you want to start doing other things, copying just goes straight up, … copying is a problem, but I don't think you can get rid of it … people will realise themselves that copying is not going to help them in the long run … there are those individuals who have never done an assignment before". And then from P10 who seems to have both copied someone's work and given her work to someone else to copy "but then I feel like it doesn't really help, but it's just that I think that I want to keep my DP. But then it doesn't really help because you don't know if the person is wrong or right anyway". P15 adds "you find that most people do not write the actual work, they look for someone who has [done the work and] they just copy. That's what happens most of the time. In the tutorial, yes the tutor might do this question, and the tutor might explain, but

if you have no background of how it was in the other questions, you won't make much sense of it."

After analysing this interview data and contemplating the comments which have been made over many years about students copying assignments, I decided to ask the 2013 Accounting 101 students to provide me with feedback on their approach to the "Completion of Assignments". An on-line questionnaire was posted on RUconnected during May 2013 and 112 responses were obtained out of a class of 375, a response rate of 30%.

It was very interesting to have students provide this information, as the issue of copying of assignments has been a concern of mine for a long while. Only 6% of the students who responded said they had copied an assignment in full, while 35% said they had copied a portion of one or two assignments. I had asked for reasons for copying and most students said they had done this as the work was too difficult (60%) or that they had too much other work (30%). This helps me in firstly understanding the extent of the problem, but also the cause of the problem. While I am unable to reduce the workload, I am able to ensure that, where possible, the difficulty level of the work is not such that students just give up and copy someone else's work. However, assignments should be challenging for students to benefit from them. Additionally, what is not challenging for one student may be very challenging for another.

It seems that in this instance students' perceptions may not accurately reflect the reality of the situation. There seemed to be a perception of higher levels of copying than actually existed, according to the feedback received from students in the completed questionnaires. This is assuming that those who submitted the questionnaires were representative of the rest of the class and that these questions were answered honestly.

4.3.3 The 'language' of Accounting

During their interviews many participants spoke about there being a problem with 'language' or the 'English' used during the course. It was important for me to understand exactly what was meant by these comments.

The change from terms used at school

Some students referred to their struggles with the change from school accounting to university accounting. Some of this is a result of IA starting with language which is as simple as possible to ensure that the NAS understand what is being discussed. P3 mentioned moving from turnover to sales, and using terms like buy/purchase and stock/inventory interchangeably. 'Sales' is a term more commonly understood, and this is the term used initially in the Accounting 1 year. It also helps students link it to the next item in the Statement of Comprehensive Income, i.e Cost of Sales. In a lecture we are likely to start an example on the Statement of Comprehensive Income with looking at the sales figure for the year and then looking at what the sales cost the business. For students who remain in the accounting programme, 'sales' will become 'turnover', which will become 'revenue'. Terms like 'to buy' or 'to purchase' would be used fairly interchangeably, but when asking a question if I do not get a response from my students, I rephrase the question just in case I am using terms or words with which the students are not familiar. P3 and P4 both spoke about being unhappy with the change in the names of the statements. The Income and Expenditure Statement, for instance, became the Statement of Comprehensive Income. Where we are teaching formats from the beginning, we use the correct terminology and it is frustrating for MAS to learn a new statement name when they are familiar with another name. However, it seems that changing the name of a statement should not be cause for resistance to engaging with the subject. Resistance to change falls under threshold concepts, moving from the familiar to the unfamiliar.

English as a language of instruction

Having grown up in a little village in a rural area, P6 struggled with being taught in English. As mentioned earlier, after three weeks of lectures P6 asked me what an 'expense' was. Three weeks of my lecturing about 'expenses' had been wasted for her.

This did become a point of growth for her, as I then explained how an internet search engine called 'Google', or simply having a dictionary at hand, could be useful when words were problematic. Having realised that students do not always understand these basic terms, I now explain all accounting terms when these are first used.

Using language to explain the nuances in a scenario

P14 commented a couple of times on language, referring to "language ability in interpreting the question". Here he is referring to the ability to follow cues and nuances in the questions, particularly in adjustments questions where the scenario needs to be stated quite carefully for students to understand. These concerns were shared by P11 "from the way the questions are asked, very often it is hard to identify what you are working with and what you have to do" and P13 "the questions were often quite long and sometimes seemed a bit ambiguous". P13 understood that these questions were necessary to provide a real-life 'feel' to the question, but that did not make the questions any easier to understand. This refers partially to students being able to understand the academic discourse of the discipline, but it also refers partially to the sometimes complicated scenarios in adjustments questions, which is actually an issue of cognitive overload. There are simply too many aspects in a question for students to easily understand the scenario.

