

Exploring Grade 12 Biology teachers' perceptions and experiences of the dissemination and utilization of Examiners' reports in the Khomas region of Namibia: A case study

A thesis submitted in partial fulfillment of the requirements for the degree of

MASTER OF EDUCATION

(SCIENCE EDUCATION)

of

RHODES UNIVERSITY

by

Anthea Bezuidenhout

December 2014

DECLARATION

I, Anthea Esmeralda Bezuidenhout declare that this thesis is my original work and has not being submitted in any other form to another university for degree purposes. Any part of work produced by others has being acknowledged in the text.

Date: October 2014

ABSTRACT

The main research goal of this study was to investigate the Grade 12 Biology teachers' perceptions and experiences of the dissemination and utilization of Examiners' reports in the Khomas region. Examiners' reports are official documents produced to provide feedback to teachers and learners with the aim of improving teaching and learning. In these reports, Chief Examiners report annually that Grade 10 and Grade 12 candidates are repeating the same mistakes in topics or concepts already discussed in previous years Examiners' reports. These mistakes include amongst others misconceptions, incorrect use of English language in Biology and the inability to apply knowledge about concepts in new situations. What could be the possible reasons for this? This triggered my interest to do research on the dissemination and utilization of Examiners' reports in schools.

Using the interpretive paradigm, a qualitative case study approach was adopted. In the interpretive paradigm emphasis is on the everyday things and our understanding of those things as we go about in our daily lives. Using the interpretive paradigm helped me to understand teachers' experiences through their subjective world. This case study involved the use of methods of a qualitative nature relying on the views of the research participants through interviews. Quantitative data was also gathered using questionnaires. The data sets were analyzed and interpreted in two parts, namely, dissemination and utilization of Examiners' reports. Analytical statements were drafted in line with the data that emerged during the analysis process. Triangulation which involved two data gathering techniques, namely, questionnaires and interviews were used to validate the data gathered.

The Cultural Historical Activity Theory (CHAT) was used as the analytical framework. Two activity systems were constructed around the hypothetically taken objects, viz., dissemination and utilization of Examiners' reports respectively. The value of CHAT lies in the fact that it surfaced contradictions between components of activity systems in the way work is done. These contradictions that surfaced in dissemination and utilization of Examiners' reports at school level suggested that change in the way things are currently done is essential.

Teachers' perceptions are that currently dissemination in schools is ineffective and must change. The tensions that surround the dissemination of the reports are late arrival of Examiners' reports which clash with preparation of learners for the first term examinations. Furthermore, the time the Examiners' reports get into teachers' hands are late and thus result in teachers rushing through it to incorporate the recommendations given in it in the second term or in some instances teachers do not attend to it at all. The number of copies of the Examiners' reports provided to schools appears to be inadequate. HODs still having to duplicate reports before disseminating them add to their work load and further delay dissemination of the reports to individual subject teachers. Although the teaching and learning approach in Namibian classrooms should be based on LCE, dissemination of the actual physical reports are currently restricted to teachers only with them only verbally communicating feedback given in the reports to their learners. Support in dissemination of Examiners' reports from peers and superiors in the majority of the schools appear to be lacking.

Changes would like to be seen in the timing the Examiners' reports are available at schools, the number of hard copies provided to schools and exploring and embarking on alternative ways of disseminating the reports. The percentage of utilization of the Examiners' reports is relatively high, yet still not the optimum. A reasonable number of Namibian learners are disadvantaged and not exposed to a source of information that can make their Biology learning more efficient because some of their teachers are not using Examiners' reports in their teaching. The main reason for non-utilization of the reports by Biology teachers is a result of inefficient dissemination at individual schools. The argument being that if the reports are not given to the teachers they and especially novice teachers will not know about the existence of this useful teaching and learning resource. Examiners' reports are an important and systematic impartial source of high quality data on learning in the Namibian education system. Therefore, effective dissemination and utilization of the reports must be advocated and strengthened.

DNEA and the Khomas regional office should embark on tapping into available development in information technology by doing research into the possibility of disseminating the Examiners' reports electronically. A pilot in this regard should be conducted in the Khomas region as a measure to ensure dissemination can become more efficient in the future. To ensure that teachers optimally utilize the Examiners' reports, they should be provided to schools when the

school first term commences. The Khomas regional office should strengthen their involvement in utilization by arranging annual workshops where the content of the reports can be discussed to ensure that the feedback given in the reports can aid in developing and strengthening Biology teachers' subject content knowledge as well as pedagogical content knowledge. Optimal utilization of Examiners' reports can enable mediation in learners which can ensure effective learning and mastery of Biology by learners which can ultimately lead to an improvement in pass rate in Biology. Therefore, appropriate support to aid teachers' professional development can enhance maximum utilization. Furthermore, an area for future research could be to give the Examiners' reports to learners to determine the impact it has on their learning.

ACKNOWLEDGEMENTS

First and foremost my thanks and appreciation goes to the Almighty God who is the sustainer of life and countless blessings that enabled me to undertake this research and see it through until the end.

I would like to thank my family for their support and encouragement during this journey.

Special thanks go to my two supervisors Dr Ken Ngcoza and Dr Charles Chikunda for their advice and support. Their commitment to their jobs and responsibilities is highly commendable and has been an inspiration for me to never give up, but to reach for the top.

I would like to thank Mr Robert Kraft for his contribution to the emerging of the research topic I finally decided on pursuing. Similarly his positive critique resulted in end products of sections of work that I could feel good about.

I would also like to thank Judith Cornwell for an excellent job she has done in editing the thesis.

I would like to extend a special thank you to my immediate supervisor Ms Rauna Ndinoshiho, my Director Mr Cavin Nyambe and the senior management within the Ministry of Education for their contribution to my thesis being considerate and allowing me to take study leave when the need arose.

A special thank you is extended to all principals, HODs and teachers that participated in the research. Their positive attitudes and availing their time is highly appreciated.

TABLE OF CONTENTS

DECLARATION	i
ABSTRACT.....	ii
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS.....	vi
ACRONYMS AND ABBREVIATIONS	x
LIST OF FIGURES, GRAPHS AND TABLES	xii
LIST OF APPENDICES	xiii
Chapter One	1
Contextualizing the study	1
1.1 Introduction.....	1
1.2 Background to the study	1
1.2.1 National and international assessments done in language and science and their findings	1
1.2.2 Current practices in Namibia that steered this research	7
1.2.3 Background on Examination and Assessment in Namibia	12
1.2.4 The NSSC Examinations in Namibia.....	15
1.3 Research goal and objectives	16
1.4 Theoretical and Analytical Framework.....	17
1.5 Data generation techniques	17
1.6 Potential value of the study.....	18
1.7 Definition of concepts.....	18
1.8 Thesis outline	19
1.9 Concluding remarks	21
Chapter Two.....	22
Literature Review.....	22
2.1 Introduction.....	22
2.2. Examiners' reports: What are Examiners' reports and what are their purposes?	22
2.3 The value of feedback: Examiners' reports as a mechanism of feedback and its significance...	23

2.4	The purpose of examinations and assessment feedback	26
2.5	The language of instruction: Its importance and impacts	28
	Mother tongue instruction vs English	28
2.6	The process of mediation and using artifacts such as Examiner's reports in mediation.....	33
2.7	CHAT as an analytical framework that informed the study.....	35
2.8	Concluding remarks	38
	Chapter Three.....	39
	Research Methodology	39
3.1	Introduction.....	39
3.2	Research methodology	39
3.2.1	Research design and orientation.....	39
3.2.2	Interpretive paradigm.....	40
3.2.3	Case study	40
3.2.4	Research goal and questions	41
3.2.5	Research site and participants	43
3.3	Data generation techniques	43
3.3.1	Document analysis	44
3.3.2	Questionnaire	44
3.3.3	Semi-structured interview	46
3.3.4	Piloting.....	46
3.4	Data Analysis	47
3.5	Validity	49
3.6	Ethical Considerations	50
3.7	Limitations	51
3.8	Concluding remarks	52
	Chapter 4.....	53
	Data presentation and analysis:.....	53
	Dissemination of Examiners' reports.....	53

4.1	Introduction.....	53
4.2	Teachers' perceptions and experiences on the dissemination of Examiners' reports at their schools.....	53
4.2.1	Research participants and sites.....	53
4.2.2	Accessibility of reports at schools.....	54
4.2.3	Timing of the availability of reports	58
4.2.4	Division of labour in the dissemination process at schools	62
4.2.5	Teachers' perceptions about their role in the dissemination of the reports.....	63
4.3	Concluding remarks	65
Chapter 5.....		67
Data presentation and analysis:.....		67
Utilization of Examiners' reports.....		67
5.1	Introduction.....	67
5.2	Teachers' perceptions on utilization of Examiners' reports at school	67
5.2.1	Introduction to teachers' perceptions and experiences on the utilization of Examiners' reports	67
5.2.2	Conceptual accessibility of Examiners' reports.....	68
5.2.3	Utilization of reports and perceptions of it being a mediational tool.....	71
5.2.4	Teachers' perceptions about Examiners' reports leading to improvement in teaching, learning and schools annual performance	73
5.2.5	Teachers' perceptions about Examiners' reports leading to improvement in schools' annual performance	78
5.2.6	Division of labour in utilization of Examiners' reports	82
5.2.7	Teachers' perceptions about how and what role or not Biology teachers can play in improving the utilization of Examiners' reports	89
5.3	Concluding remarks	90
Chapter 6.....		92
Data interpretation and discussion of findings.....		92
6.1	Introduction.....	92
6.2	An overview on CHAT as the framework in the context of this study	92

6.3	Part 1: Dissemination of Examiners' reports analyzed using CHAT.....	94
6.4	Part 2: Utilization of Examiners' reports contextualized using CHAT	107
6.5	Concluding remarks	119
Chapter 7.....		123
Summary of findings, recommendations and conclusion		123
7.1	Introduction.....	123
7.2	Summary of the findings.....	123
7.3	Recommendations.....	126
7.3.1	Dissemination of Biology Examiners' reports.....	126
7.3.2	Examiners' reports as mediational tools opening the zone of proximal development.....	128
7.4	Limitations of the study	135
7.5	Areas for future research.....	135
7.6	My critical reflections	137
7.7	Conclusion	138
References.....		139
APPENDICES		149
APPENDIX U1:.....		149
APPENDIX U2:.....		150
APPENDIX U3(a):		151
APPENDIX U3(b):		152
APPENDIX V1:.....		153
APPENDIX V2:.....		161
APPENDIX W:		168
APPENDIX X:.....		173
APPENDIX Y:.....		186

ACRONYMS AND ABBREVIATIONS

AFL	Assessment for learning
CAM	continuous assessment manuals
CEFR	Common European Framework of Reference for languages
CHAT	Cultural Historical Activity Theory
CIE	Cambridge International Examinations
DNEA	Directorate of National Examination and Assessment
HIGCSE	Higher International General Certificate of Secondary Education
HOD	Head of Science department
IGCSE	International General Certificate of Secondary Education
IEA	International Association for the Evaluation for Educational Achievement
JSC	Junior Secondary Certificate
MBESC	Ministry of Basic Education, Sport and Culture
MoE	Ministry of Education
NAMCOL	Namibian College for Open Learning
NCSE	Namibia Certificate of Secondary Education
NIED	National Institute for Educational Development
NSSC	Namibia Senior Secondary Certificate
PCK	Pedagogical Content Knowledge
PIRLS	Progress in International Reading Literacy Study
PQA	Programme Quality Assurance

SACMEQ	Southern and Eastern Africa Consortium for Monitoring Educational Quality
SCK	Subject Content Knowledge
TIMSS	Trends in International Mathematics and Science Study
T1	Teacher 1
T2	Teacher 2
UCLES	University of Cambridge Local Examination Syndicate
ZPD	Zone of Proximal Development

LIST OF FIGURES, GRAPHS AND TABLES

Figure 2	Second generation CHAT
Graph 4.1	Summary of the dissemination of Biology Examiners' reports at schools
Graph 4.2	Summary of the dissemination of the different levels of the Biology Examiners' reports at school
Graph 4.3	Timing of dissemination of Examiners' reports at school
Graph 5.1	Teachers' perceptions about whether Examiners' reports should be improved or not
Table 4.1	Summary from interviews on the dissemination of Examiners' reports in Alpha and Beta school
Table 4.2	Summary from interviews on the dissemination of Examiners' reports in Alpha and Beta schools
Table 4.3	Teachers' perceptions about effectiveness of dissemination at individual schools
Table 5.1	A summary of teachers' perceptions of utilization of Examiners' reports at school
Table 5.2	Summary of teachers' perceptions on utilization of reports and improvements in teaching and learning
Table 5.3	Summary of teachers' perceptions about utilization of reports improving schools performance in Biology
Table 5.4	Division of labour in utilization of Examiners' reports
Figure 6.1	Activity System with dissemination of Examiners' reports as the object
Figure 6.2	Activity System with utilization of Examiners' reports as the object

LIST OF APPENDICES

Appendix U1:	Permission letter to the Khomas Regional Director of Education
Appendix U2:	Permission letter to the Under Secretary for formal education in the Ministry of Education
Appendix U3a:	Permission letter to conduct research in the secondary schools in the Khomas region from the Permanent Secretary of the Ministry of Education
Appendix U3b:	Permission letter from the Deputy Director to conduct research in secondary schools in the Khomas regions
Appendix V1:	Questionnaire piloted – 1st pilot
Appendix V2:	Final questionnaire distributed to secondary schools in the Khomas region
Appendix W:	Interview schedule
Appendix X:	Interview transcript of teacher from alpha school (T1)
Appendix Y:	Interview transcript of the teacher from beta school (T2)

Chapter One

Contextualizing the study

1.1 Introduction

This chapter introduces my research, a case study focusing on Grade 12 Biology teachers' perceptions and experiences of the dissemination and utilization of Examiners' reports in the Khomas region. It describes the context of the research and explains why I decided to pursue the study. Background information is followed by a statement of the research goal and objectives, and a brief summary of the theoretical framework and analytical tool used. The manner in which data has been gathered for this study is discussed and justified. I also elaborate on the potential value of this study. Concepts relevant to the study are defined to ensure the reader has a clear understanding of what they entail. Finally, there is an outline of the thesis followed by some concluding remarks.

1.2 Background to the study

1.2.1 National and international assessments done in language and science and their findings

Namibia is part of the global community; consequently our education system is influenced and shaped by what happens around us. The question of the language to be used in instruction – local or global – is a contentious issue for many countries worldwide, and it appears that as yet no consensus has been reached. It is a question that remains a big challenge for many Governments and Ministries of Education. Equally challenging is the plea from the work place that education systems produce graduates who have excellent scientific knowledge that they can apply in today's rapidly changing technological and scientifically-orientated fields. There is a pressing need for more appropriate research in these areas to be done. Research is necessary to ensure that decisions taken and policies embarked upon will ensure both quality and equity in education systems. The findings from such research (conducted nationally and internationally) should have an impact on the decisions that a country makes.

In this section, I discuss assessment studies done in Mathematics and Science and the findings thereof. I also highlight current research projects in language, specifically reading literacy and

the influence it has on instruction and learners' performance. Much of what I discuss in my research is influenced by the findings from these international and national research projects.

As far as science is concerned, the Trends in International Mathematics and Science Study (TIMSS) 2011 report gives feedback on the 5th cycle of this initiative. These tests are written by learners in grades 4 and 8 and have been conducted every four years since 1995. In the 2011 cycle 63 countries (Namibia excluded) took part in the tests in either the grade 4 or 8 or both. The number of countries that took part in the grade 4 tests was 52 while for the grade 8 tests it was 45. In countries such as Botswana, South Africa, Honduras and Yemen the tests for grade 4 and 8 were instead given to the grade 5s (or higher) and 9s respectively, because the tests were found to be too difficult for the grades it was intended for. In Botswana the test was administered to grade 6 learners while in South Africa only the grade 9 learners participated in the 2011 cycle.

This international assessment study provides evidence that can be used to improve the teaching and learning of Mathematics and Science. According to the International Association for the Evaluation of Educational Achievement (IEA), the TIMSS reports are useful to teachers, people involved in research in education, educational administrators and policy makers in terms of the insight it gives into the functioning of education systems for the purpose of improving and reforming systems and practice.

In science the emphasis in the tests centres on two important measurements, content and cognitive. The cognitive measurement focused on knowing and applying reasoning skills. The tests consisted of multiple choice items as well as structured response questions. The structured response items required learners to express their scientific knowledge in writing.

In the science tests the centre point in the assessment scale is 500, with learners' performances ranging between 300 and 700 in a scale that stretches from 1 to 1 000. The top performing countries were Korea, Singapore, Finland, Japan, the Russian Federation and Chinese Taipei at the fourth grade level. At grade 8 level the ranking order was slightly different: Singapore, Korea, Chinese Taipei, Japan and Finland. South Africa and Botswana are currently the only countries in the SADC region that participated at the eighth grade level in 2003, 2007 and 2011. From elsewhere in Africa, Morocco participated at the fourth grade as well as the eighth grade levels in 2003, 2007 and 2011 at grade 4 level. At grade 8 levels the country participated in

1999, 2003, 2007 and 2011, but the earlier three years test data are not comparable to the 2011 test data.