Specific terminology

The terms *mark-up on cost* and *mark-up on sales* proved to be confusing for P15. In other textbooks these are referred to as mark-up on cost and gross profit percentage or gross profit on sales and gross profit on cost. Our current textbook provides a detailed explanation on why they use the term mark-up on sales, but in my opinion the small difference between 'true' gross profit percentage and what they term mark-up on sales could be easily explained at a later stage and it is unnecessary to make this distinction at the first year level. When teaching from this book I tell students to ignore the term 'mark-up on sales' (which in itself is an anomaly as you are not adding anything to sales, but you are working back to the cost price, so if anything it should be a mark-down on sales) and to use the more common term of gross profit percentage.

Understanding the language

P14 made a very interesting comment saying that when looking at a mathematical calculation, he knows that it is "one-way" (that there is one possible solution) and therefore he can see what he needs to do and "then I can understand the language". Understanding the question at an abstract level (weaker semantic gravity), with stronger semantic density, allowed him to confirm his interpretation of the question.

While the ‘language’ used during the course was often referred to as a problem, it seems that the reasons behind this ‘problem’ are quite varied and are mostly beyond what I can control during this course.

4.4 Summary

From the theory explored in this study, it seems clear that for a hierarchical knowledge structure like accounting, what is important is to know the theory and to obtain mastery over the ‘procedures of investigation’. Knowing the rules and developing mastery over the procedures of investigation in Introductory Accounting, will lead to the generation of a ‘trained gaze’ which is necessary for academic success in a Knowledge Code field, with the rules of the discipline generating the gaze. Having obtained mastery over the procedures and having developed a trained gaze, students would be able to access low-road transfer, which permits automation of some procedures, allowing students to concentrate on the other aspects of the question. With the mastery over the procedures and having developed a ‘trained gaze’ students would also have developed the recognition rules necessary which will allow them to put relevant meanings together as well as the realisation rules which would allow them to put the meanings together in a legitimate manner.

Having established the nature of the structure of knowledge in Introductory Accounting, it was then necessary to establish how students constructed knowledge in the discipline. While the focus initially rested on the differences between first-time or Novice Accounting Students and Matric Accounting Students, and how they constructed knowledge differently and incorrectly, given the weighting of numbers of participants in each of the categories of being less, moderately and very successful in the Accounting 101 course, the focus shifted to the responses from these three categories.

I have therefore structured my summary by looking at a broad overview of each of these groups, and then looking at other focus areas.

Less successful students in this study:

- Focused more on theory and less on the procedures of investigation.
- Showed little evidence of understanding the procedures of investigation (the rules of accounting); had generally not developed a ‘trained gaze’ and were therefore not

aware of how to focus their attention in a question; did not seem to have acquired both recognition and realisation rules and did not understand the need to engage in any of these three aspects critical to being successful in accounting.

- Seemed unable to access low-road transfer due to insufficient practice of the procedures of investigation.
- Seemed unable to make use of the learning opportunities available due to personally imposed restrictions, seemed not to take responsibility for their own learning.
- Wanted more freedom in answering accounting questions.
- May have had a stronger inclination towards a Knower Code field.
- Did not understand the rules of accounting or the reasons behind the strong classification and strong framing.
- Seemed not prepared to invest what the discipline requires of them.
- Found the pace very fast. (The pace of the course seems to slow down as understanding develops.)

Moderately successful students in this study:

- Understood the existence of core concepts in Introductory Accounting and that all calculations and transactions are based on these.
- Understood the need to practise and develop mastery over the procedures of investigation.
- Showed evidence of developing mastery over the procedures of investigation and were starting to develop a 'trained gaze'.
- Showed that they have acquired recognition rules and were acquiring realisation rules for some concepts.
- Showed evidence of a low-road transfer being accessed on occasion.
- Were able to clarify specifics of what they did and did not understand.
- Used learning and remembering tools to help them in the learning process as they developed understanding.
- Experienced problems of overconfidence (for MAS) and extreme stress (NAS) which constrained their learning opportunities in the discipline.

Very successful students in this study:

- Were very clear on the core concepts in Introductory Accounting.
- Used step-by-step processes until understanding grows.
- Exhibited mastery over the procedures of investigation and the use of a 'trained gaze' to identify what is relevant in a question, and understood the importance of these skills in recognising and realising the legitimate text required.
- Were able to access automated low-road transfer in relevant procedures.
- Worked from memorising towards understanding of the concepts, the principles and the impact on the financial statements.
- Showed greater metacognitive awareness.

Group work

Working in informal groups seems to have been beneficial to the participants of this research, in particular for NAS. It is useful for students to have this space to discuss and confirm concepts and principles in an informal manner with weak framing. From feedback from participants in this research, it seems that it is more beneficial for students to first work on their own in obtaining some level of understanding, and then moving into a group to confirm or challenge this understanding. If no preparatory work is done beforehand, students may feel that the work being covered is easy to understand, they may however have acquired recognition rules, and not realise that they have not obtained the realisation rules necessary. In the final end-of-semester assessment, it is the individual alone with the examination paper, and it is this that students should be preparing for. For very successful students, group work shifts to assisting other students, which in itself is beneficial to the student doing the helping.

Copying of Assignments

It is clear that valuable learning opportunities are being wasted, and students are aware of these wasted opportunities. Not only are students losing the opportunity to test what they do and do not understand, when their tutor revises the exercises, they again lose out as they do not know what the tutor is covering.

Personal Agency

From this research it appears that the participants who were very successful academically take greater responsibility for their work and feel they have more control over "everything" in the course. Those who are less successful find external reasons for why they did not have control and why they were not successful in the course.

Pace

The weaker students in this study struggled with the pace of normal lectures and would have benefitted from weaker framing over pace. This research has also shown that as students begin to understand a topic, the pace of the course seems to slow down.

Moving from Memorising to Understanding

This research has shown that the moderately and very successful Introductory Accounting students who were interviewed would often start learning a topic through memorisation, but that memorisation generally moves on to understanding the topic.

Chapter 5 - Conclusion

This study focussed on the structure of knowledge in the Introductory Accounting (Accounting 101) course at Rhodes University, and how students construct knowledge in the course. Using Bernstein's Pedagogic Device I have examined the fields of Production, Recontextualisation and Reproduction as they relate to this course, and analysed interview data from participants previously enrolled in this course, to assist me in answering my research question.

The aim of this research has been to better understand:

- What is knowledge in Introductory Accounting, and how do students construct knowledge in this discipline?
    - How do matric accounting students construct knowledge?
    - Do novice accounting students construct knowledge differently?
    - What prevents students from acquiring appropriate knowledge within the specified timeframe to enable them to both recognise and realise legitimate texts?

This research was undertaken with a view to informing future teaching practices. Having initially thought that the problem of a low pass rate would be found in the race, gender or home language of the students, as initial investigations progressed, it became clear that the problem was the very low pass rate of 30% among novice or first-time accounting students.

Novice accounting students who had not been successful in the June examinations, did not volunteer to participate in the interview process in this research. One student in this category agreed to participate after being approached by the researcher. It was therefore not possible to look solely at the differences between novice and matric accounting students. However, it seems that the differences between novice and matric accounting students, in terms of how they construct knowledge, are limited and relatively superficial. The focus of the research therefore shifted to the differences in constructing knowledge between less successful, moderately successful and very successful students. Each of these groups included both novice and matric accounting students.

The findings of this research will now be discussed. I will first discuss the structure of knowledge in Accounting, then how students construct knowledge in the course and whether

novice and matric accounting students construct knowledge differently. Next I will look at the differences in how the less, moderately and very successful IA students who participated in this research constructed knowledge in this course. Lastly I will look at changes introduced to this teaching programme as a result of the research, possible gaps in the research and further research opportunities.

5.1 What is knowledge in Introductory Accounting?

In section 2.5.1, I showed that Accounting is a hierarchical knowledge structure, with a high degree of verticality and strong grammaticality. There is a common understanding of what is understood to be 'knowledge' in the field. The discipline shows strong classification; the boundaries between it and other disciplines are strong. Accounting also exhibits strong framing; there is strong hierarchical control within the discipline.

The International Accounting Standards Board (IASB) consists of fifteen full-time board members and these members control the worthwhile knowledge store for the discipline. The IASB is the "independent standard-setting body for the IFRS", which in turn is the Foundation which 'interprets' the standards set by the IASB ('IFRS', n.d.).

In South Africa, the South African Institute of Chartered Accountants is the body in charge of setting the Initial Test of Competence (previously the Qualifying Examination, Part 1) and what will be known as the Assessment of Professional Competence from 2014, currently known as the Qualifying Examination, Part 2. These examinations put downwards pressure on the curriculum in earlier years. The field of pedagogical recontextualisation is constructed around a textbook, and knowledge – particularly at the first semester level – is not contested in any significant way. This in turn means that the curriculum in all 4 years of the Accounting programme is fairly rigid.

Accounting is a Knowledge Code field, which means that epistemic relations are valued above social relations. This also means that to be successful within the course students need to know the theory and its application and obtain mastery over the procedures of investigation and in so doing, to develop a trained gaze. In developing a trained gaze they would have acquired the recognition rules necessary to know which meanings (figures) can be put

together, but students would still need to acquire realisation rules, to be able to put these meanings together in a legitimate form.

Having looked at the structure of knowledge in accounting, how the course is recontextualised, and the implications this has for what is important for students studying in this field, I now move on to discussing how participants in the research constructed knowledge in this course.