Internationally, it has been observed that learners experience the application of science knowledge and reasoning as problematic, because they are not as strong in these areas as in knowledge measurement. The PIRLS report findings discussed in more detail, below, point out the importance of reading literacy in the language of instruction if learners are to be able to understand the meaning behind words. The challenges arising for learners when they are not proficient in the language of instruction compound the problem of understanding abstract scientific concepts. It is mastery of the language concerned that will ensure that learners refrain from rote learning and are able to apply their science knowledge.

The findings in the TIMSS report mentioned earlier correspond with what Examiners' reports reflect about learners' Biological content knowledge – that learners cannot apply their knowledge and reason about concepts in new situations. It is perversely reassuring to know that internationally this is a matter of concern: this should encourage Namibian teachers not to give up, but to find ways to help learners get over the hurdle.

The TIMSS report stated that a pattern observed is that as learners get older their motivation and attitude towards science change for the worse, to the extent that their confidence in doing science drops and fewer of them continue to like and enjoy science. This is not an encouraging observation, because studies indicate that learners who achieve high marks in science generally have a positive attitude towards the subject. The report suggests that instruction must engage learners. It further shows that school and teachers can contribute to learners developing negative attitudes towards science because of the way in which the subject is taught. It suggests that senior school teachers learn from primary schools, because in the early phases learners learn through playing and manipulating objects, important concepts in Vygotsky's theory of constructivism. These findings have major implications for all science teachers and Ministries of Education. They suggest that we reflect on current science teaching practices and change in the interest of the learners we serve.

The Progress in International Reading Literacy Study (PIRLS) assesses fourth-grade reading comprehension internationally. PIRLS' aim is to enable countries to improve the teaching and

learning of reading through making informed decisions based on the evidence provided from the assessment studies. This assessment is done every five years and started in 2001 for the first time. To enable wider participation at the end of the primary phase in most schools in the assessment, additional options were introduced in the 2011 cycle. Pre-PIRLS was in 2011 introduced as a stepping stone to PIRLS, which is a more difficult assessment. Forty-nine countries took part in PIRLS and pre-PIRLS in 2011.

Fourth-grade learners were assessed from forty-five countries, while the assessment of sixth grades was done by four countries, including South Africa. Various countries including South Africa also participated in pre-PIRLS in 2011, an easier assessment than PIRLS. The 2011 study is the second study that South Africa has participated in, having also taken part in the 2006 study. In the 2006 study undertaken in South Africa the assessment was conducted in 11 official languages. In 2011 a pre-PIRLS study was conducted in 11 languages at the Grade 4 level. PIRLS was conducted in English and Afrikaans at Grade 5 level.

Other African countries that took part in the study were Botswana and Morocco. Botswana participated in the 2011 study while Morocco took part in 2001, 2006 and 2011. However, the data for the cycles of 2001 and 2006 is not comparable for measuring against the trends in the 2011 cycle.

The questions in the PIRLS assessment measure reading comprehension in two areas, namely, to acquire and use information, and literary experiences. A PIRLS scale is used to report on achievement. The range of the scale is from 0 to 1 000 with the middle point of the scale, 500 being used as a constant reference point. Learners' performance usually ranges between 300 and 700.

In the 2011 PIRLS the four top performing countries were Hong Kong SAR, Russian Federation, Finland and Singapore. Only about twelve countries out of the 45 participating countries in the 2011 PIRLS had achievements below 500. The four countries that took part in the sixth grade study as well as countries that undertook the pre-PIRLS study showed achievements below 500. Since the introduction of the assessment study, the statistics indicate that countries have on the whole shown improvement in reading achievement.

According to the PIRLS report, children's home environments model practices and patterns. Children see and imitate those practices and patterns. It was thus not surprising that the PIRLS report pointed out that the children of parents who liked reading, showed on average higher scores in reading achievement. The reports further showed that learners who had the language used in the PIRLS assessment as a mother tongue showed higher reading achievement scores.

The PIRLS report findings revealed that a large number of learners who had a good socio-economic background and entered school with some literacy skills had a higher average reading achievement score. The point I want to bring across, as backed up by the findings of the PIRLS report, is that proficiency in the language of instruction is important for improved performance and greater success in schooling generally.

I therefore argue that such proficiency can be obtained by exposing learners to the language of instruction as much as possible. In classroom settings it would mean giving ample room for learners to talk, to read and to be actively engaged in verbally expressing their thoughts. This is backed up by other evidence in the PIRLS report, from which it was concluded that learners who were engaged in literacy-related activities such as writing letters or words, reading out loud and playing with alphabet toys, exhibited higher reading achievement. Reading literacy, whether in one's mother tongue or in the language of instruction, is essential to make sense of what one reads. The lesson we learn from the findings is that in order to master literacy in reading or in any language one must interact with it.

The PIRLS report states that the active involvement of learners in their learning and in reading lessons is very important, as there must be interaction on a cognitive level between learners and the content they are exposed to and are required to learn. The report shows that higher reading achievement is evident in learners who are engaged in their learning and reading. Thus teachers as mediators must plan instruction in such a ways as to ensure that learners are engaged.

The PIRLS report states that learners who were exposed to classroom environments where these characteristics featured showed higher reading achievement. This piece of evidence is particularly relevant to my research, as it should provide the backing needed to encourage and mobilize all stakeholders in education – school management, teachers, learners, the regional

office and head office – to ensure that dissemination of Examiners’ reports receive the necessary attention and urgency.

Namibia has not committed herself to either the PIRLS or TIMMS studies. Even though I cannot find the exact reason for this in print, it may be that the people in decision-making positions do not see the need to take part in these international studies. Instead, Namibia is currently only taking part in the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) studies, and Namibia’s locally developed Standardized Achievement Tests (SATs).

In its mission statement, SACMEQ states that its aim is to produce information backed by research for decision making that can inform planning, so that the quality of education can be improved.

The development and implementation of SATs in Namibia (see Shaakumeni, 2012) was recommended by the World Bank in an attempt to add to the data and evidence Namibia gets from the SACMEQ studies. The SACMEQ I project started in 1995–1998, with only seven Ministries of Education taking part in it. The SACMEQ II project was from 1999–2004, and this time fourteen Ministries of Education took part. The SACMEQ III project ran from 2007–2010 and fifteen Ministries of Education participated. The SACMEQ projects are supported by UNESCO. In the first Project the focus was on a reading test for learners; Project II focused on reading and Mathematics for learners and for teachers teaching Mathematics and reading, while Project III focused on reading, Mathematics and Life Skills tests for learners and teachers, with testing being done at the sixth grade level.

The fifteen Ministries of Education that make up the SACMEQ network are Botswana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania (Mainland), Tanzania (Zanzibar), Uganda, Zambia and Zimbabwe. According to the SACMEQ III report, Namibia improved the most of all participating countries in learners’ reading skills, rising by a score of 31.1 points between the second and third SACMEQ projects in the acceptable category. The overall increase was 48.1 points (SACMEQ III report). Despite this, Namibia’s 496.9 reading score was still below the SACMEQ mean for reading of 511.8. In Mathematics the SACMEQ mean was 509.5. Even though it improved by 40.1 points, Namibia’s 471.0 was still below the mean. While the statistics show an overall improvement in the country

in both reading and Mathematics, six regions performed below the national average: Zambezi, Kavango, Omaheke, Ohangwena, Oshikoto and Omusati.

1.2.2 Current practices in Namibia that steered this research

My interest in looking at the dissemination and utilization of Examiners' reports stemmed from a contextual profile assignment given to the Rhodes Masters students by our lecturers. The assignment involved interviewing teachers from various schools in Okahandja and also different Education Officers at the National Institute for Educational Development (NIED) who are responsible for curriculum development. One Education Officer mentioned the continuous assessment manuals (CAM) for grade 10 Life Science that were distributed to all schools. Yet after the interview was completed, one of my fellow Rhodes Masters students commented that she had never received any manual. Why was this?

According to NIED's records, all schools offering grade 10 received manuals. According to the NIED official, a certain printing company got the tender to duplicate and deliver the manuals to all schools as per the list of school provided to them. Furthermore, the records NIED received back from the printer concerned indicated that all the schools on the list received and signed for the manuals. When this scenario emerged it got me wondering about other national documents that should be in schools, such as the Examiners' reports produced by DNEA, my work place. I asked myself: Do teachers get the Examiners' reports or do they also get lost along the way, in the process of distribution? If they do have them, what do they do with them?

Furthermore, personal communication with some teachers in 2012 during the National marking exercise alerted me to the fact that some subject teachers for Biology do not get the Examiners' reports. One teacher from a school in the Khomas region commented that she last received Examiners' reports in 2006. Yet according to the DNEA's records, Examiners' reports for Grades 10 and 12 are disseminated to all Regional Offices, addressed to the Principal of each school. So if teachers did not receive the Grade 10 CAM or markers are saying they do not get Examiners' reports, it appears that something is going very wrong during the distribution process. I then realized I could do my research on the dissemination and utilization of the Examiners' reports at school level, to see if teachers actually get the reports, and if they do, whether or not they use them.

Additionally, upon my sharing with the Director of DNEA the information that some teachers even in urban areas were not getting Examiner's reports, he directed the Head of the professional division that deals with research and test item development to conduct a mini research initiative into the distribution and utilization of Examiners' reports in the Khomas region. Due to work demands and shortage of staff in the Directorate, the research has not yet been conducted, which gave me an opportunity to pursue this interesting issue as the research focus for my Master of Education degree with Rhodes University. To my knowledge no research on teachers' perceptions of Examiners' reports, on the dissemination of these reports or on their utilization, has been done in Namibia to date.

Being personally involved with marking at a national level, I observed that the same mistakes reported on in previous Examiners' reports keep on showing up in learners' answers year after year. For example, Examiners' reports on the examination years 2007 to 2013 all gave substantial comments on the use of comparative words and language when learners are asked to compare two figures. However the way in which learners were responding remained problematic. Examiners' reports advise teachers to inform learners to refrain from using colour in comparisons as the question paper is in black and white print. Furthermore, using size to compare is also not advised, as often the pictures of the organisms given are magnified or diminished. Thus any reference to size in relation to the illustrations provided is not correct as it is not a true reflection of the organisms in real life.

So, whether Examiners' reports are not disseminated or whether teachers are not using the Biology Examiners' reports in their teaching, the situation is a matter of concern to me, since a lot of time, effort and planning goes into the production of these reports. Furthermore, what I observed is also supported by Chief Examiners, who report annually that Grade 10 and Grade 12 candidates are repeating the same mistakes in topics or concepts discussed in previous years' Examiners' reports. What could be the possible reasons for this?

Research conducted by Nakale (2012), a former teacher and also a marker at national level, has shown how the English language is often a stumbling block for learners trying to make sense of biological concepts. Nakale's research highlighted many examples of language-specific issues addressed in previous years' Examiners' reports. But another reason for learners' difficulties

may be that their teachers are just not getting or responding to the reports' highlighting of certain recurring problems.

In an effort to improve the distribution of Examiners' reports, the DNEA was directed by the Minister to release the Examiners' reports earlier, on the assumption that it was in part the late distribution that was a factor in poor utilization. However, while I was piloting the questionnaires for this study it became evident that in 2013 some teachers still failed to receive the Examiners' reports. This suggests that the dissemination of Examiners' reports at the school level could be a problem.

Examiners' reports are very concrete and specific and thus can be extremely helpful to teachers if they are read and reflected upon. For example, Examiners' reports for Biology for the period 2007 to 2013 showed the following issues/concepts being reported on annually:

- Language mistakes are common in Biology exam scripts. Answers on energy transfer often show incorrect reference to heat being produced. Heat cannot be produced, but can be *generated*. Similarly, is it also incorrect to refer to Energy being produced, as the biologically correct term should be that Energy is *released*. The law of conservation of Energy states that energy cannot be created or destroyed. Energy cannot be produced, it can be transferred (changed) from one form to another or released. However it would be correct to say adenosine tri-phosphate (ATP) is produced, because it is made up of atoms and molecules.
- Sequencing of words is important. If words in a sentence are in the wrong order, they can convey a different meaning to the reader and result in the candidate's answer being wrong.
- Osmosis should be taught in terms of water potential instead of concentration, as learners always make mistakes about concentrations. For example, if learners say: water moves from a high concentration to a low concentration, they will not gain marks, as it is not at all clear which concentration they are referring to. Is it the water concentration, the salt or sugar concentration, or the concentration of the solution? Learners often just give a definition for osmosis, which shows that they cannot apply their knowledge.

- In movement or transport of substances learners should always state from where and to where the transport or movement takes place. Gases always diffuse: for example it is not correct to say that water vapour (a gas) leaves the leaf through the stomata. It diffuses through the stomata. The same applies for carbon dioxide or oxygen.
- Comparisons appear to be a challenge despite the fact that it is an issue that cuts across English language as a subject as well. In order to compare two structures or processes, comparative words must be used, for example higher and lower; larger and smaller; less and more. Learners' comparisons and comparative language often do not show the difference clearly and therefore cannot be awarded marks. Rules on how to deal with comparisons are given in the Examiners' reports. For example, if comparative words are used, only one of the two structures/processes that have to be compared needs to be mentioned. If comparative words are not used both structures/processes must be mentioned in the comparison.
- Judging from the language learners' use in their answers it can be concluded that teachers may also be guilty of using everyday language in class, which often results in learners being penalized for incorrect use of science terminology. Therefore, the Examiners' reports stress that teachers must at all times ensure they use correct biological terminology.
- Recommendations to assist teachers in teaching are also reported on. Teachers have on many occasions been discouraged by Examiners from providing learners with summaries from the textbooks, as notes. This practice results in learners becoming totally passive and hence refraining from thinking or doing anything, imagining that they will pass the subject just by studying the teachers' notes. Teaching must rather ensure that learners are actively thinking about questions or scenarios that teachers pose to them. For example, no learners will be able to explain the effects of placing a plant cell into a salt solution if they have not really thought about the problem.

Other issues not necessarily related to language or study summaries also reported on include the following:

- Graphs are used in teaching to help learners make sense of biological concepts. The drawing of graphs poses to be a big problem. Basic rules regarding the drawing of neat and correct graphs are not followed, despite the fact that it is a skill that cuts across many other disciplines, for example, mathematics, physical science and geography. Furthermore, the inability of learners to describe graphs and interpret graphs is another problem. Learners often lack understanding of the difference between the dependent and the independent variables on a graph. This continues to be a problem despite the fact that Examiners' reports have alerted teachers to this problem. Learners still draw the curves for the line graphs free hand, instead of using a ruler.
- Drawing is one of the essential skills in Biology because microscope-related work makes up a big component of the subject content. But the evidence of learners' drawings reveals that very little practice in drawing skills is given as part of class or subject activities.

The feedback provided in Examiners' reports has the potential to develop Biology subject content knowledge and the correct use of English in science contexts. The fact that the Examiners' reports are edited by English first-language editors ensures that correct English is used in the reports and this can be potentially useful for enhancing learners' (and teachers') English usage. Vygotsky's (1978) zone of proximal development (ZPD) centres on the idea that a more competent person can assist a less competent person, helping that person becoming more proficient and independent. It is in the light of this idea that it is argued that Examiners' reports can serve as a mediational tool for all teachers, and particularly for novice teachers, as they provide very topic-specific information, in terms of both biology content knowledge and the correct use of English in the subject.

Language is one of the tools used in the mediation process. Examiners' reports annually highlight English language mistakes made by Biology learners in answering the question papers. Therefore, literature pertaining to the idea that competence and performance in Biology are influenced by competence in the English language is reviewed. The impact of teaching Biology in English – for many Namibian learners an unfamiliar language (Carrier, n.d.) – is therefore also reviewed. Kamini (2001), Hart and Lee (2003), Carrier (n.d.) and Ferreira (n.d.) all insist that proficiency in English is vital when teaching takes place in English.

According to Namibia's language policy, the language of instruction in heterogeneous and multi-linguistic classroom settings is English. Yet the reality in Namibian classrooms is that for many learners English is a second or even third language. Since 1990, Chief Examiners' reports have indicated that learners' proficiency in English is affecting their performance because they lack an understanding of basic concepts, have a limited vocabulary, and cannot apply scientific knowledge, synthesize and do problem solving. Furthermore, a lack of English proficiency amongst teachers and a paucity of resources also contribute towards poor learner performance and quality of education.

Considering the findings mentioned above, my argument is that if the advice and suggestions provided in Biology Examiners' reports are used and implemented in classrooms, recurring patterns of learners making the same language mistakes or showing the same misconceptions regarding the same biological concepts can be reduced or even eradicated. The question that can shed light on this argument is whether teachers are receiving and using Examiners' reports, and if not, why not?

It is in this light that I looked more closely at Examiners' reports as one of the possible mechanisms for giving feedback to teachers about teaching and learning in Biology. I undertook a review of the nature of the feedback given in Biology Examiners' reports, its significance and potential value in strengthening teachers' as well as learners' Biology subject content knowledge, developing their command of the English language, and informing formative and summative assessment practices.

1.2.3 Background on Examination and Assessment in Namibia

Following Namibia's independence in 1990, the Ministry of Basic Education, Sport and Culture (MBESC) was established. In 1995, a distinction was made between basic education and higher education, with the MBESC being divided into three directorates. These were the directorate of Educational Programme Implementation and Monitoring, today renamed Programme Quality Assurance (PQA), the directorate of National Examinations and Assessment (DNEA), and the National Institute for Educational Development (NIED). Another change brought about by the reform was the introduction of learner-centered education in Namibia, which necessitated a closer look at assessment at the national level. There was a shift from examinations being seen as

the only way of measuring programmes and people's success, to its being seen as one tool amongst many capable of measuring and determining progress in learners and programmes (Namibia. MoE, 1993). The reform necessitated moving away from an examination system whose philosophy was based on a design that emphasized 'elite education' (Namibia, MoE, 1993). Instead, it called for a broader approach to assessment, one which emphasized keeping records of achievements and motivating individuals as opposed to focusing on success versus failure (Namibia. MoE, 1993). Examinations had to be re-designed to enable learners to show what learners know. Consequently, a criterion referenced-based assessment approach was introduced into the curriculum (Namibia. MoE, 1993).