5.2 How do students construct knowledge in Introductory Accounting?

Under the Theoretical Framework in section 2.5, I showed that Introductory Accounting is a Knowledge Code field, which means that knowledge of the discipline is valued highly, while the characteristics, disposition and experiences of the teacher and the student are not valued to the same degree. Students need to know the theory and master the 'procedures of investigation' to be successful in this course. If a student gets stuck on a 'rung' in the hierarchically related concepts, learning is likely to stop. Having an expert explain the principles is most beneficial for students when trying to understand topics, as they could struggle to make sense of the discipline on their own. Working at cumulative learning continuously is important for success in the course, but especially for those who did not take accounting at school.

To develop the 'trained gaze' which is necessary for success in the course, students need to have obtained mastery over the 'procedures of investigation', with the rules of accounting generating a 'trained gaze'. The 'trained gaze' will allow students to recognise which meanings can be put together, while realisation rules will allow students to realise legitimate text. Students who are able to recognise, but not realise legitimate texts, are unlikely to be successful in this course, but would certainly not be successful beyond the first year.

To be able to realise legitimate texts, students need to have successfully practised examples on their own, as when working with others, these teachers, tutors or peers may make the work appear easy, but these students are not able to reproduce or realise the same work later when on their own.

The participants in this research were divided into three groups, those who were less successful, those who were moderately successful and those who were very successful academically during this first semester course. The first group had not managed to pass this course, while the last two groups had done so, with the very successful group obtaining 70% or higher in their final marks.

From the results of the interviews which are discussed in Chapter 4 - I have summarised as follows:

Less successful students in this study were more likely to focus on theory and not on procedures of investigation, which meant that they did not develop the trained gaze necessary for academic success in this course. They also seemed unaware of the value of the learning opportunities which are available, and were therefore not able to take advantage of these opportunities. They were not aware of the strong classification and framing in this field and desired greater freedom in how they constructed knowledge, and were therefore not prepared to invest what the discipline required of them. These students found the pace of the course very fast.

Moderately successful students in this study were aware of the core concepts in this discipline and that these form the basis of all transactions. They were also aware of the need to obtain mastery over the procedures of investigation and showed evidence of developing the trained gaze necessary to acquire recognition rules. Some of these participants showed evidence of obtaining realisation rules as well, but this was not consistent across all participants and across all examination questions. Given the mastery obtained over the procedures of investigation, these students were able to access low-road transfer on occasion, which makes the processing of these transactions "fast, effortless". Most of these students were starting to show metacognition and were able to identify which specific areas they are struggling with. Students in this group also spoke about using learning tools to help them in constructing knowledge successfully.

Very successful students in this study were very aware of the core concepts in this discipline and were generally able to access low-road transfer at this level and did not need to think about the debits and the credits involved. They were therefore able to focus on more cognitively demanding aspects of a question. This group of students showed evidence of having obtained mastery over the procedures of investigation and therefore having developed

a trained gaze which allows recognition rules to develop. There was also evidence that most of these students had acquired realisation rules and they were able to present text in a legitimate format. Understanding the topic was a large focus in their learning and they showed significant metacognitive awareness.

Having looked at how students construct knowledge and how participants in the less, moderately and very successful groups in this research do this differently, I now move on to the differences in learning between novice and matric accounting students.

5.3 Do novice and matric accounting students construct knowledge differently?

There do not appear to be significant differences in how the novice and matric accounting students who participated in this study constructed knowledge in this course. There were however differences at a peripheral level, mainly relating to learning processes.

Given the limited time that novice accounting students had spent trying to master the procedures of investigation in comparison to matric accounting students, it seems that the novice accounting students are not yet able to access low-road transfer, which would allow some processes to become effortless and for these novice accounting students all cognitive functioning remains at a slow and consciously contemplated level. Matric accounting students on the other hand were more likely to access fast, low-road transfer, which frees up cognitive functioning for other transactions.

Those who have studied accounting previously had more learning aids or prompts (like mnemonics) to fall back on, and seemed to consciously access these aids, whereas novice accounting students do not appear to have internalised these learning aids to the same extent. Matric accounting students were more likely to have experienced a threshold concept and understood that in accounting, you sometimes just need to keep doing an exercise on a new topic, eventually it makes sense. Novice accounting students were more likely to think that it was just that **they** were not able to learn the new topic, and that it must be due to a lack of competency on their part.

Novice accounting students may also not be as 'fluent' in producing the legitimate text required as they have only studied accounting for four months, as opposed to a couple of

years. Novice accounting students were also more likely to consult with matric accounting students to get 'expert' advice to assist them.

Lastly, novice accounting students were more likely to choose to learn in groups, particularly when dealing with new topics, while matric accounting students were more likely to first work on their own, to make sure that they fully understand a topic, and then participate in group work, sometimes with the sole intention of assisting other students.

According to very successful novice accounting students who participated in this study, they felt that they had caught up with their matric accounting peers by the end of the first term.

Novice accounting students, who were not successful in passing Accounting 101, were seemingly not prepared to participate in the interview process in this study. This is regrettable as additional input would have added value to this research.

This research, and other feedback received from students on the course, gave me the opportunity to reflect on the teaching and learning opportunities offered in this course, to see what I could improve on. These improvements, actual and potential, will now be discussed.

5.4 Changes introduced into this course as a result of this research

As a result primarily of this research, several interventions were introduced to the Introductory Accounting (Accounting 101) course at this university over the past two years.

5.4.1 Introductory Accounting Workshops

The first intervention is that an intensive workshop is held, compulsory for all first-time accounting students, during the afternoons[84] in the first week of term, prior to tutorials beginning. This is done to allow the first-time accounting students the time and space to learn the basics of the discipline's academic discourse, rules and practices. This is the equivalent of almost two additional weeks of lectures.

[84] Two afternoons were made available for these workshops 2012 and three afternoons were made available for these workshops in 2013.

5.4.2 Tutorial System

Tutorials are a critical part of our teaching and learning activities. It is here, given the weaker framing of the tutorial environment, that students have the opportunity to query, challenge and deepen their understanding of the topic being covered. While many students experienced this and valued this experience, it seems that some students found their tutorial experience lacking in value. As a result of this research, the structure of tutorials was significantly changed.

The model previously implemented was that there were single-tutor tutorials with just over twenty students per tutorial group. As a result of this research, two tutorial groups were combined and 'team-tutoring' was introduced at the beginning of 2012. In team-tutoring two tutors are matched and two tutorial groups are combined. This does mean that the tutorial groups are bigger, but it also means greater accountability amongst tutors. If they have failed to prepare adequately for their tutorial, a peer as well as their tutorial group will be aware of this, but more importantly there will be another tutor present who would be able to fill this gap.

In feedback received from the 2013 Accounting 101 students,[85] they speak of the value of tutorials in terms of hearing other views and approaches to a topic, the value of group work, and the benefit of discussing the various concepts with fellow students. Although some students commented about the large size of the tutorial groups and suggested that the tutorial groups be split, there was no sense of frustration that one had been placed in a weak tutorial group and had no option of being moved. Prior to 2012 I would often have students approach me about being moved to another tutorial group as they found their tutor problematic. An example of the frustrations felt by a student is provided in section 4.2.4 under constraints. I have not once had this problem raised by a student during 2012 or 2013. It seems that if there is a weaker tutor, this has been masked by the presence of the second tutor.

With new tutors being appointed every year, as a teacher I need to remember that tutors need to be motivated anew every year. Tutors need to be taught to provide the "necessary explicit evaluation" (Hoadley & Muller, 2009, p. 74) and to teach the new students the "discipline's standards and notions of quality" (Gibbs, 1999, p. 47). Every year the tutors need to be

[85] The 2013 Accounting 101 class completed a 'Feedback on Tutorial System' questionnaire during May 2013.

taught anew the benefits of providing feedback to students and they need to buy into the goal of our tutoring programme. Only in this way will we be able to provide the quality of tutorial support which is essential for success in this course.

5.4.3 Teaching Programme

The next two interventions took place on the teaching front. Firstly, an additional weekly lecture slot was allocated to our teaching programme.[86] This slot is separate from the normal teaching programme and students are asked to provide input on what they would like to be covered in that additional period. This additional period is aimed primarily at novice accounting students, but all students are welcome to attend, and matric accounting students do take advantage of this extra teaching period. This additional period gives us space away from the normal teaching programme to slow down, ask questions and to go back to topics covered during the week to make sure that they are fully understood. When a particularly difficult or challenging topic was looming, I used this period to introduce the topic.

The weaker framing in this environment, where there is less focus on the discursive order, but where students still have the opportunity to practise the procedures of investigation, and be shown how to develop a trained gaze, under the guidance of an 'expert', proved to be very useful to students.

Feedback from students on this additional lecture period was positive with course feedback[87] from students saying that this period was "useful", "helpful", it provided an additional opportunity for revision and helped to clarify topics and clear up any confusion.

[86] This additional lecture period was introduced in 2013 only, as the teaching timetable is fixed fairly far in advance.

[87] This anonymous feedback was from the teaching 'evaluation' questionnaire which students were asked to complete during April 2013.

5.4.4 Being explicit about the impact of the structure of knowledge in the discipline on being successful in Introductory Accounting

I am now very explicit to the novice accounting students in particular, but to all students in the course, about what it takes for them to be successful in this course. Given the final outcome of this research, I will in the future be more aware of the value of being explicit about the need for students to obtain mastery over the 'procedures of investigation' and to learn the rules which will generate a 'trained gaze'.

I speak to my students regularly about the reason for assignments and tutorials; I speak explicitly about practices like group work and the benefits and pitfalls of this method of studying; and I speak about the copying of assignments and the wasted learning opportunities that this results in. Along with this I will in future be explicit about the structure and construction of knowledge in this discipline. I already speak about recognition and realisation rules (and how it looks very easy if an expert does the work) but that they need to do the work themselves to know that they are able to construct a solution properly. I will also tell them that it is sometimes easy to recognise text, but not always that easy to realise legitimate text. When going through examples, I already 'model' how students should approach answering questions. This includes reading the 'required' section which should direct their gaze in answering the question.