Another development at senior secondary level that emanated from the reform was that the Cape Education Department Matriculation Examination was phased out in 1994 (Namibia, MoE, 1993). A new senior secondary curriculum called the International General Certificate of Secondary Education (IGCSE) succeeded it. The Higher International General Certificate of Secondary Education (HIGCSE) followed later on (Namibia. MoE, 1993). The IGCSE and HIGCSE became the foundation for the Namibia Certificate of Secondary Education (NCSE) that was introduced in 2007 (Mutorwa, 2004). Cambridge International Examinations (CIE), the accreditation body for Namibia's NCSE examinations, is a component of an international body for examination and certification, the University of Cambridge Local Examinations Syndicate (UCLES), located in the United Kingdom.

Embedded in the CIE examination system is feedback via Examiners' reports. Examiners' reports for national examinations at senior secondary levels were therefore introduced in Namibia. However, to date no research has been conducted by the DNEA to determine the extent to which these reports are disseminated and effectively utilized by teachers in the interest of learners in classrooms. While I was still in the teaching profession, my experience of Examiners' reports was positive as I felt they helped to extend my subject content knowledge, especially considering the fact that I could not always attend the National marking exercise. However, a wider range of perceptions from different schools with different teacher and learner populations is necessary to obtain information about the actual situation on the ground, which is essential for future planning and action.

National examinations in Namibia are conducted at two levels. The Junior Secondary Certificate (JSC) is administered at the Grade 10 level, at the end of the Junior Secondary phase. The Namibia Senior Secondary Certificate (NSSC) examinations at ordinary and higher level which are two different examinations administered at the end of Grade 12, the senior secondary phase. The two exit examinations reflect on the quality of teaching and learning.

Improvement in the quality of education rests on three main pillars in any educational system, namely, the curriculum, instruction and assessment (Kagaba, 2005). Kagaba maintains that through evaluation, monitoring, measuring and assessing all activities and accomplishments in all involved organizations, and providing effective feedback, the quality of education can be improved.

Examiners' reports are one such source of effective feedback about assessment at a national level. According to Kagaba, the feedback given must alert institutions to successes and failures in the system, as well as make specific recommendations for future improvement. Feedback in Examiners' reports addresses the clarity of questions, the appropriateness of the different skills required to be demonstrated by the learners, and the level of difficulty of the question papers. The reports thus provide feedback to education officials' part of the chain, such as the subject expert in the examination division. It also provides feedback to curriculum developers about inappropriate parts of the syllabus for review and possible removal (Kagaba, 2005).

In educational settings the purpose of feedback in the long run must be to enable learners to be responsible for and take control over their own learning (Nicol, n.d.). For this to be achieved, learners' social and academic experiences must support development and learning; that is, they must be empowered to take such control. For learners to be empowered and self-regulating, they have to learn to observe and manage and assume responsibility. They must be actively involved, that is, physically and psychologically engaged in the learning process. Success in learning is a positive consequence and outcome when learners are persistently involved in the course or studies in a socially friendly supportive environment (Nicol, n.d.).

Teachers must therefore come up with ways to ensure that the responsibility for learning can be shared with their learners. One way of achieving this is to give learners parts of the Examiners' reports that comment on a specific problem they have experienced, so that they can learn from

this feedback. Learners can correct their mistakes by taking the necessary steps to ensure that their misconceptions are dispelled and they do not make the same mistakes as previous students have made. Putting the onus back onto learners in this way is in line with what Nicol (n.d.) recommends in his principles of good assessment and feedback.

1.2.4 The NSSC Examinations in Namibia

The NSSC Biology examination at ordinary level consists of three components. It includes a 40-mark multiple choice question paper, a 100-mark structured questions question paper and a 60-mark applied practical skills question paper. The NSSC's higher level exam also has three components. Paper 1 consists of structured questions worth 70 marks. Paper 2 consists of 100 marks and comprises structured and free response questions. Paper 3 has a total of 40 marks and is a practical examination. Learners' can enroll for a Biology examination at either of the two levels.

At both levels practical work forms a big part of the syllabuses. However, it is evident from the results in the practical and alternative to practical components that learners are very seldom if at all doing practical investigations. Examiners' reports often commented in the general comments section that it was clear that learners were not properly exposed to practical work because they struggled to supply the correct names of various apparatuses and also did not know their functions. Teachers were thus encouraged to focus on the practical work recommended in the syllabus as it was evident that learners were not familiar with very simple experiments. A further comment in the Examiners' reports was that it was evident from the learners' answers that very few schools follow a practical approach to the subject.

As was mentioned in more detail in Chapter One (see Section 1.2.2), following the national marking Examiners' reports are compiled by the Chief Markers. The Chief Marker is responsible for all marking, which includes setting, determining and maintaining the standard of marking for the current year, but also ensuring that consistency in marking is maintained from year to year. Upon completion of the national marking, the Chief Marker must report on the examination by producing an Examiners' report for the specific subject component he/she is responsible for (Namibia, MoE, 2014). A look at the research goal and objectives now follows.

1.3 Research goal and questions

Research goal

The main goal of this study was to investigate the Grade 12 Biology teachers' perceptions and experiences of the dissemination and utilization of Examiners' reports in the Khomas region.

Main Research Question

What are Grade 12 Biology teachers' perceptions and experiences of the dissemination and utilization of Examiners' reports in their schools in the Khomas region?

Sub-questions

Question 1: How do Grade 12 Biology teachers perceive and experience the dissemination of Examiners' reports at their schools?

Question 2: How do Grade 12 Biology teachers utilize Examiners' reports in their schools?

With the third question my aim was to put the onus onto teachers, by finding out from them what they think can be done with regard to the dissemination process: whether they felt the process needed improvement, how the process of dissemination might be improved, and whether they felt they were part of or played a role in the dissemination process.

Question 3: In what ways can Grade 12 Biology teachers improve the dissemination of Examiners' reports at their schools?

The fourth question also aimed at establishing from Biology teachers whether they felt that they had a role to play in improving the utilization of Examiners' reports, and what they themselves could do to improve the ways in which they were currently using the Examiners' reports (assuming that they were actually using them).

Question 4: In what ways can Grade 12 Biology teachers improve the utilization of Examiners' reports?

1.4 Analytical Framework

Classrooms are social units where teachers and learners from various cultures interact daily. I argue that Examiners' reports can be a tool in the process of mediation because the feedback that they provide can contribute to more effective learning. In this study I used Cultural Historical Activity Theory (CHAT) as an analytical framework (see Section 2.7) to frame and analyze work done in the two activity systems constructed with the hypothetically taken objects dissemination and utilization of Examiners' reports respectively.

CHAT provides a way of understanding historically specific local practices, their objects, mediating artifacts, and social organization, and helps to develop and influence qualitative changes in human practices (Foot, 2001). CHAT as a theory of learning and development helps to develop understandings of work practices (Sawchuk, 2009), by taking the object-oriented, artifact-mediated collective activity system as its unit of analysis, thus bridging the gulf between the individual subject and societal structure (Engeström, Miettinen & Punamaki, 1999).

Mwanza (2002) adds that CHAT is more of a framework than a theory, from which various methods and theories for analyzing human activity can be developed. The framework, he explains, presents a collection of basic theoretical concepts to facilitate understanding of the relationship between the human mind (consciousness) and activity (what people do) (ibid.). Related to the above, CHAT also sees learning as facilitated by the use of conceptual and material tools which help the learners to understand the object better. The one major advantage of CHAT is the fact that it assists the researcher to bring to the surface tensions and contradictions in the way work is done currently in activity systems.

1.5 Data generation techniques

To obtain reliable and valid information incorporating triangulation, I used a combination of three data-gathering techniques, namely:

- Document analysis;
- Questionnaires; and
- Semi-structured interviews.

These are discussed in detail in Chapter Three.

1.6 Potential value of the study

The value of doing research into teachers' perceptions and experiences of the dissemination and utilization of Examiners' reports seems very plausible: the insights of national Examiners into areas of successful learning, and more especially problem areas and misconceptions, have obvious utility for schools and teachers if improvement in performance is to be seen and problems are not to simply remain unattended to year after year. Furthermore, interventions should be evidence-based, and the Examiners' reports are an important and systematic impartial source of high quality data on learning in our system. The Director of DNEA himself said that he and the directorate did not have reliable and evidence-based information on the three questions formulated above: viz. the responses of teachers to these reports, and the extent of their distribution and use by schools and teachers.

The findings from the research ought to be able to show whether there is a need to implement stringent procedures and accountability from all stake holders in the dissemination chain. Furthermore, alternative ways of disseminating Examiners' reports may surface as a result of the investigation, which will be forwarded to the DNEA in the form of recommendations. The findings of the research can serve to advise the DNEA on what to do to sensitize teachers about the value and significance of the Examiners' reports as mediational tools (Vygotsky, 1978). Specific recommendations might be made to the DNEA on how to improve the Biology Examiners' reports. Furthermore, recommendations as to how grade 12 Biology teachers can be supported to ensure the optimal utilization of Examiners' reports will be made. This study will thus explore an important issue for educational improvement in Namibia. It will also have a keen and powerful audience to respond to its findings.

1.7 Definition of concepts

Biology: The study of life and many living organisms. The syllabus content emphasizes a broader scope than the basic science evident in the subject

Life Science in the Namibian curriculum for Basic Education to enable learners' to enter tertiary education or the world of work.

- Life science:** The study of life as a whole. The syllabus content emphasize basic scientific knowledge that will enable learners' to understand the physical, Biological and health aspects of their world locally, regionally and internationally.
- Mediation:** The process that involves a more knowledgeable other in the context of the study Biology teachers that help and guide learners to access and make sense of subject content.
- Mediational tool:** A teaching and learning resource used in the process of sense-making of subject content.
- PCK:** All teacher knowledge that enables the teacher to use and employ the most appropriate way to transmit knowledge to learners in ways to aid their understanding and lead to effective learning.
- ZPD:** The difference between learners' actual developmental level and their potential developmental level.

1.8 Thesis outline

The findings from the two schools (referenced, for convenience' sake, by the pseudonyms Alpha and Beta) in the Khomas region are contextualized and documented in this thesis as follows:

Chapter 1 contextualizes the study and briefly reflects on the reasons for selecting this specific research topic. It also highlights the potential value of the study, the research goal and methodology. The analytical frameworks that underpin the study are briefly mentioned and the methods used for gathering the necessary data for this case study are stated.

Chapter 2 presents a review of all relevant literature that directly impacts on the study and the research focus. The analytical framework of the study is explained more fully. The literature review is sub-divided into eight units to ensure all aspects of the literature impacting on

utilization of Examiners' reports as mediational tools are reviewed and brought in line with the context of the study.

Chapter 3 presents the methodology used in this study. An overview of the interpretive paradigm that informs this study is given. The various data-generating techniques used in the study to gather data are discussed. Simultaneously an overview of the research sites, research participants, ethical considerations, the trustworthiness and validity of the data and the limitations of the study are provided. I explain how CHAT as the analytical tool was used to analyze the data.

Chapter 4 presents the data collected in a narrated form. A concerted effort was made to present the research participants' own words as precisely as possible. This chapter presents the data on the dissemination of Examiners' reports as well as teachers' perceptions about how they can aid in improving dissemination at school. Qualitative as well as quantitative data were collected. The questions asked in the questionnaires were turned into statements and responses to the statements were summarized. Statistical tables and graphs were used where possible to present the quantitative data.

Chapter 5 presents the data on utilization of the Examiners' reports and teachers' perceptions about how they can aid in enhancing the process of utilization. The responses from the questionnaires and interviews were summarized and provided qualitative as well as quantitative data. Statistical graphs and tables were used to present the data.

Chapter 6 offers an interpretation of the data, integrating the relevant literature reviewed in Chapter 2. All analyzed statements (data) obtained from the research participants either through questionnaires or semi-structured interviews is discussed in relation to the relevant literature. Analyzing statements was done by coding and categorizing information from emergent themes. Interpretation proceeded in the context of insights derived from literature relating to the topic.

Chapter 7 summarizes my findings and provides recommendations with regard to the dissemination and utilization of Examiners' reports. It also brings across to the reader the limitations of this case study and suggests areas for future research.

1.9 Concluding remarks

This chapter introduced the reader to my research topic, Grade 12 Biology teachers' perceptions and experiences of the dissemination and utilization of Examiners' reports in the Khomas region, Namibia. It attempted to alert the reader to the possibility that dissemination and utilization of Biology examiners' reports could be problematic in schools in the Khomas region, given the repeated recurrence of mistakes and problematic areas addressed in previous years' Examiners' reports.

Feedback given in the reports often includes reference to English language errors, learners' inability to express themselves and poor learning and mastery of science concepts. The situation in Namibian schools with regard to the language of instruction and learners' inability to master the application and synthesis of biological knowledge appears in fact to be an international problem, as highlighted in findings from the PIRLS and TIMSS reports. Irrespective of what the language of instruction in schools is, learners must develop reading literacy and be actively engaged in science instruction if improvements in performance in science and language are to be seen.

The potential value of this research is that it will provide the DNEA with current information about the dissemination and utilization of Examiners' reports, which can positively influence any future planning for schools, regional offices and the DNEA.

In the next chapter, the literature relevant to my study is presented. It is reviewed in the light of the potential of Examiners' reports to improve the teaching and learning of Biology in Namibian schools.

Chapter Two

Literature Review

2.1 Introduction

This research focuses on the dissemination and utilization of Examiners' reports. This chapter therefore reviews what Examiners' reports are and analyzes their significance as mediational tools, as well as their potential to enhance teaching and learning if disseminated efficiently and utilized effectively by Biology teachers. Since assessment at a national level is used to measure teaching and learning that has taken place, feedback to teachers and learners is essential. The role of Examiners' reports, with reference to assessment at national level, is reviewed. Furthermore, the importance and the impact of the language of instruction are reviewed.

Considering the fact that feedback given in Examiners' reports is aimed at suggesting ways to improve teaching and learning, the mediation process and the value of using Examiners' reports is discussed. Central to Vygotsky's mediation theory is the notion of the learner's zone of proximal development (ZPD). Examiners' reports as mediational tools have the potential to enhance the designing of tasks and support learning and are discussed. Finally, Cultural Historical Activity Theory (CHAT) is discussed with a view to its being used as an analytical tool for Activity Systems at school level.

2.2. Examiners' reports: What are Examiners' reports and what are their purposes?

Examiners' reports are a resource designed to help teachers improve teaching and learning. They are intended to report on how the examination for a specific subject component was done as well as on learners' performance and the quality of learning that took place (Kagaba, 2005).

The purpose of Examiners' reports is to improve teaching and learning through providing feedback on teaching and learning (Namibia, MoE, 2013). The underlying assumption behind Examiners' reports is that if teachers are alerted to learners' weaknesses and they heed the suggestions given in the Examiners' reports, teaching and learning and consequently the pass rate in a subject can be improved. Thus, the information and feedback provided in the Examiners' reports can be very valuable to teachers if they use it to help prepare their learners for examinations in the future.

Furthermore, the feedback provided aims to ensure that the subject content specified in the syllabi, the assessment criteria applied and the scheme of assessment in operation are all properly understood (Wees, 2010). Whether teachers agree with this statement, and whether they see the reports as worthwhile, will be very useful information that can aid recommendations to be made to DNEA. Similarly, getting to hear teachers' opinions as to whether they think their teaching improved or their learners' learning improved as a result of using Examiners' reports will be very useful for future development and planning.

Essentially, Examiners' reports analyze candidates' performance through identifying repeated factual errors and conceptual misunderstandings. Questions in which learners performed well are also indicated as such. General suggestions to improve teaching and learning are given. The feedback must show clearly how the assessment was done for each individual item on the question paper. This can be extremely useful, especially for novice teachers, helping them to compile question papers themselves that are valid and up to standard.

Furthermore, Examiners' reports include the final marking scheme used in the national marking. Comments are given on as far as possible each individual item with regard to what was expected or acceptable answers. Biological terms learners found confusing are also mentioned.

2.3 The value of feedback: Examiners' reports as a mechanism of feedback and its significance

National examinations provide summative assessment of syllabi within the Namibian education curriculum. Systematic feedback must be part and parcel of teachers' teaching strategies and practices. Muhaya (2005) says that the type of feedback schools/teachers get influences the teacher's/schools' performance. According to Prince, Handley, Millar and O'Donovan (2010), it is difficult to measure accurately the effectiveness of feedback, such as that contained in Examiners' reports produced by the DNEA. Prince, et al. (2010) further say that the role of feedback can be divided into five categories, namely, corrective, can reinforce certain practices, bench marking, longitudinal development and forensic diagnosis. They suggest that the following three criteria be used as a guide when providing feedback: how useful is the feedback; how much detail is included in the feedback; and the type of feedback provided. It is recognized, however, that the effectiveness of feedback can only be measured when teachers understand the

feedback and are willing to act on it (Prince, et al., 2010). Prince, et al. point out that feedback will not be as effective as it was intended to be if it is not read and used by the people it is intended for. The ideal in a school set-up is feedback and instruction being interlinked.

Good feedback should provide information about what learners were good at, and what areas in the curriculum/syllabus need to be improved on, with suggestions for improving these areas. Feedback should also give guidance about where learning/teaching was incorrect and at the same time suggest what can be done to correct this. Feedback and recommendations must be precise when they relate to improvement in a specific area of knowledge, a concept or a skill. Feedback should also report on the learners' readiness for the specific final examination.

Examiners' reports annually alert teachers to the importance of practical work. This is in line with what Hart and Lee (2003) reminds us about the importance of hands-on activities, especially for English second language learners. But if teachers are not using or getting the Examiners' reports, important information and messages such this will not get through to them, so their learners cannot benefit from it.

Stracke and Kumar (2010) alert us to the importance of giving expressive feedback because the intended recipients find it more appealing. It is therefore capable of driving self-regulated learning in both teachers and learners. It can be especially worthwhile for novice teachers, helping them to move from their current stage of development with regard to subject content knowledge and pedagogy to a higher stage (Stracke & Kumar, 2010). Developing learners' use of knowledge is key to the learning process, and feedback can aid this process as it drives and directs teaching and learning (Kagaba, 2005). Feedback can also influence external support for schools/teachers, which can ultimately lead to improvement in teaching and learning in classrooms. Finally, feedback can assist with the highly important process of self-evaluation on the part of teachers.

Black and Williams (2001) regard formative assessment as being central to effective teaching. Formative assessment is a means to achieve AFL and effective teaching, but it requires that teachers know their learners and the difficulties they experience in learning. The ideas of Black and Williams are supported by McTighe and Conner (2005), who say that if feedback is to aid learning, it must be specific, it must be timely, it must be understood by the recipients and it

must allow self-regulation and adjustment by the receiver. Williams (2006) points out that if teachers' focus is on AFL, this can raise learning standards as learners and teachers would make the necessary changes wherever needed trying to make learning more effective. Effective learning requires that learners be actively involved. Leahy, Lyon, Thompson and Williams (2005) are of the opinion that if teachers are assessing their learners minute-by-minute and day-by-day they will have evidence-based information to adjust and plan teaching appropriate to the needs of individual learners, as well as give learners feedback about where they need to improve and how they can improve.

Nicol and Macfarlane (2006) outline seven criteria for feedback to be effective. The criteria include giving standards expected, telling the recipients how much and what was learned, allows for self-reflection, must be motivational and build self-esteem, makes feasible suggestions regarding how to cross the bridge between where learners/teachers are and where they are supposed to be, gives information to change the structure of teaching and the ways of teaching, and encourages dialogue between teachers and learners.

Feedback can advise teachers on more appropriate teaching methods, areas in the syllabus where more emphasis must be placed as well as parts of the syllabus, and basic competencies that were not adequately covered. Muhaya (2005) says that the timing of giving feedback is important as when feedback is delayed, and learners have already moved on to new work or concepts, the feedback are irrelevant to them and they therefore tend to ignore it. This has consequences for the Directorate when it comes to getting the Examiners' reports to the schools at an appropriate time, while teachers are still in the process of teaching certain often misunderstood or difficult concepts.

Literature about the dissemination of Examiners' reports or any other curriculum-supporting documents to schools is basically non-existent. There is, however, a standard procedure for the dissemination of curriculum-supporting documents such as syllabi and Continuous Assessment Manuals produced by NIED. A tender is assigned to a printing company, which is then responsible for the production and distribution of the manuals to various schools. Details of all schools are provided to the printer. The printing company must show proof that the documents have been received by all schools as schools have to sign for the materials. The signed document which is proof that the service by the printing company was provided must then be returned to

NIED. Considering that the steps and procedures in the production and distribution process seem viable, it is not clear why in 2013 some Biology and Life Science teachers reported that they never received Continuous Assessment Manuals. These documents had been distributed to schools as early as 2010. Does this suggest that dissemination at school level is problematic? In the light of the evidence about curriculum supporting documents one cannot help but question whether the same inefficiency in distribution is prevalent when it comes to Examiners' reports.

2.4 The purpose of examinations and assessment feedback

Seeing that examinations are the standard way of measuring the amount of learning that has taken place in most countries, this section reviews the role of examinations and how Examiners' reports that provide feedback on national examinations can inform future assessment and examinations. Examinations test mastery of subject content. Assuming that Examiners' reports – for Biology, in particular, in the context of this study – are disseminated and used in schools, to what extent does formative assessment in Namibia allow the use of examinations outcomes through feedback to drive learning and improve pass rates in general? (Weimer, n.d.).

Trying to establish Biology teachers' perceptions and experiences about the dissemination and utilization of Examiners' reports in the Khomas region will inform me as well as any other interested parties about the extent to which Examiners' reports are received by teachers and used in teaching by teachers. Furthermore, teachers' perceptions about whether the Examiners' reports aid learning or not will also be established. It is my belief that the DNEA should be sensitized to the perceptions of teachers, an obvious potential driving force behind future planning and improvement.

Globally in educational settings, examinations are used for selection or promotion through testing individuals' achievements as a way of measuring progress. They can also be used for diagnostic purposes, indicating to individuals how they performed in various fields. Furthermore, the outcomes from assessment can be used for the purpose of providing remedial classes and supplementing learning. Positive perceptions and attitudes on the part of teachers towards Examiners' reports or any other tool that can enhance teaching and learning in Biology are of the utmost importance.

According to an article published by Oxford Brookes University, the idea of a final examination as a method of assessment has been criticized (Types of assessment, n.d.). Among the criticisms is that pressure of time may lead to learners' answers being superficial, and that not all learning outcomes can be assessed in this way. Further criticism is that it encourages rote learning of the previous year's model answers. Despite the objections to summative examinations, in many countries' educational systems, national examinations are an integral part of assessment. Garfield (1994) alerts us to the fact that there is currently a shift in the view of educational assessment. Assessment is currently viewed as a process that is dynamic and provides information on a continuous basis. Particularly in educational settings, assessment is seen as part and parcel of the teaching and learning process. But Moseley (n.d.) is of the opinion that National examinations can inform policy makers in government and all interested parties in education about the effectiveness of education programmes. Garfield (1994) concurs, maintaining that national examinations provide information that enables one to arrive at informed opinions about learners, teachers and schools and a country's education system in general.

Assessment is a process that entails gathering appropriate and trustworthy data and information to make decisions and reason about evidence provided (Naylor & Keogh, 2007; Assessment for learning, n.d.). In educational settings assessment must be an integral part of teaching and learning, to inform and guide teachers in the instructional decisions they make (Garfield, 1994; Moseley, n.d.). It must happen before, during and after teaching. Educational assessment must aim to establish the degree of learning that took place and be geared towards improving education. Kellough and Kellough (1999) are of the opinion that the main purpose of assessment is to help learners learn and at the same time improve their learning.

Kellough and Kellough (1999) in fact argue that learning should be driven by assessment. Thus the type of learning and its ultimate impact is driven by the feedback given to teachers/learners. In the light of these arguments, it is important that feedback given in the form of Examiners' reports to Biology teachers be read and implemented by all Biology teachers to help and direct their own assessment in class, and also to support their own and their learners' learning. Assessment practices, whether summative or formative must direct learners' self-regulation and development. According to Nicol (n.d.), assessment practices are inherently neither good nor bad: their purpose determines their worthiness, direction and appropriateness.

National examinations are summative assessments of learning and this type of testing summarizes the effectiveness of teaching and educational programs as well as the learning that has taken place. Good assessment requires the alignment of assessment to a standard in all aspects such as difficulty levels, content and level of thinking. Examinations have value for any teachers' individual teaching, but can also ensure that development and teaching in different departments are enhanced (CIE, 2013).

As the directorate responsible for National examinations, one key question we need to ask ourselves is: "What is the match between our goals and how we are assessing"? This leads to consideration of two very important principles, reliability and validity. To achieve reliability it is necessary that learning outcomes and assessment criteria be made explicit to learners and teachers, so that the results produced are constant and repeatedly reproducible. Validity lies in ensuring that any task assessed actually assesses what the assessor intended and matches the syllabus competencies. Thus, as the body responsible for national examinations, the setting of valid, reliable, transparent and clear question papers necessarily requires that we provide teachers and learners with feedback that is useful, reliable and valid through Examiners' reports.

Examiners' reports often mention how the incorrect use of English negatively affects learners' performance in Biology. A discussion therefore follows on the role of English as the medium of Biology instruction.

2.5 The language of instruction: Its importance and impacts

Mother tongue instruction vs English

In the years leading up to 1999, the Ministry of Education in Namibia embarked on various reforms in Education. Among the reforms was the language policy. The aim of the policy was the promotion of cultural identity amongst learners by using the mother tongue as the medium of instruction in Grades 1–3 and then English as the medium of instruction from Grade 4 onwards. Thus, at the junior secondary and senior secondary phases, English is the medium of instruction and assessment of Namibian learners.

Examiners' reports highlight many examples where the English language is a stumbling block for learners. Teachers and learners must be exposed to this information if any change in English language use and proficiency in Biology is to be seen.

The following section reviews the impact of home language and English language on learners' performance in Biology national examinations. Evidence adduced by Abdullah (2009), Wolfaardt (2005) and Ghawi (n.d.) suggests that learners' first language should remain the language of instruction for as long as possible, preferably for all pre-primary and primary education. The second language must be introduced gradually and learned after a solid foundation in the first language has already been achieved. This is based on research evidence revealing that the way of forming understanding of scientific concepts and the manner in which meaning is assigned to various scientific concepts is impacted by learners' linguistic proficiency. But the unfortunate fact is that loopholes in Namibia's language policy have resulted in many schools opting out of starting with mother tongue instruction in Grade 1 and gradually introducing the English language.

In a tracer study done on Namibian learners by Wolfaardt in 2003 it became evident that external examination results are affected by candidates' English language proficiency (see Section 1.2.1). Wolfaardt (2005) is of the opinion that by the time English is introduced in accordance with guidelines stated in Namibia's language policy, learners have not yet attained the minimum English language proficiency required to cope with subject content. Wolfaardt (2005) goes on to say that the consequences of learners not being proficient in English are also evident when they enter the junior secondary phase.

Cummins's linguistic interdependence principle (1979) states that a child's first language developmental stage determines the degree of competence a child will have in his or her second language. This implies that second language acquisition is influenced, even determined by competence in the first language. According to Cummins (2000), learners need cognitive academic language proficiency (CALP) which they acquire in school and use to progress successfully through the grades. A study done by Bournot-Trites and Tellowitz (2002) in Canada also revealed findings that are in line with the linguistic interdependence principle, indicating that knowledge and skills securely obtained in the first language can be transferred to other languages.

Studies conducted by O’Conner and Geiger (2009) and Kosonen (n.d.) on first language and home language instruction reported that literacy in a language is crucial for future learning. Copying and memorizing words and numbers without being able to apply them because the words are not understood cannot be regarded as literacy (Pinnock, 2009). Failing tests or examinations as a result of rote learning or memorizing content is common in these situations, as learners fail to answer the deeper level questions that require analytical thinking and synthesis. Underachievement is common in learners learning in a language that is not their first language (Dawber & Jordaan, 1999; Ortiz, 1997; Statham, 1997). Abdullah’s (2009) research conducted in Malaysia showed that the way in which language is used to describe objects to learners in their first and following exposures, will determine the meaning and understanding learners will form and hold of objects.

According to Marsh and Lange (2000), when instruction is delivered in a language other than learners’ first language, learners face two challenges. The first challenge is having to learn to use the foreign language, and the second is using the foreign language to learn. Shaw (2012) is of the opinion that in second language learning, a distinction is made between language that is specific to a subject, called “content-obligatory” language, and non-specific language referred to as “content-compatible” language, which can be taught naturally in any educational setting.

Lowe (2009) posits that in social constructivist classrooms learners come to class with what he refers to as pre-scientific knowledge in which terms can have different meanings from when they are used in a scientific way. Therefore, to prevent learning from being slowed down, teachers must be aware of learners’ current understanding or misunderstanding of key words.

The Common European Framework of Reference for languages (CEFR) is a framework that can be used to define English language proficiency in learners being taught in a foreign language. The framework distinguishes six levels, two at each of three stages, namely: stage A, the basic language user; stage B, the independent user; and stage C, the proficient user. A study conducted to determine what language skills were needed in learners studying Biology in a foreign language, English, revealed that these students required English at level B2.

At the B2 level, Biology learners will have adequate language skills to be able to describe things in the shortest possible time. It is often the case in Biology that learners are exposed to certain

verbs in other subjects that have a very different and precise meaning in Biology. Therefore, Biology learners must be clear about the context of usage so that they can respond appropriately in their answers. Second or third language speakers will still find recognizing the subtleties that underpin various verbs in Biology challenging (Shaw, 2012). Furthermore, Biology has a high percentage of subject-specific vocabulary. The key to success for learners in Biology lies in their capacity to express themselves clearly by using subject-specific vocabulary in appropriate ways to get the meaning of concepts or answers across to teachers. As a result of the high percentage of subject-specific language in Biology, learners must be at the B2 stage to be able to synthesize knowledge and evaluate information.

Vygotsky (1978) posits that language is a tool which helps children to construct a way of thinking, which they acquire through social interaction. Abdullah (2009) concurs with Vygotsky, saying that meaning construction and the understanding of science concepts is influenced by language. Struggling with understanding science in a second language is compounded by the learners' subjectivity, in the sense that learners all come to school with their own worldview (Jegede, 1997; Ogawa, 1995).

Johnstone (1985), Kocakulah, Ustunluoglu and Kocakulah (2005) and Kosonen (n.d.) add to the debate on the importance of proficiency in English when it is used as the medium of instruction, saying that linguistic, conceptual and psychological problems manifest themselves when academic subjects are learned through a foreign language. Their research showed that there is a tendency towards rote-learning when learners study science in English rather than their first language because they fail to see the meaning in texts. Not understanding texts or concepts has major consequences for logic, reasoning, application, evaluating and synthesizing to reach the higher levels of thinking and learning in science and other academic subjects.

Kosonen's research focused on Asian nations and found that if learners' education starts in their first language, they will reap more benefits from their education. Understanding science is essential to be able to reason logically in science. Learning science in a foreign language contributes to learners' losing their ability to reason, especially if they do not understand a concept taught in a foreign language and they have no sense and understanding of the same concept in their mother tongue.

Research done by Torres and Zeidler (1985) in the United States on Hispanic English language learners showed that scientifically unacceptable arguments and misconceptions about science that can result in academic failure are common, alerting us to the close relationship there is between the language used in instruction, and conceptual understanding in science subjects. Torres and Zeidler (1985) also showed that there is a two-way interaction between science learners' proficiency in English and reasoning skills, which impacts the learning of science and consequently influences learners' performances in science examinations.

Examiners' reports annually express concern about incorrect English language usage in learners' explanations. Some examples were given in Chapter 1 of this thesis. Using wrong words, sequencing words wrongly or lacking understanding of content taught in English often result in scientifically incorrect responses for which learners lose marks and consequently perform poorly in Biology. Examiners' reports also stress that correct usage and a good command of the English language on the part of teachers is very important, as the incorrect use of vocabulary and grammar spills through to the learners.

For instance, learners using everyday language often get the scientific terminology wrong in their responses in question papers and are penalized as a result. Examiners' reports also highlight the use of mediational tools other than language, such as practical investigations to get learners talking (Lemke, 1990/2001), which aids English language development. Furthermore, putting the onus on the learners to make their own summaries is also strongly recommended in the literature, as it enhances English language development and is also a principle upon which assessment for learning (AFL) is based.

An analysis of Examiners' reports for the examination years 2007–2013 has shown that the same mistakes and misconceptions are evident in learners sitting for final external examinations. These learners who complete their final examinations have gone through the same education system current Grade 12 learners are going through, and they are in most cases from very similar cultural backgrounds. Therefore, there is reason to believe that the current Grade 12 learners may experience very similar difficulties and challenges as their predecessors. Since Examiners' reports provide feedback on summative examinations, I am arguing that current Grade 12 learners can use Biology Examiners' reports to learn from the mistakes made by previous Grade 12 learners and progress to more effective and higher learning than these learners. The utilization

of Biology Examiners' reports can occur indirectly, through teachers' incorporating suggestions and recommendations given in the reports in their lessons and planning. But learners can themselves also make use of Examiners' reports, provided that they are assisted by teachers or more knowledgeable others. Since Examiners' reports are tools that can be used in the mediation process to improve and enhance effective teaching and learning, I will reflect on the theories that will help me to analyze the kind of learning that can occur as a result of using Examiners' reports.

The next section about mediational learning theory (as expounded by Vygotsky) is reviewed because of the potential value utilization of Examiners' reports can bring to the process of mediation and support Biology language and English language development and proficiency.

2.6 The process of mediation and using artifacts such as Examiner's reports in mediation

The concept of mediation is central in Vygotsky's (1978) theory of constructivism. Mediation is an intentional intervention for cognitive development and effective learning. Broadly defined, mediation consists in everyday social practices that involve meaning making-agents participating in an activity and in the process creating social meaning (Dendrinos, 2006). Classrooms are complex social settings in which teachers are central to the mediation process. Teachers therefore must learn from their mediation practices because their students' learning depends on it. Core components of teacher mediation include knowing what learners know and checking learners' learning demands. According to Lopes, Cravino, Branco, Saraiva and Silva (2008), teacher mediation incorporates six components, namely; the learning outcomes, the curriculum prescriptions, language, the learners' learning demands, action, and learners' development pathways.