During my lectures I speak about whatever seems of value to my students to help them develop a greater awareness, or improved metacognition, of what it is that is required to be successful in this course. To understand where they are in the process and to let them, particularly the novice accounting students, know that they are not alone or 'stupid' and that this is likely to be a normal process of gaining knowledge and understanding in this discipline. I will also let them know that if they have put sufficient time into mastering the procedures of investigation, the feeling of not coping will probably start lifting after the first term, and certainly by the end of the first semester.

While most students would not be able to comment on changes to the programme, unless they had remained in the programme over a period of three years; where I am able to see a significant change is in student feedback which is generally conducted twice in the first semester of the year. In 2010 and 2011 the sense of desperation and of students clearly

wanting to take any opportunity to work harder to enable them to pass this subject, and yet feeling that no opportunities were available, was quite obvious. Equally obvious was their feeling that their concerns were not being heard. Since 2012 the sense of desperation in the course feedback has virtually disappeared. Students are aware of and grateful for the changes which have been made and do not seem to feel the same sense of abandonment which their predecessors felt.

5.4.5 Assignment workshops

During this research, I became aware of an opportunity to assist students with the completion of assignments. This developed into an Accounting Assignment Workshop, where students are given the space and time to work on their assignments and are given guidance from an 'expert' when they are struggling. This would increase learning opportunities, increase exposure to the procedures of investigation and reduce the likelihood of copying, if students are prepared to engage with the work.

During the second semester of 2013, Accounting Assignment workshops were trialled with the Accounting 112 group of students. The one-hour workshops were held once a week on a Monday evening and three tutors were employed to assist as I had no sense of how many students would take advantage of this opportunity.

This opportunity was unfortunately badly supported by these students, although the few who took advantage of this opportunity felt it was highly beneficial. A student commented that "in Semester 1 … trying to complete an assignment … would take hours and I would often get the incorrect answer anyway. With these workshops, the help of the tutors to guide me in answering the questions was extremely helpful and allowed me to learn instead of just getting frustrated and making up answers just so I had something to hand in". This student went on to say "my marks increased … this term and I think that is because I was able to practise with my assignments every week". Another student said "I found it to be helpful as I was actually understanding the work while doing it".

With the focus on procedures of investigation under the control of an 'expert' and with students being able to control the pacing of these workshops which had a much weaker framing, these workshops were able to assist those students who used this opportunity.

A tutor on the programme suggested that the workshops were held a little too early in the week, with the assignments being due on a Friday. He felt that some students were not yet thinking about the tutorial work.

I would like to offer the workshops again in 2014, perhaps on a Tuesday instead of a Monday. I would not like to make it any later than that, as I would not like to be supporting an ethos of completing assignments at the last minute.

5.4.6 Opportunities for future changes to the course

Teaching Practices

I will in the future also speak to my students about threshold concepts and cognitive overload during lectures. If there is a threshold concept which I have not flagged, or if I have been moving so quickly that they are experiencing cognitive overload, this is my oversight as lecturer, and not as a result of lack of ability on their part. I will make this clear to my students and they need to let me know when they experience either of these.

Tutoring Practices

The tutorial programme needs more careful monitoring on a day-to-day basis. Tutorials need to be visited and I need to ensure that students are provided with a more consistent tutorial experience.

In future I will also get feedback from students on tutoring practices on a more regular basis. This will allow me to intervene more quickly if there is a problem, and it will mean that students will not suffer for a full semester if they believe that the time spent in their tutorial is not time well spent.

5.5 Improvement in Accounting 101 pass mark

Since this research was undertaken in 2011, the Accounting 101 pass rate has improved from 62% in 2011, to 71% in 2012, to 80% in 2013.

I believe that in particular:

- the three introductory workshops at the beginning of the year, which give novice accounting students the academic discourse required for the discipline, as well as the confidence required to be successful in the course, as well as
- the additional weekly lecture/ AD class

may have played a role in improving the pass rate. However, pass rates cannot be the only measure of the success of these interventions, future throughputs and retention rates would also be an indicator of success.

While the research has resulted in an improvement in the Accounting 101 pass rates, it has also impacted on me as a teacher and a researcher. How it did so will now be discussed.

5.6 How this research has impacted on me as a teacher and a researcher

Gaining insight into Accounting's hierarchical knowledge structure, and the implications this has for both teaching and learning in the discipline, has enriched my teaching practice. It has provided me with the tools and the language to "examine, name and refine [my] frameworks for teaching and learning" (S. F. Young, 2008, p. 41). It has meant that I have a deeper understanding of what lies behind the presentation of a lecture and it has meant that I have a clearer understanding of the difficulties which my students face as they try to make sense of the discipline. Through this my research has empowered me both as a teacher and as a colleague.