Teachers can plan tasks which require work from the learners. Tasks given to learners must give them reasonable control over the activity, and hence Lopes, et al. (2008) are of the opinion that learning depends on the work demanded by learners. The four goals in this connection are that activities must be real, they must result in the development of student competencies in intended areas, they should provide teachers with feedback as to what their learners know or do not know,

and they should lead to learners performing a task on their own, using the task as a reference (Lopes, et al., 2008).

The ultimate goal of mediating learning is to develop independent learners who will have a system to direct their own knowledge (Dixon-Krauss, n.d.). Lopes, et al. (2008) state that teacher mediation can be improved when teachers are aware of how they do things. Examiners' reports are potential mediational tools (Vygotsky, 1978) that can enable teachers to reflect on their teaching practices. Because of their subject content-specific nature, Examiners' reports can thus enhance teacher professional development, and in this way contribute to an improvement in teaching and learners' understanding thus contributing to more meaningful learning. Examiners' reports can also benefit learners directly. It will be interesting to hear from teachers whether the actual Examiners' reports are given to learners, and whether they think learners can learn from previous learners' mistakes when they study the reports themselves.

Designing tasks is central to the mediation process (Thompson, 2013). The strategies and resources teachers employ are context-and task-specific. Therefore, the feedback given in Examiners' reports should be useful to teachers when they have to design tasks as part of the teaching and learning process. Furthermore, in planning and designing lessons teachers can deliberately plan also to teach English language skills to learners, as English language mistakes are always pointed out and corrected in the Examiners' reports. It is important that Biology teachers also take on the responsibility of teaching English language skills because of the impact this has on learners learning subject content.

Pea (1993), Kamini (2001), Hart and Lee (2003) and Ferreira (n.d) are all of the opinion that the barriers that the English language poses to learning Biology can be overcome when teachers incorporate practical activities and investigations. Vygotsky (1978) posits that language is the tool that first of all makes our thoughts possible and secondly organizes the process of thinking. This means that learners are using language to acquire knowledge, making sense of interrelated pieces of information and experiences. Thus they use language to construct and co-construct meaning. Furthermore, the development of higher cognitive functions is linked with language, in that proficiency in the language of instruction and learning is essential if it is not to constrain learning. Literacy in the English language is essential for learners to understand the idea encompassed in a spoken or written word. Therefore practical activities, besides actively

involving learners, have the added advantage of providing opportunities for learners to speak, write, listen and read English as they work on activities collaboratively.

Practical investigations are one of many mediational tools essential for understanding Biological concepts. It is in line with this idea that the importance of practical work is annually stressed in the Biology Examiners' reports, especially in the Paper 3 component, where learners' performance is very poor. At the centre of the mediation process is Vygotsky's idea of the ZPD. This requires that teachers use active agents or mediational tools such as Examiners' reports to support learning and to design tasks, as these are key in the mediation process (Thompson, 2013).

If Examiners' reports are used as mediational tools they have to model three components, namely: they must have a purpose, they must employ various strategies, and they must enable reflection (Dixon-Krauss, n.d.). The purpose of Examiners' reports can be evaluated in terms of the contribution they make to the learning and teaching process; the various strategies employed in the Examiners' reports are evident in the suggestions they provide. Finally, they enable reflection as teachers can use them to check that they understood all the concepts involved and thus build on their self-knowledge (Dixon-Krauss, n.d.). However, if Examiners' reports are not used by subject teachers either because of the dissemination being ineffective or nonexistent or because teachers rebel against using it for personal reasons, a resource of possible value to both teachers and learners will not serve its intended purpose.

This study will be primarily informed both in its design and in the analysis by Cultural Historical Activity Theory (CHAT) (as expounded by Engeström). The section that follows explores Cultural Historical Activity Theory (CHAT).

2.7 CHAT as an analytical framework that informed the study

Cultural Historical Activity Theory (CHAT) provides a way of understanding historically specific local practices, their objects, mediating artifacts and social organization, so as to develop and influence qualitative changes in human practices (Foot, 2001). CHAT as a theory of learning and development helps to develop understandings of work practices (Sawchuk, 2009), by taking the object-oriented, artifact-mediated collective activity system as its unit of analysis, thus bridging the gulf between the individual subject and societal structure (Engeström, Miettinen &

Punamaki, 1999). Mwanza (2002) adds that CHAT is more of a framework than a theory from which various methods and theories for analyzing human activity can be developed. The framework, he further explains, presents a collection of basic theoretical concepts to help understand the relationship between the human mind (consciousness) and activity (what people do) (ibid.).

CHAT also sees learning as facilitated by the use of conceptual and material tools which help the learners to understand the object better. Edwards (2005, p. 50) emphasizes that “learning is concerned with within-person changes, which modify the way in which we interpret and may act on our world ... and in turn change it by our actions”. CHAT thus focuses on the structure of activities as historically constituted entities, with a pedagogical focus on bridging the gap between the historical state of an activity and the development stage of a person with respect to that activity (Wenger, 1998).

Mukute and Lotz-Sisitka (2012) add that CHAT is an epistemological theory that posits that learning takes place through collective activities that are purposefully conducted around a common object, based on the proposition that learning is a social and cultural process that draws on historical achievements. It is for these reasons that I found the framework to be illuminating for this study with regard to the use of the Examiners’ reports, which have great potential as mediational tools (Vygotsky, 1978).

Engeström developed CHAT based on the work of Vygotsky and his Russian colleagues Leont’ev and Luria (Daniels, 2001; Edwards, 2005; Warmington, et al., 2005; Roth & Lee, 2007). The first generation of CHAT, which is attributed to Vygotsky and Leont’ev, consists of a basic Vygotskian mediation triad linking subjects, object and tools (Figure 2). Wells (2002, p. 46) suggests that “agent-acting-with-mediational-means” is the basic unit describing human activity. The point is, whereas other species act directly upon the object of interest to them, humans on most occasions interpose a mediating artifact between themselves and the object of interest, thereby enabling them to act more effectively (ibid.).

Engeström expanded on Vygotsky’s model to include rules, community and division of labour – socio-historical aspects of mediation omitted by Vygotsky (see Figure 2) (Yamagata-Lynch, 2003). All the components of the activity system can mediate change not only for the object but

for each other. In developing his model, Engeström suggested that (a) the relations between individuals and the object of their activity are mediated by concepts and technologies, (b) the relationships between the community and the overall object of its activity are mediated by its division of labour, and (c) the relations between individuals and the communities of which they are part are mediated by rules and procedures, which can be explicit or implicit (e.g. institutional culture) (Blackler, et al., 2000).

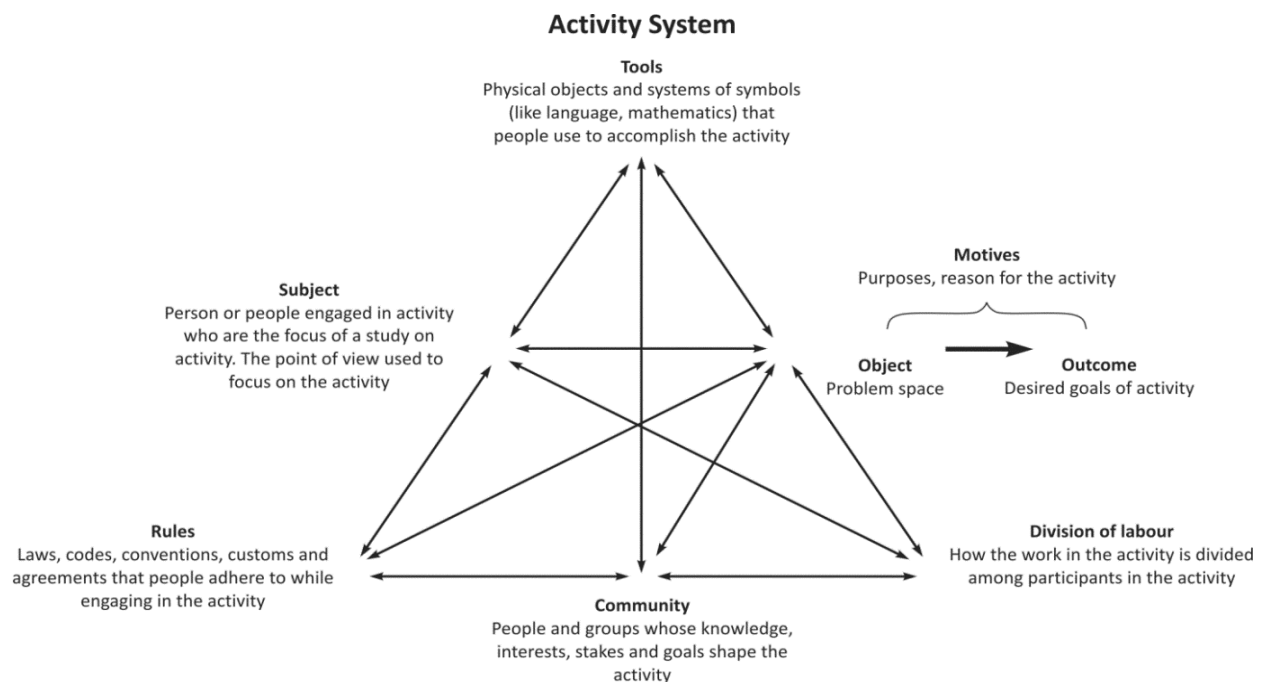


Figure 2: Second generation CHAT (Engeström, 2001, p. 136)

CHAT is used as the analytical framework in this research because it will enable contradictions or tensions to surface in the way work is done in activity systems. These contradictions do not manifest themselves directly, but through disturbances, ruptures, problems, breakdowns, clashes and small unremarkable innovations in practitioners' everyday work actions (Engeström, 2001). He adds that contradictions are not simply conflicts or problems, but are "historically accumulating structural tensions within and between activity systems" (p.137).

By using second generation CHAT analysis in this study, I was able to surface primary and secondary contradictions. Primary contradictions happen within elements of the activity system. Tensions amongst the subjects or contradicting pieces of legislations are examples of primary contradictions. Secondary contradictions occur when there is tension between one element and another in the activity system. An example could be subjects not understanding a legislative instrument that they are supposed to use as a mediating tool in their work. Surfacing these contradictions pave the way for change in current practices. As Engeström, (2006) puts it, “the identification of contradictions in an activity system ... constitutes an important aspect of any effort to bring a change” (p.28). It is my hope that the contradictions raised in this study will assist in reconceptualising the way the Examiners’ reports are disseminated and utilized in the country.

2.8 Concluding remarks

This chapter highlighted the importance of providing feedback on learning following any form of assessment. Having access to feedback through the utilization of Biology Examiners’ reports by teachers and learners can help teachers and learners recognize the difficulties previous learners experienced in subject content and the use of the English language, and accordingly adjust teaching and learning for more effective learning. The importance of learners’ being proficient in the medium of instruction is highlighted because a lack of English language proficiency can constrain effective learning in Biology. The reports can be a mediational tool used by teachers as they scaffold learning. Mediation using different relevant and appropriate tools such as Examiners’ reports has the potential to move learners from their current level of knowing to a more desirable and higher level of knowing.

Feedback in the Examiners’ reports can also contribute to teachers’ professional development and increase their subject content knowledge. With regard to learners, the reports can allow self-regulation by learners provided that learners realize their contribution to their learning and are actively involved in the teaching and learning process. CHAT will be used as the lens through which the study will be viewed as well as the analytical framework to interpret human activity, work practices and contradictions in the AS studied, and is dealt with in more detail in the chapter on research methodology that follows.

Chapter Three

Research Methodology

3.1 Introduction

This chapter describes how the research topic and research questions are explored. There is discussion of the research strategies – which include the methods used in this study to generate, analyze, discuss and interpret data to ensure reliable outcomes. Furthermore, the research goal, approach, research site and participants are discussed. This is followed by an account of the research instruments that were developed and used in pursuit of the research goal. I also explain the techniques and methods of data collection and analysis, and describe all the procedures I adhered to for maintaining the validity and reliability of the data. The chapter concludes by clarifying certain ethical considerations.

3.2 Research methodology

3.2.1 Research design and orientation

This study is underpinned by an interpretive paradigm. The interpretive paradigm's concern is with the individual (Cohen, Manion & Morrison, 2011). The main emphasis in the interpretive paradigm is on everyday things and our understanding of them as we go about our daily lives. It involves using methods of a qualitative nature and relying on the views of the research participants. Using the interpretive paradigm, a qualitative case study approach was adopted because it aided in understanding teachers' subjective experiences. This was balanced with some quantitative data, the questionnaires having elicited both quantitative and qualitative data.

Qualitative research studies involve inquiry conducted within a natural setting, and reflecting in detail on the views of the research participants. The main aim of a qualitative study is to understand human or social problems (Creswell, 2014). The characteristics of qualitative research include data collection in natural settings, and inductive analysis that is continuous using humans as the instrument in the research. It has an emergent design and aims to explore by focusing on descriptions to present data and findings. An advantage of a qualitative study is that the data is rich and detailed because the focus is on a smaller group (Cohen, et al., 2011).

Qualitative research was best suited for this research as I explored Grade 12 Biology teachers' perceptions and experiences about the dissemination and utilization of Examiners' reports. Since there is currently very little evidence and literature available in Namibia about the dissemination and utilization of Examiners' reports, I was able to learn directly from the participants about existing practices operating in various school institutions.

Qualitative studies explain how something operates and why it operates in the way it does. An important element of a qualitative study is the fact that the inductive reasoning process is used to interpret and to structure meanings derived from data. Qualitative research enables one to be self-critical and reflective, and the outcome of qualitative research can be an increase in one's insight, sensitivity and perceptions with regard to what happens in ordinary interactions

3.2.2 Interpretive paradigm

A paradigm entails a worldview or framework of methods, beliefs and values within which research is done. Interpretive research is often described as qualitative. In social sciences, the interpretive paradigm developed as a critique of positivism or the empirical-analytic traditional approach to research. Interpretivists believe that people create reality as a result of social and experiential understanding and meaning derived subjectively, and that one cannot separate what one knows from who one is.

3.2.3 Case study

Cohen, et al. (2011, p. 289) define a case study as "a study of a case in context". Case studies are one of the main five types of qualitative research (Creswell, 2014). Case studies are examples of real situations influencing humans, and thus help us to better understand the experience of those humans instead of just presenting it as theory. Case studies help to establish how and why. The case in this study was the group of Grade 12 Biology teachers. The unit of analysis comprised the perceptions and experiences of these teachers on the dissemination and utilization of Examiners' reports at their respective schools.

In this qualitative case study I was able to uncover existing dissemination practices operational at school level. Furthermore, I could determine how Grade 12 Biology teachers experience the utilization of Examiners' reports at their respective schools and what their perceptions are about

its effectiveness or ineffectiveness. I thus obtained first-hand information on Grade 12 Biology teachers' experiences of the Examiners' reports as mediational tools (Vygotsky, 1978).

3.2.4 Research goal and questions

The main research goal of this study was to investigate the Grade 12 Biology teachers' perceptions and experiences of the dissemination and utilization of Examiners' reports in the Khomas region. This was done with a view to understanding the dissemination and utilization practices of Examiners' report as a tool in the mediation of Biology in Namibian secondary classrooms. In a qualitative study the research questions are structured in such a way as to enable learning in the most efficient ways from the participants (Creswell, 2014).

Main Research Question

What are Grade 12 Biology teachers' perceptions and experiences on the dissemination and utilization of Examiners' reports in their schools in the Khomas region? To answer this question the following research sub-questions were designed:

Sub-questions

1. How do Grade 12 Biology teachers perceive and experience the dissemination of Examiners' reports at their schools?

Using Activity Theory as a lens (see Section 2.7), I constructed an activity system based on the object of disseminating the examiner's report. This question therefore was designed to find out teachers' perceptions of (a) the tools (artifacts) used for dissemination; (b) the subjects involved in the dissemination process; (c) the rules that govern the dissemination process; (d) the division of labour with regard to the dissemination of the reports, and (e) the community which includes all science teachers, the HOD and all other colleagues at school having a direct link to the dissemination of the reports.

2. How do Grade 12 Biology teachers utilize Examiners' reports in their schools?

To generate responses to this question, the utilization of Examiners' reports was hypothetically taken as an object of the activity system. Biology teachers' perceptions of the Examiners' reports as a mediational tool in the teaching process were elicited. The Examiners' report represents the

tool (artifact) and teachers' experiences regarding the accessibility and user-friendliness of the tool (artifact) was sought. Teachers' perceptions and experiences about the ability of the Examiner's report to improve teaching and learning were also elicited. Careful studying of Examiners' reports is an essential rule in the Activity System to internalize what aspects need to be strengthened in the teaching and learning process. This was established through analyzing teachers' experiences on utilizing the reports. Furthermore, the division of labour was illuminated through getting information about the degree of sharing and teamwork within the science department, from the HODs to the teachers, as well as on the role of learners in the teaching and learning process. Interaction pertaining to the sharing of ideas/knowledge and cooperative working relationships within the department were analyzed. Understanding teachers' perceptions shed light on how teachers use the tool, or why they do not use the tool in teaching and learning.