From a teaching perspective it means that not only am I more aware of what I am doing and why, but where relevant it means that I can share this which my students, if I believe that it will assist them in understanding why doing something a certain way is important. It has meant that I am able to move beyond saying 'you need to do this because that's the way it's done in Accounting', to a far more nuanced response based on the specific situation which arises.

From a learning or student perspective, from the hours I spent interviewing my participants, transcribing the recordings, listening to the recordings and analysing transcripts, I have a far better insight into what students do when they study, and what they are doing that is not useful or what they are doing which is simply incorrect. Previously I would only be able to

say, ‘this is what I recommend, if you wish to do it another way, that is your choice’. Now I can say, ‘based on my research, this is how more successful students approach their studies’ and I can go into detail about how they need to be studying and why.

As a new researcher, this research has had a significant impact on me. I have learnt the process of how to analyse semi-structured interviews. I have also learnt how to look at responses from students in a less judgemental and more theory-based perspective. I have learnt to listen to my internal alarm and not leave queries unanswered, as there is likely to be a theory somewhere which explains a phenomenon. I have learnt the value of working with individuals who have a wealth of educational knowledge to assist in and challenge these ‘discoveries’.

I have learnt that there are many, many other interesting topics in my field awaiting investigation.

5.7 Limitations of the study

I believe that given the small sample size it is difficult to generalise the findings of this research. Conducting additional research, in other institutions, amongst similar cohorts of students would be necessary before these findings could be deemed to be applicable to all Introductory Accounting students.

Given the weighting between novice and matric accounting participants, in particular looking at those who were not successful in the June examinations, it is feasible that a different result could have been obtained, had the number of research participants in each of these categories been weighted differently.

It would be interesting to see whether future research, with a different composition of novice versus matric accounting students, would reveal significant differences in conclusions.

5.8 Opportunities for future research

- Given the current conversations about the proposed four year degree, this research could be useful in supporting the move to a four year programme for accounting

students, given the finding that some novice accounting students take longer to develop the skills necessary to be successful in this course. It would be interesting to take this research further to identify which novice accounting students would be able to cope within a three year degree programme, and which would be better suited to the normal four year programme.

- Using the questions posed in this research project, it would be interesting to see whether a group of novice accounting students, who had not passed the June examination, would answer the questions significantly differently from the group of less successful participants in this study.
- It would also be interesting to conduct research into the textbooks being used at institutions, to determine whether these essential tools in the learning and revision process provide the best recontextualising of knowledge for novice accounting students.
- The focus of this research project was the success rate of students within this first semester course and race was found to play no role in the success of these students. Given the shortage of Chartered Accountant trainees nationally and internationally, but especially given the shortage of black Chartered Accountant trainees, it seems that this is an as yet under-investigated area and worthy of future research. What is preventing students, particularly black students, from making it through the four year programme and into becoming trainee Chartered Accountants?

5.9 Summary

An Accounting 1 credit, for which Introductory Accounting is the first semester half credit, is a pre-requisite for continuing into the second year of accounting as well as for many other commerce degrees at this higher education institution.

Introductory Accounting is a hierarchical knowledge structure, with a high degree of verticality and strong grammaticality. It has stronger semantic gravity and stronger semantic density. These structural qualities have certain implications for how students need to construct knowledge in this course and potential difficulties which students may experience during the course.

This study has illuminated problems in how less successful Introductory Accounting students try to construct knowledge in this course, as well as a possible code clash between what the discipline requires and what some less successful students are prepared to invest.

Identifying and illuminating these problems will guide future teaching practices, but will also help in making novice accounting students, in particular, more aware of these possible pitfalls as well as what is required from them to be successful in structuring knowledge in this course.

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Appendices

Appendix 1 – Consent Form

Thank you for agreeing to participate in this research. Please read through and sign the consent document – any reference made to this interview in my thesis or subsequent publications will not be acknowledged to you by name or student number but will be made against an interviewee number. Are you happy for me to record the interview?

Please remember there are no CORRECT/INCORRECT responses, I simply want to understand YOUR perspective in each area.

INTERVIEW CONSENT FORM

1. I agree to participate in an interview conducted by Ms Peta Myers student no 08B6824 for the purpose of research for her Master in Education focussing on Introductory Accounting.

2. My additional contribution to this research will be in the form of an interview which I understand will be recorded.

3. I agree that any statements which I make could be used in the research document, but will not be connected to me by name or student number.

4. I agree that the results from my Accounting 101 tests and examination may be used should this prove useful to substantiate an issue in this research. These marks will not refer to me by name or student number.

5. I will be given the opportunity to read through the transcript of the interview to confirm the validity of what has been transcribed and to make further comments if I so choose.