3. In what ways can Grade 12 Biology teachers improve the dissemination of Examiners' reports at their schools?

This question aimed to find out Biology teachers' perceptions about whether the tools currently used and the rules that govern the dissemination process can be improved and if so, how.

4. In what ways can Grade 12 Biology teachers improve the utilization of Examiners' reports?

How teachers approach the tool will be influenced by their perceptions of it. The Examiners' report by itself cannot improve learning in schools: how Biology teachers' use the report is what will determine its impact, thus consequently the outcome of its use. Learners, as part of the subject in the Activity system school community, have a role to play in determining the outcome. This question thus aimed to find out ways in which the utilization of reports by all the participants involved can be optimized and encouraged. Both teachers and learners should be actively involved in the learning process and take joint responsibility for learning through a shared division of labour.

All questions were answered through the use of questionnaires with open-ended questions, and by interviewing two Biology teachers. The data is presented in sections 4.2 and 4.3. Questions 3

and 4 accorded agency and responsibility to the Biology teachers, as they were expected to come up with suggestions and solutions.

3.2.5 Research site and participants

The wider community of Grade 12 Biology teachers in the Khomas region was involved in gathering perceptions and experiences on the dissemination and utilization of Examiners' reports, through questionnaires distributed to twenty-six secondary schools. The findings from the questionnaires informed and directed the questions to be asked in the interviews.

Purposeful sampling was used in this study. Purposeful sampling was useful as it allowed me to choose specific schools that could provide (according to my judgment) good and satisfactory information with the potential to lead to sensible recommendations (Cohen, et al., 2011).

Purposeful sampling was done, following an analysis of the National ranking order of schools in the Khomas region, according to the November/December examination session. The focus was on two Government schools in close proximity offering Grade 12 in the Khomas region. One teacher from each school was chosen as a sample for interview.

The investigation into the dissemination of Examiners' reports primarily involved the school principals, because the Examiners' reports are addressed to them and they are the accountable officials at schools. Also involved were the Grade 12 Examination heads in their capacity as accountable officials when it comes to external examination matters, and the Heads of the Science departments (HODs). The next level of subject management in schools involved the subject heads for Biology. However, the possibility existed that the research participants mentioned above could also have information on the use of Examiners' reports, and therefore they were not excluded from the research participants who could furnish information on the utilization of the reports.

3.3 Data generation techniques

To obtain reliable and valid information, I used a combination of three data gathering techniques, namely: document analysis, questionnaires and semi-structured interviews. These methods enabled dialogue between the research participants and myself so as to build collectively a meaningful reality. According to Cohen, et al. (2011), triangulation involving two or more data

collection techniques is necessary when studying human behaviour. Cohen, et al. (2011) further state that looking at a standpoint from more than one angle adds to the richness and complexity of the issue researched and a more holistic view can be obtained.

3.3.1 Document analysis

Cohen, et al. (2011) defines a document as a record of an event or process that allows for discursive analysis. Documents are social phenomena that are socially constructed and therefore often used in interpretive studies. The reliability of a document used in research as part of document analysis must be determined because the credibility of the information contained in the document is very important (Cohen, et al., 2011). Determining the meaning of a document in context is important. The information provided in the document, the author's underlying values and assumptions, and the arguments developed, must be understood on these terms.

Examiners' reports will be the primary document used. Examiners' reports dating back to 2007 were analyzed, to get a picture of problematic issues as well as positive aspects reported on. Reference is made in section 1.2.2 to problematic issues that appeared in the Examiners' reports for 2010 to 2013. It is worthwhile to note that many problems mentioned in the Examiners' reports for the years 2010 to 2013 also appeared in the reports of 2007, 2008 and 2009. Examiners' report utilization as a component of the Activity System has the potential to improve the pass rate in Biology, provided that it is used appropriately as a mediational tool to improve teaching and learning. Effective utilization of Examiners' reports for Biology should serve to eliminate reporting on the same problems and misconceptions annually.

3.3.2 Questionnaire

According to Cohen, et al. (2011), a questionnaire is a useful data gathering tool because it provides structured data. It can be completed without the researcher being present and it is generally easy to analyze.

An advantage of using questionnaires lies in the fact that they can be completed anonymously, which gives teachers the freedom to be open about their feelings and perceptions without fear. It is very time-effective and very economical as a large number of people can be reached at minimum expense – in this context, the twenty-six Biology teachers in the Khomas region,

school principals, HODs and teachers functioning as Grade 12 examination heads. However, the success of a good questionnaire lies in piloting it many times to avoid ambiguous questions and to refine and revise questions. Questionnaires were useful in informing me about what kind of questions to include in my interview schedule.

On the other hand, a disadvantage of questionnaires is that participants can complete them in a rush or haphazardly and therefore fail to provide details or the essential rich information expected. The fact that the questionnaire lacks validity is also a disadvantage as there is no way one can tell how truthful the participant was or how much thought has gone into the participants' responses. The language used might also be a barrier.

In this study, a questionnaire was used and the questionnaire items were designed with the CHAT components as shown in appendix V1. These comprised the tools (artifacts), subjects, division of labour, rules and the object, which was firstly the dissemination of Examiners' reports, and secondly the utilization of the reports. The questionnaire enabled me to get information about access to resources and how the Examiners' reports are used by teachers – as well as possible reasons why the Examiners' reports were not being used as intended. Through the questionnaires I was also able to gather information about trends and practices concerning the handling and dissemination of Examiners' reports at the school management level and the subject teacher level; whether dissemination practices were efficient or not, when it happens and whether teachers thought the process could be improved.

The specific CHAT components – which could either be the tools used in the dissemination process, or the division of labour, or the rules in the organizational structure – that appeared to be problematic in the Activity System were pin pointed, together with secondary contradictions between components or within a component (primary contradictions) in the Activity System that surfaced as a result of the questionnaires and interviews. Teachers were able to comment on the questionnaire about the usefulness or even ineffectiveness of the subject-specific Examiners' reports and whether they thought changes could be made to improve the Examiners' reports. Teachers' experiences on how exactly they make use of the Examiners' reports were elicited and what their perceptions were concerning the Examiners' reports being used as a tool to improve the teaching and learning of Biology.

3.3.3 Semi-structured interview

Semi-structured interview questions were designed with the CHAT components in mind. Semi-structured interviews allow one the freedom to probe and ask follow-up questions (Cohen, et al., 2011). They allow for modification in the sequence of questions as well as changing words when the situation requires it. Furthermore, the fact that semi-structured interviews enable the interviewer to clarify questions, words used and the interviewees' responses, make them a very useful data-gathering technique to get rich data (ibid.).

In this study, the interviews enabled me to get firsthand information about dissemination and utilization practices. For example, did teachers get training in the use of the Examiners' reports either at school or at regional level, and did they understand the Examiners' reports or not? Through interviews I was able to pin-point the problematic area and the contradictions in the different components in the Activity System.

3.3.4 Piloting

The questionnaires were piloted with seventeen M.Ed students, and five B.Ed (Honours) Rhodes University students. A further pilot was done with sixteen Life Science teachers representative from all fourteen regions. As a result of the piloting it became evident that some words were being misunderstood by the participants. I was thus able to change the words or add additional descriptions to ensure that all participants would have the same understanding. One specific question in the pilot questionnaire wording was changed completely because the participants felt that the question appeared to be threatening. A question about the existence and active functioning of school cluster systems was completely removed from the questionnaires as analysis of the responses showed that in at least 99% of the participants the school cluster systems were not active or functioning for various reasons. However, the questions were used in the interview schedule in an attempt to elicit the participants feeling about school cluster systems in the region and their possible value.

Piloting of the questionnaires enabled me to keep the questionnaires as short as possible without sacrificing essential questions. It was also evident from the pilot that participants, in cases where two questions were combined, often focused on answering only one question and forgot to comment on the second question. This problem was avoided by adapting the questions into a

table format to ensure that they were independent and responded to. The piloting also ensured that the questions essential to my research goals were catered for in the questionnaire and were unambiguous.

The interview questions were piloted with two M.Ed Rhodes University students who were also Biology teachers, but from regions other than the Khomas region. In the pilot interviews the teachers said they used the Examiners' reports in teaching, but were not very specific and struggled to give a specific example of how they used them, or of a specific topic on which they had used the Examiners' reports in the past to improve their teaching or learners' learning. This alerted me to the fact that I would have to formulate alternative questions in order to obtain specific information from the teachers on how they used the reports in teaching and learning when I did the actual interviews.

3.4 Data Analysis

Data analysis means trying to make sense of the information gathered. This entails answering questions such as: What will be done with the data collected and how will the results analyzed be verified and validated? According to Cohen, et al. (2011), there is no one way in which data can be analyzed as not all ways of analyzing data are necessarily fit for the research done. However, it is important that the techniques used for the data analysis must be legitimate and appropriate for the type of data collected.

Interpretation of data is a cardinal aspect of qualitative data analysis. Analyzing qualitative data aims to explain the data after it has been organized and accounted for. Gibbs, cited in Cohen, et al. (2011), is of the opinion that a distinguishing feature of qualitative data analysis is the merging of analysis and interpretation in a back-and-forth process.

The purpose of the data will determine the analysis done, which in turn will determine the way in which the analysis will be written up. The ultimate aim of data analysis is to move from describing to explaining data, and eventually to theory generation (Cohen, et al., 2011). Following this approach helps to inform any additional data generation, with new data informing the data analyzing process.

Thorne (n.d.) is of the opinion that the theoretical lens to be used, the strategies employed to collect data, and the researcher's understanding of what data will be important, are all already part of the analyzing process, which influences the data. Conceptually interpreting the data as a whole, using specific analytic strategies to change the raw data of what is being studied into a new picture that makes sense, is also part of the analytical process.

CHAT was used as the analytical tool to determine Biology teachers' perceptions and experiences as components in the Activity System (see Fig. 1) and as discussed under sub-questions (see Section 3.2.4). The components/elements such as tools used in the dissemination, the division of labour (who does what in the Activity System), the interaction between subjects, the rules that govern the dissemination and utilization in the Activity System process, as well as the community forming part of the Activity System, were all used to analyze the transcribed interviews and data from the questionnaires.

Subjects that directly impacted on the object, the dissemination of the Examiners reports, were analyzed to determine their perceptions towards the Examiners' reports as a meditational tool. Furthermore, the rule component was analyzed to establish what procedures were in place or not in place to ensure that the Examiners' reports got to the Biology subject teachers in good time to be used in teaching and learning. The component on the division of labour once analyzed illuminated the degree of ownership Biology teachers take, and opened up possibilities of exploring accountability on the part of both school management and teachers. The community forming the Activity System was analyzed with a view to determining participants' perceptions of the role they play in the teaching and learning process and their contribution to the process.

Data is transformed through conceptualization and being sorted into findings that are meaningful. How the data is sorted, organized, conceptualized, refined and interpreted depends upon a theoretical assumption. The intellectual processes involved in considering, examining and reformulating a research product requires an understanding of what is being studied. It requires synthesizing a portrait in an attempt to provide for all the linkages and relations among all the aspects of the activity system. Trying to theorize about how and why relations are the way they appear then follows. Finally, re-contextualizing ensues, which involves putting the new knowledge about what is studied and its relations back into the context of how other people articulate the knowledge that evolved.

Thematic categories were determined. The themes were generated through inductive analysis of the data gathered. Themes were generated for the two parts, dissemination and utilization of Examiners' reports respectively. The themes in part one, dissemination of the Examiners reports were: accessibility of the reports, timing/availability of the reports, and division of labour in the dissemination process. The themes in part two, utilization of Examiners' reports were: conceptual accessibility of the Examiners' reports; utilization of reports and perceptions of it being a mediational tool; perceptions of reports leading to improvements in teaching, learning and performance; perceptions about schools being supported in the utilization of the reports; division of labour in the utilization of reports and perceptions about how and what role teachers play in improving the utilization of reports. The components/elements in the activity system were interpreted and discussed in terms of what is currently happening, contradictions (whether primary or secondary as discussed in Sections 6.3 and 6.4) within the Activity System that surfaced were highlighted, and finally what teachers would like to see happening was then presented.

The interviews conducted were transcribed to ensure that an accurate record of what was verbally communicated was reported. This allowed for the capturing of important detail. Content analysis (Cohen, et al., 2011) was carried out on the Examiners' reports, the questionnaires collected and the interviews conducted. This involved coding, categorizing, comparing and making conclusions. The aim of content analysis was to classify a lot of information into fewer categories, thus involving summarizing and reporting the written data in the categories that emerged from the data.

Coding was done to categorize information. Coding entailed labeling texts that shared a certain kind of information or a specific idea. Responses to questions from the participants were put into specific categories. Codes were derived from the data and helped to show patterns and frequencies in the data. Coding and categorizing ensured that theory could emerge, to help explain and answer the research questions.

3.5 Validity

Cohen, et al. (2011) define triangulation as a multi-method approach often used in case studies using two or more data collection methods in research into aspects of human behaviour. The

advantage of a multi-method approach in research lies in its ability to explain human behaviour more fully, and allows for the complexity and richness of human behaviour to be studied from different angles and standpoints. Triangulation allows the researcher to get a more comprehensive and clearer picture of the complex phenomenon studied. In other words it adds to the validity and confidence in the research findings if different methods used produce similar results or outcomes. Triangulating in research allows for researchers to be free from being restricted to a specific method and enables openness where qualitative and quantitative methods can be combined.

3.6 Ethical Considerations

Honouring all ethics in research is important to ensure that the validity of the research is not threatened. Cohen, et al. (2011) alert researchers to the importance of seeking the cooperation and consent of all individuals that take part in social research. I therefore sought permission from my Director since I am an employer within the DNEA. Permission was also sought from the Khomas Regional Director to conduct the research in Alpha and Betha (pseudonyms) schools respectively. Once permission was obtained from the Khomas Regional Director, I sought formal permission from the school principals, HODs, science subject heads, examination heads and Grade 12 Biology teachers of the two schools by visiting them to make appointments and to present the letters of permission from the regional office. During these visits I outlined my plans and explained the nature and purpose of the research. The letters clearly stated that the study was for the purpose of obtaining my Master in Science Education degree as well as to improve things in the region where possible. The letter stipulated clearly that all information gathered would be treated as confidential and that participation in the research investigation was voluntary. All consenting participants were guaranteed anonymity at all times and were fully informed of their rights and the benefits of their participation in the research investigation.

Despite the fact that anonymity were guaranteed to all participants, a potential problem that might surface could involve Biology subject teachers not feeling comfortable with providing information regarding their principals' or HODs' practices and general administration of the subjects under their supervision. However, I believed this problem could be overcome by stressing that the purpose of the research was not to hold people accountable for their mistakes or

inabilities, but rather to pinpoint problematic areas in the Activity System and possibly suggest ways to solve problems so as to ensure improvement in pass rates. Fortunately I can report that teachers, principals and HODs were all very cooperative and I encountered no hostility at the schools.

My position as an education officer at DNEA responsible for Biology could potentially also become a problem, as the research participants might feel too intimidated to be frank and open about what they feel can be improved in the dissemination and production of Examiners' reports for Biology. However, I can report that 90% of the participants never had face-to-face contact with me and were therefore not aware who the person who required the information was. This could probably be attributed to the fact that in almost all cases I worked directly with school principals or HODs and hardly had any direct contact with the teachers, except for the ones interviewed.

My initial request for permission to conduct the research in the Khomas region was turned down by the Khomas Regional Director. I had to write a different letter addressed to the Permanent Secretary within the Ministry of Education to seek permission via his office to conduct the research in the Khomas region. This dilemma posed ethical issues I had to deal with. I felt bad having to go behind the Khomas Regional Director's back to seek permission from the Permanent Secretary's office, but considering that my duty station was Khomas it would have been difficult for me to conduct the research in other regions and I consequently decided to stick with my decision to appeal the Khomas Regional Director's decision. I was worried that this unfortunate turn of events might have a negative influence on the cooperation I might expect from the schools in the Khomas region. However, as said earlier, everything turned out well and schools were very cooperative, which is evident from the high return rate of the questionnaires.

3.7 Limitations

The nature of this study, being a case study involving only two schools in one region, is limiting in the sense that its findings cannot be generalized to all schools and all other thirteen regions. However, it points out issues that need to be addressed and possibly improved, and these could apply to any school irrespective of its location, the region or the DNEA. Positive practices

emerging from this research will be available to any interested party forming part of the community involved in the research.

3.8 Concluding remarks

This chapter described a case study incorporating a qualitative interpretive paradigm being used to investigate Grade 12 Biology teachers' perceptions and experiences of the dissemination and utilization of Examiners' reports. The data-gathering techniques employed were document analysis, questionnaires and semi-structured interviews to enable the triangulation of data to ensure that the data collected were reliable and valid. Despite the fact that the research sample was small and the findings limited in the sense of not being generalizable to all schools, the value of the research lies in the possibility that valuable recommendations can be made to the DNEA to improve the dissemination of the Examiners' reports as well as ensure that the reports meet the teachers' expectations and subject-specific needs in Biology. The methods used in the data analysis and interpretation stages to draw conclusions from the findings are also discussed.

In the next chapter I will present the findings from the data gathering process.

Chapter 4

Data presentation and analysis: Dissemination of Examiners' reports

4.1 Introduction

The main goal of this study was to investigate Grade 12 Biology teachers' perceptions and experiences of the dissemination and utilization of Examiners' reports in the Khomas region in Namibia. Questionnaires and semi-structured interviews were used to gather data as explained in chapter 3.

In this chapter I present and analyze data in response to research questions 1 and 3:

- How do Grade 12 Biology teachers perceive and experience the dissemination of Examiners' reports at their schools? and
- In what ways can Biology teachers improve the dissemination of Examiners' reports?

4.2 Teachers' perceptions and experiences on the dissemination of Examiners' reports at their schools

4.2.1 Research participants and sites

A questionnaire was distributed to a total of 26 senior secondary schools offering Biology at either ordinary and/or higher level. Twenty one schools responded to the questionnaire and returned them, while only five schools failed to return them. So, the return rate of questionnaire was 80%. The sample returned included questionnaires from government as well as private schools, newly established secondary schools as well as schools that have been in existence for many years. In total, 49 participants responded to the questionnaires and this comprised Biology subject teachers, subject heads, heads of science departments, grade 12 examination heads and principals. An analysis from the questionnaires showed that there were 35 Biology teachers and 14 principals, HODs or grade 12 examination heads, who are not teaching Biology.

Two Grade 12 Biology teachers, a female (T1) and male (T2) from two neighboring schools were interviewed. One school Alpha (pseudonym) has been in existence since 1990 while Beta (pseudonym) opened its doors in 2006. Due to the fact that schools were already busy with their

April internal examinations by the time the questionnaires were returned, I had to move the scheduled interviews to the first week of the second term to ensure that I had time to analyze the questionnaires as data from them would direct me to the type of questions I should include in the interview schedule as the questionnaires and interviews in this study were intended to complement one another for validation purposes (see Section 3.5). Likewise, for ethical reasons, I felt that the teachers were already under pressure to get the marking of examination scripts done in time and did not want to interfere with their responsibilities at their schools.

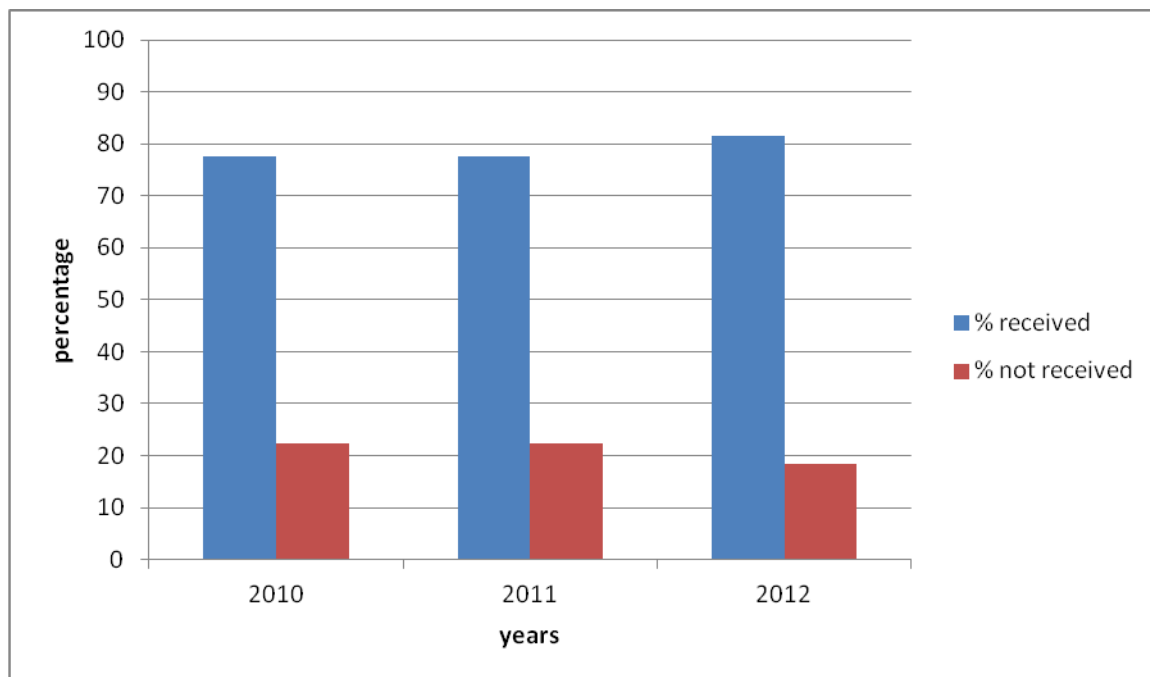
4.2.2 Accessibility of reports at schools

In order to probe teachers' perceptions and experiences on dissemination of Examiners' reports I thought it would be useful to generate data on which years and which levels reports were received by teachers. This information enabled me to make inferences as to the accessibility of the reports to the teachers who could implement the suggestions given in them with the goal of improving pass rates.

The questionnaires were distributed to all schools on the 17th of March 2014. According to the DNEAs records, the reports were dispatched to the regions by the end of March 2014. For this reason, the analysis of the questionnaires excluded the reports on the 2013 examinations. The interviews' analysis summary, however, includes the reports on the 2013 examination as the interviews were conducted in the second term and reports had subsequently been received by schools.

Graph 4.1 summarizes the receipt of the Examiners' reports for the examination years 2010 to 2012, indicating how many teachers did/did not receive the reports.

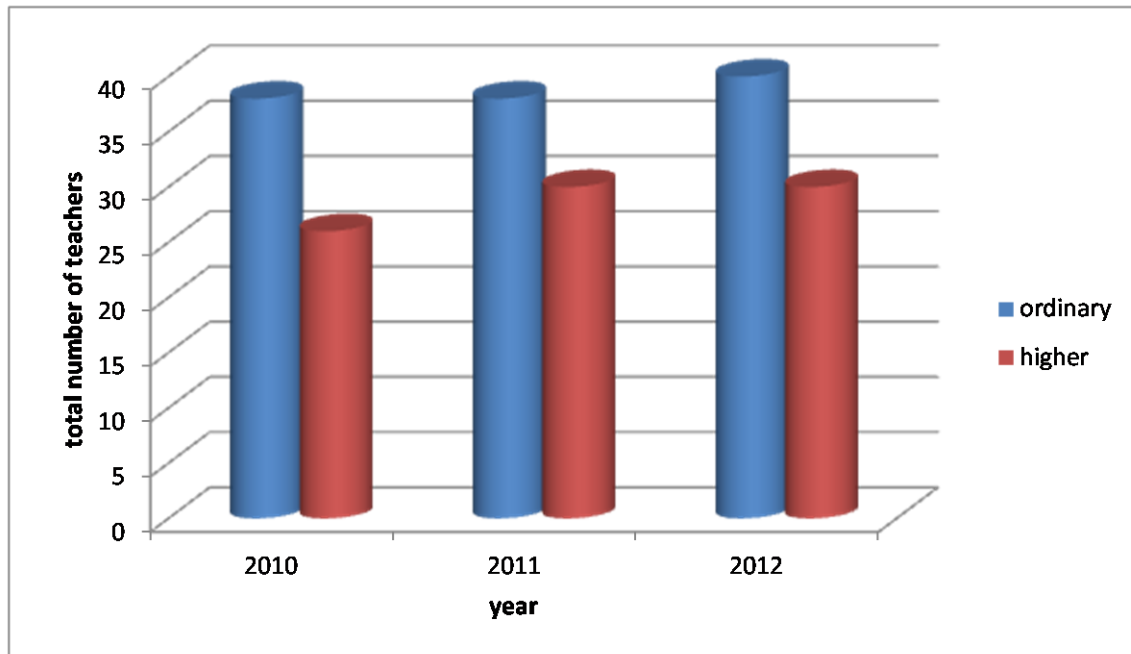
Note: A total of 49 teachers responded to the receipt of the reports and this number has been converted into a percentage.



Graph 4.1: Summary of the dissemination of Biology Examiners' reports at schools

The graph shows that the percentage of teachers that indicated that they did not receive the Examiners' reports decreased as the years progressed. What could be the possible reasons for this? The advantage of using CHAT is that it allows one to bring in the idea of new instrumentality in an Activity System. For example when a new Minister of Education joined the Ministry he emphasized utilization of available resources such as Examiners' reports to improve regional examination results during his regional familiarization visits. Furthermore, he also instructed the DNEA to release the Examiners reports earlier. However, whether the Ministers interventions could have actually impacted the dissemination of Examiners reports leading to the decrease in the number of teachers not receiving the Examiners' reports observed cannot be proven beyond reasonable doubt.

Note: A total of 49 teachers responded to the receipt of the reports



Graph 4.2: Summary of the dissemination of the different levels of the Biology Examiners' reports at school

An interesting scenario unfolded during the interview conducted with T1 which caused me to wonder about teachers' understanding and perception of Examiners' reports. When T1 was asked whether she received Examiners' reports for 2010 to 2013 she commented

“Yes, however, I will not say per se myself because we are sharing so sometimes it goes to the previous teacher, the teacher who had the Grade 12s the previous year. Sometimes we file it. But most of the time my main access to it is through the Namibian College for open learning (NAMCOL) booklets which contain the question papers and the marking schemes. So, sometimes I don't really go and look for the reports because I know I have a NAMCOL booklet that has the information I am looking for. Or sometimes I will get an Examiners' report from my colleague for example my colleague went for marking last year and he already had a memo, so the beginning of this year already I had that cause he gave it to me, we made copies and I filed it”.

I wanted to understand what T1 regards as an Examiners' reports as it appeared as if she was referring to the report as a mark scheme. Thus, I asked her whether she got mark schemes or Examiners' reports. She then responded saying *"Yes, I really just had the marking scheme of 2013 papers and not really the report, but yes, I got the reports as well"*. This scenario reveals interesting perceptions teachers hold about the importance of mark schemes and Examiners' reports which will be analyzed and discussed in Chapter 6.

Table 4.1: Summary from interviews on the dissemination of Examiners' reports in Alpha and Beta school

teacher code	school	level	2008	2009	2010	2011	2012	2013
T1	Alpha	O&HL	yes	yes	yes	yes	yes	yes
T2	Beta	OL	no	yes	yes	no	yes	yes

T2 revealed in the interview that he received the reports each year since he started teaching. But when he did not get the reports for the 2010 examination in 2011 he did not make an effort to follow it up. The teachers' exact words were

"I don't know if it was not sent. Or if it was sent I do not know why I did not get the report. I also did not follow up why I did not get the Examiners' report as the teaching environment is hectic and one can easily overlook certain things".

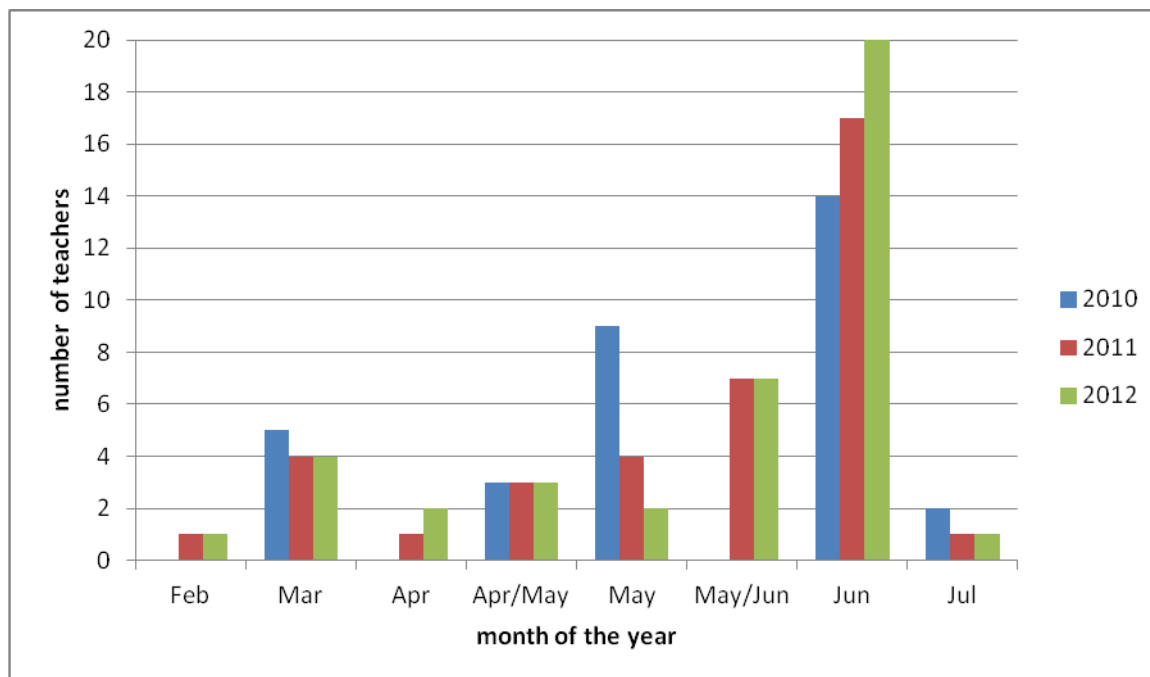
This illuminates some contradictions which surface in the activity system which will be discussed in Section 6.2. The reasons teachers gave for not receiving the reports are given in Textbox 4A and will be discussed in Section 6.2 as a tension surfacing in this study.

Textbox 4A: Reasons for not receiving reports

- some could not give reasons;
- no reports were received in 2010 and 2011 as the school produced the first grade 12 learners only in 2012, however reports on the 2011 examination were received in 2012;
- some teachers only started teaching senior grades in 2012 as previously they were responsible for teaching junior grades;
- one teacher joined the school in 2010, but had not received reports on the 2010 and 2011 examinations

4.2.3 Timing of the availability of reports

The time that the schools receive the reports directly impacts the degree to which the reports will be used. Therefore, data on the time teachers get the physical reports in their hands was gathered to make inferences about the effectiveness of the distribution of reports at schools. This data responded to research question one. The Namibian academic school calendar has three terms, with the first term ending in April. Graph 4.3 shows the responses of the teachers with regard to the time they received the reports. The summary from Graph 4.3 shows that the majority of the teachers actually only got the Biology Examiners' reports in the second term.



Graph 4.3: Timing of dissemination of Examiners' reports at school

About 47 teachers which constitute 95.9% of the participants were of the opinion that the first term was the appropriate time to get the reports. Only two teachers representing 4.1% were of the opinion that the reports should be at schools in February or March at the latest. The reasons for preferring the reports early relate mainly to ensuring that the recommendations given in them can be enacted during teaching and learning repertoires.

Table 4.2 summarizes the responses from the interviews with regard to the time the reports are received. The reason for showing it separately is to highlight that in 2014 the reports for the 2013 examination were received in the first term and the second term at schools that are in close proximity of about 500 m.

Table 4.2: Summary from interviews on the dissemination of Examiners' reports in Alpha and Beta schools

Teacher code	School	Level	Received
T1	Alpha	O&HL	May
T2	Beta	OL	April

T1 was also of the opinion that the reports arrive at the schools too late and this is reflected in her comment below:

“But we feel like other teachers as well that the reports actually are coming late. If maybe if by March or if before our examination because it is very useful for us to have the marking scheme because you also want to use some of the questions from the previous year’s question paper. Biology is not like any other subject where you can just have all the answers and sometimes you struggle yourself as a teacher you need to have a marking scheme. So if it can come to school even before our first term examination which is normally around early April it would be good”.

Similarly, T2 also responded stating that:

“I got the reports in April and I agree that it is too late. The beginning of the year when we start is the appropriate time. When we start we prepare the learners by giving them content already in January. So, by February when we teach each topic that we teach we can consult the Examiners’ report to see what things I can include and give the learners”.

Considering the responses and perceptions of the two teachers that were interviewed, a summary of the outcome from the questionnaires with regard to the effectiveness of dissemination at schools is given below.

Table 4.3: Teachers’ perceptions about effectiveness of dissemination at individual schools

Note: A total of 49 teachers responded to this question about dissemination effectiveness

Key question	% yes	% no	no comment	notes
Should dissemination of reports at school level improve?	57.1% which represent 28 teachers	40.8% which represent 20 teachers were of the opinion that dissemination of reports at their respective schools was good	2.0% which represents 1 teacher who started teaching in 2012	17.9% which represents 5 of the participants said yes but they were referring to dissemination at the regional and national levels and not at school level specifically

Table 4.3 shows that the majority of the Biology teachers were of the opinion that dissemination must improve irrespective of whether it was at school level, regional or national level.

It was evident from the interviews conducted that efficiency of dissemination at individual schools differs. As explained above, Alpha and Beta are neighboring schools about 500 m apart from each other, yet in 2014, they received the reports a month apart. The majority of the teachers were of the opinion that the reports arrived at the schools too late. This interesting contradiction that emerged is discussed in detail in section 6.3.

T1 quoted earlier on, suggested that the reports should be at the schools by March (see Appendix X, interview transcript 1) so that teachers could use it before the schools’ internal examinations for the first term started. Some teachers felt that the reports should be at the schools at the beginning of the year when the school’s academic year starts, so that teachers can start studying the reports and address issues as highlighted in the reports right from the onset of the school year (see Textbox 4B).