6. I understand that I have the right to withdraw from the research at any time.

Name ……. Signature ……

Appendix 2 – Interview Questions

(1) Please tell me a little about yourself, your previous accounting experience, school experience.

(2) Do you believe you were successful in your final result in the Accounting 101 examination?
- What mark were you aiming for?
- Why would that mark in particular have pleased you?
- What does 'being successful in Introductory Accounting' mean to you?

(3) When you are given an Accounting question, how do you go about answering the question?
- Why do you use this method?

(4) If you would think back to your first memory of studying accounting, how did you make sense of the new knowledge which you were required to obtain?
- What were the building blocks you used? Why?
- What do you think the most basic concept is in Accounting? Why?
- What do you believe is the most difficult aspect to understand in Introductory Accounting? Why?

(5) When you are faced with a new concept in Accounting, how do you make sense of the topic?
- How do you identify the main factors in the topic?

(6) Are there any other techniques you use to better understand Accounting?

(7) What assisted you in making sense of Introductory Accounting this semester?
   a. Order/speed/tuts-tests-exams

(8) What made making sense of Introductory Accounting difficult?
   a. Order/speed/tuts-tests-exams

(9) What did you feel in control of / not in control of during the semester?

(10) Comments on Questionnaire…

(11) Is there anything else you would like to add to what you have already said?

Thank you for taking the time to participate in this interview, your contribution is appreciated.

Appendix 3 – Invitation to Participate in Research

Introductory Accounting Learning Practices Questionnaire

by Peta Myers - Wednesday, 31 August 2011, 9:40 PM

As I will already have spoken to some of you during lectures, and as I have posted this on the Accounting 102/112 RUconnected site, I apologise for any cross-postings or duplication of information.

I am conducting research into the study and learning approaches which are taken by Introductory Accounting students to advise future students and guide them in their approach to this topic and I would be grateful for your input in this regard.

A questionnaire has been posted at the top of the page on the Accounting 102/112 RUconnected site, and I believe that it takes about 10 minutes to complete. The questionnaire is available from now until the 9th September at 08h00, i.e. the last day of term.

I am particularly trying to understand how students, especially those who have not taken Accounting as a school subject, try to make sense of the learning steps in the Accounting 101 module. As there is – understandably - a high failure rate amongst students who did not do Accounting at school, I am particularly interested in hearing your views on how you approached understanding the subject, even if you were not successful in passing the module this year.

Giving up 10 minutes of your time will prove invaluable to future Introductory Accounting students, particularly those who have not studied Accounting before.

Thank you – and enjoy the fast-approaching vac!

Peta

Appendix 4 – On-line Questionnaire

This questionnaire will be conducted and in a confidential manner and all responses will be treated as such. As this is a research project, some feedback obtained could be quoted although no names or student numbers would be linked to responses.

Did you do Accounting as a matric subject? Y/N

Are you repeating Accounting 1? Y/N

How many lectures do you attend every week on average? 1 / 2 / 3

How many hours do you spend every week on average?

Reading before a lecture	0	1-2	3-4	5-6	more
Reading after a lecture	0	1-2	3-4	5-6	more
Preparing for tutorials	0	1-2	3-4	5-6	more
Preparing your assignments		1-2	3-4	5-6	more

How many hours do you think you spent on test revision?

0	1-5	6-10	11-15	15-20	more

How many hours do you think you spent on exam revision?

0	1-5	6-10	11-15	15-20	more

How far do you intend studying Accounting?

1st year / 2nd year / 3rd year / 4th year

When faced with a new accounting topic, how do you make sure you understand the topic? …….

When revising for a test or an exam, how do you plan your time?……..

When revising for a test or an exam, how do you make sure you understand the topics?

…….

How many weeks did it take you to become familiar with the following topics?

Debits and credits	1	2	3	4	5	More
Statement of Comprehensive Income (Income Statement) and Statement of Financial Position (Balance Sheet)	1	2	3	4	5	More
Adjustments	1	2	3	4	5	More

How well do you understand these topics now?

Debits and credits Not very well / I manage / I understand well

Statement of Comprehensive Income (Income Statement) and Statement of Financial Position (Balance Sheet) Not very well / I manage / I understand well

Adjustments Not very well / I manage / I understand well

What did you do to move from limited or no understanding of these topics, to your current understanding?

Debits and credits ……..

Statement of Comprehensive Income (Income Statement) and Statement of Financial Position (Balance Sheet) ……

Adjustments …….

Would you be interested in participating further in this research into learning in Introductory Accounting? Participants would have an interview of approximately one hour with the researcher at a time to be negotiated. Y/N

Whether or not you passed Accounting 101 your contribution would be valuable as I am investigating how all students focus their studies. Thank you for the time taken to complete this questionnaire. Your contribution to this research is appreciated.

Peta Myers

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