Textbox 4B: Reasons for improving dissemination

- the reports get into teacher's hands very late which makes them ineffective as teachers have to rush through the reports. Sending the reports electronically to subject teachers would ensure teachers received the reports earlier;
- so that teachers will know in good time what they need to improve on so that learners' and schools' performances can improve;
- sometimes the reports stay too long in the principals or HODs offices; reports must be given to teachers every year and not sporadically;
- dissemination of reports can improve if subject heads and HODs discussed the reports with all subject teachers for effective implementation;
- some teachers said that if they received the reports they could see where they went wrong in their instruction/teaching and work on improving their shortcomings;
- in most cases the reports come to the HODs responsible for examinations and do not reach the teachers at all or reach them very late;
- teachers need to start using the reports from the beginning of the year, starting from the 1st lesson they plan;
- copies of reports should not just be given to teachers teaching the subject for that specific year, instead every qualified teacher in Biology should get the report as often what is reported on in the Gr 12 reports can aid Gr 8, 9 and 10 teachers and teaching of Life Science as well;
- report dissemination must be improved so that teachers can provide learners with the criteria used in marking and so that learners can be aware of common mistakes made to prevent them from losing unnecessary marks;
- teachers who have marked nationally must help with Examiners' reports by discussing them with junior or other teachers at school;
- subject heads and HODs must emphasize to teachers the importance of going through the reports, give copies of reports to grade 11 and 12 learners as it is better when they themselves read it to see mistakes etc.

The majority of the teachers (95.9%) were of the opinion that the first term was the most appropriate time for the Examiners' reports to get to schools preferably January, February or when the first term commences. The next section addresses research question 3 which deals with the ways in which Biology teachers can improve the dissemination of reports at their respective schools.

4.2.4 Division of labour in the dissemination process at schools

In this section the process of dissemination as it occurs in schools is presented to illustrate current practices. Examination heads get two copies from their principals as the reports are addressed to school principals. Examiners' reports are bound in separate booklets for the NSSC ordinary level and higher level subjects. The Examination heads keep one copy of each booklet as a back-up while dismantling the other copy to individual subjects. Individual subjects report are then passed on to HODs who disseminate it to subject heads or subject teachers. Schools appear to have back-up reports that can serve as a resource pool especially for new teachers, yet it appears as if not all teachers and especially new teachers are aware that this resource is available. Evidence for this statement is given below and can be found in Textbox 4C and Appendix X, interview transcript 1. *“Teachers amongst themselves must make sure that all Biology teachers get or have access to reports by sharing with neighboring schools and new teachers at school”*. This supporting evidence was found in the questionnaires.

More supporting evidence came from what was said during the interview conducted with T1 and it reads as follows.

“I think like I said say for example if you have a new teacher coming on board and you knowing what the importance of a marking scheme is and you enlighten the person that has just came in telling them you need to use an Examiner report. And when I was setting up the question papers there was a file, a question paper bank where they have filed all previous question papers and at the end they filed all the marking schemes. So that is when I realized that actually they do send this to the schools and you can actually use this integrate this either within your marking or teaching. No, no one informed me about Examiners' reports, no never”.

It emerged that HODs only get one copy of the reports for their specific subject(s). HODs then have to hand in that one copy for duplication before passing it on to either subject heads or subject teachers depending on the size of the school and its operational practices. HODs in some schools are also either grade 10 or 12 examination heads. Considering the fact that HODs only get one copy distributing and/or duplicating the reports adds to their administrative responsibilities. One of the HODs said *“at least eight copies must be provided, two per*

department at the school as it will take the burden off the HODs to duplicate reports and dissemination can then be faster.” This burden and heavy load is felt particularly in the bigger government schools.

Duplication during official school time is limited or restricted and it emerged from this study that the teachers responsible for duplication do it as part of their extra mural activity on the timetable. All personnel that are allowed to use photocopiers and duplication machines at schools have codes, which regulate access to the machines for other teachers. The schools appear to be adequately resourced in terms of resources such as paper and toner needed for photocopiers and duplicating machines (the artifacts used in the dissemination of Examiners’ reports) as the teachers interviewed always got whatever duplication work they requested.

In all the schools that completed the questionnaires, dissemination of reports is restricted to teachers only as one component in, for example, Biology can be up to eight pages long. Biology itself has three different components at both ordinary and higher level. Considering the fact the every grade 12 learner is doing six subjects, the volume of photocopying that would need to be done and provided to learners is large. Thus, currently learners do not get a hard copy of the reports in all schools; however teachers verbally share the content of the reports with their learners. This aspect will be elaborated on more in the section on utilization of the reports (see Section 5.2).

4.2.5 Teachers’ perceptions about their role in the dissemination of the reports

Data were gathered on teachers’ perceptions about the role they can play in dissemination of the reports. The information gathered responded to the third research question. The teachers in this study had mixed opinions. About 17 teachers (34.7%) did not comment on the question about how Biology teachers could improve dissemination of the Examiners’ reports. In an interview, T2 was of the opinion that his teaching load and extra mural activities and after school responsibilities makes it impossible for him to play an active role in disseminating Examiners’ reports to teachers in his own school or even teachers from other schools.

Suggestions from the other 32 (65.3%) teachers about how Biology teachers could improve dissemination are shown in Textbox 4C below.

Textbox 4C: Ways in which Biology teachers could improve dissemination in schools

- an electronic copy can be made available which could be given to learners because all of them have face book and that could be used to distribute the reports to all learners;
- if the reports are discussed at subject meetings Life Science teachers and all Biology teachers would benefit;
- Biology teachers can be given the responsibility to collect the reports for their specific school as it will help that schools receive the reports on time (it was not clear where the reports should be collected from);
- share it with the learners; subject teacher(s) should regularly enquire about the reports, to check whether they had arrived at the school or not;
- a hard copy, should be given to learners as well hoping that the learners themselves will take note of the recommendations given and teachers should discuss the reports with the learners in their classes;
- if teachers know the exact time the reports are distributed they can enquire from the HOD responsible for examinations;
- liaise with other Biology teachers from other schools, sharing information and discussing Examiners' reports;
- teachers must ensure that all Biology teachers get or have access to reports by sharing with neighboring schools and new teachers at school; and
- Biology teachers must arrange or have workshops and share the information with grade 11 teachers.

Teachers were of the opinion that the reports are national documents to guide teachers; consequently they do not give copies of the reports to the learners. During the interview, T1 was concerned about how learners would use, interpret and understand the reports if they were given to them without guidance from the teacher. Her concern was “*will the learners be able to use it? Will they be able to interpret the reports correctly?*” (see Appendix X, interview transcript 1). The issue of mediation, the teachers' role and the role of Examiners' reports as a mediational tool will be discussed further in Section 6.4.

4.3 Concluding remarks

The purpose of Examiners' reports is to give feedback to improve teaching and aid better understanding and learning of Biology and thus improve the pass rate. Hence, the effective dissemination of these reports could help to achieve the improved pass rate the Ministry of Education (MoE) and the country at large would like to see.

What is envisaged with the production and ministerial institutionalizing of the national document, Examiners' reports, is that teachers would reflect on their teaching practices and understanding of Biology to ensure that the problem areas mentioned in the reports are addressed by both teachers and learners. An improved pass rate in Biology requires that teachers and learners have excellent subject content knowledge and use past performances and feedback given in the Examiners' reports as a yard stick against which they could evaluate themselves.

Teachers' responses to existing dissemination practices showed that the majority of the teachers do get the reports, even though not as early as they would have liked to have them. This state of affairs is brought about by some degree of inefficiency in the dissemination process that must be addressed. The main tensions as per teachers' perceptions and experiences with regards to dissemination of Examiners' reports at schools are the fact that the majority of the teachers are unaware of the time the reports arrive at school, thus cannot follow up on the arrival of the reports often enough to prevent reports from laying on the accounting officers tables, delaying dissemination even more. Teachers work load during office hours as well as in the afternoons also contribute to teachers forgetting to follow up on arrival of the Examiners' reports and playing an active role in disseminating the reports. Furthermore, the late release of the Examiners' reports from either the DNEA or the Khomas regional office can contribute to an increase in the lack of or inefficient support from peers or superior which can contribute to some teachers not having access to the reports at all. In most schools additional copies of the reports have to be made before it can be disseminated to the respective subject teachers which add to the delay in dissemination. Generally late release of the reports from the DNEA and Khomas regional office contributes to teachers getting the reports very late in the first term or in the majority of the cases only in the second term which can contribute to the inefficient utilization or even non-utilization of the reports. The absence of policy documents that guide dissemination of

the reports at school level emerged from the fact that teachers were not sure if copies of the reports could be availed to learners. In instances where teachers were aware of the existence of the Examiners' reports, the lack of teacher agency, thus teachers taking the initiative and making the effort to get hold of a copy of the report were evident. Division of labour in some schools appear to be fragmented, as some teachers were of the opinion their HODs are responsible for providing the document.

Many teachers however were of the opinion that they could play an active role in the process of dissemination of the reports by ensuring that they do get hold of a copy of the latest reports, study it carefully and use it to prepare for lessons they are about to present. This will ensure that all feedback given in the reports are acted on and shared with their learners. Furthermore, they can aid dissemination by ensuring that new colleagues that join their school have access to copies of all reports. Furthermore initiating and engaging in discussions around the content of the report within a community of practice can enhance dissemination of the reports. Some teachers suggested exploring alternative ways of disseminating the Examiners' report.

Recommendations to improve the dissemination process at school and how Biology teachers can aid the process are made in Section 7.3. In the next chapter, I present the data on the utilization of Examiners' reports.

Chapter 5

Data presentation and analysis: Utilization of Examiners' reports

5.1 Introduction

This chapter presents the empirical data generated on the utilization of Examiners' reports. The chapter focuses on research questions 2 and 4:

- How do Grade 12 Biology teachers utilize Examiners' reports in their schools? And
- In what ways can Grade 12 Biology teachers improve the utilization of Examiners' reports? Further analysis of use of Examiner's reports in the process of mediation is done in chapter 6.

As highlighted in chapter 3, the responses from the questionnaires and interviews were analyzed under different themes that emerged during the analysis process.

5.2 Teachers' perceptions on utilization of Examiners' reports at school

5.2.1 Introduction to teachers' perceptions and experiences on the utilization of Examiners' reports

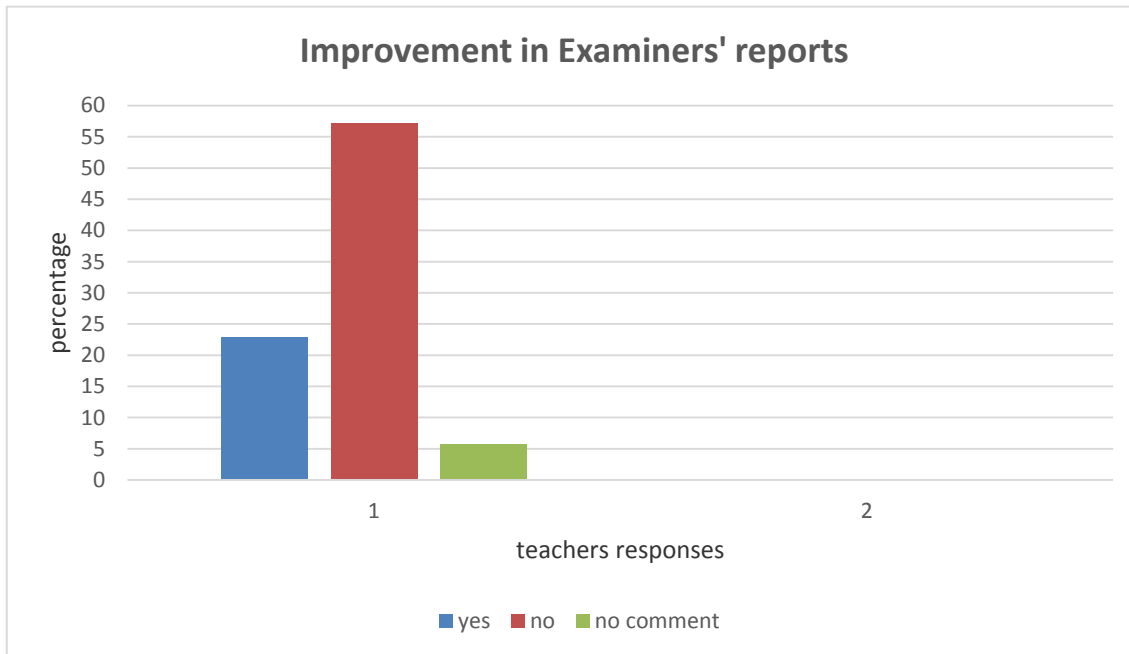
From the 35 Biology teachers who completed the questionnaires, 30 teachers (85.7%) indicated that they actually use the Examiners' reports because it gives feedback on performance of learners in previous examinations (see Section 2.4). The participants' general teaching experience ranged from 1.5 years to 32 years. From the responses it was not clear whether teachers were referring to their years of teaching Biology or just the number of years of teaching in general.

With the inductive analysis done on teachers' perceptions and experiences of the utilization of Examiners' reports the themes that emerged cover all aspects of how the reports are used and whether teachers feel that the reports need to improve in any way. The themes deal with the conceptual accessibility of the reports and whether teachers feel that the reports need to be improved; the extent to which teachers use the reports and how they use them; whether use could lead to an improvement in teaching, learning and a school's performance or not; the division of

labour around utilization of the reports for example, are teachers discussing the reports or do they get any support in the application of the reports; whether Biology teachers need to be encouraged to use the reports and finally looking at teachers' perceptions about their role in improving the utilization of the reports. This section responds to research questions two and four.

5.2.2 Conceptual accessibility of Examiners' reports

Utilization of Examiners' reports by both teachers and learners should be encouraged because of the feedback they provide which is valuable to both teachers and learners. If however, the reports in their current state are not user-friendly to both teachers and learners, they need to be changed to address their needs. It was therefore necessary to get information about teachers' perceptions of the current state (format) and depth of information provided in the Examiners' reports. Responses to this question enabled me to make informed suggestions on possible improvements in order for the reports to be accessible to all teachers and learners by addressing all their specific needs and requirements. This section thus responds to research questions two and four.



Graph 5.1: Teachers’ perceptions about whether Examiners’ reports should be improved or not

This section reflects on aspects of the user friendliness and adequateness of the reports in terms of the content and the depth of explanation. T1 was of the opinion that some words used along with mark schemes and explanations are unfamiliar to her.

“I don’t think so sometimes because sometimes...I have never marked externally so sometimes they put letters there and sometimes I don’t understand what the letters is standing for so I am struggling now...did they say reject because sometimes I see an R and then I am assuming that it means the answer is reject. Or sometimes I see AW and then I think okay does it say allow? So sometimes you have to figure out what are they trying to say. It’s hard because I’m thinking maybe a solution could be that at the top they could put what the abbreviation stands for. I have seen on online papers they display it. Unless I am not sure if it is not displayed on our reports at all as I have not checked the cover pages”.

T1 also commented on other things she would like to see addressed and changed in the reports saying

“The other thing that I am also struggling with is the graph. If I am using it the marking scheme to see how they marked the graph. Sometimes they will just put the S standing for the size and X standing for the axis and so forth, but then for a new person the person will like seeing that but will not know what they looked at. So I am thinking why they not put a graph to show how they marked it so that I can also see how they marked it because sometimes we struggle with that as well. I think the language is user friendly. When she was asked about the depth and detail of the explanations in the examiners’ reports she responded “I think it depends maybe from one question to another, but at times I also feel they could have added more to make a person understand better as well”.

T2’s comments on the question about the user friendliness of the reports was “yes I personally think it (the reports) is fine, it is easy to use and can be used by any teacher. In its current state I can read it myself and follow the explanations without the need to seek assistance from anyone else. The language is clear and plain simple English of an acceptable level is used. The biological terminology used is not a problem to any teacher who is well equipped in the subject content. When T2 was asked about the amount of detail in content and explanations he responded

“More detail can be given in the explanations that accompany the multiple choice question section. Things like graphs and drawings can be more detailed. In the report the memo only say the diagram should be big, the scale should be this and this, but they don’t draw a graph so that if you give it to learners, learners can see oh this is how the graph should look like. The graph should also at least be put there as part of the answer. The actual graph must also be drawn and be part of the memo and thus report. When it comes to the drawing also examiners should also make an effort to draw the drawing in the memo and report so that learners can see the physical drawing for learners to visualize the expected drawing versus an incorrect drawing with all its necessary requirements needed to score full marks”.

The questionnaires revealed that more than 50% of the teachers were of the opinion that the Examiners' report in its current state does not need any improvement. A smaller percentage suggested that improvements are necessary in the following aspects: *Recommendations are sometimes vague, so more detail would be good*. Four teachers said that examples of common errors learners made could be included with clear directions on what was incorrect and why. It was suggested that examiners be more specific in explaining what was incorrect and more comments should be given. Furthermore, more tips on how to teach the problem area/topics should be provided. Similarly, the diagrams used in question papers should be incorporated in the reports. A few teachers would like to see the expected answers and feedback separately. They prefer that the mark scheme be one document which is separate from the comments.

5.2.3 Utilization of reports and perceptions of it being a mediational tool

This section reports on how teachers use Examiners' reports in teaching and learning and what their perceptions and experiences are on using Examiners' reports as mediation tools. Table 5.1 summarizes the data.

Table 5.1: A summary of teachers' perceptions of utilization of Examiners' reports at school

Note: Thirty five Biology teachers responded to the utilization of the reports

Perceptions of teachers on:	% yes	% no	Additional notes
Utilization of Examiners' reports	85.7% which represents 30 teachers	14.3% which represents 5 teachers	Teachers who are not using the reports said they are not getting the reports possibly because they taught junior grades prior to that. These teachers have been teaching for 3 years, but it was not clear which grades these teachers have been teaching in those 3 years.

The picture that emerges from Table 5.1 is that the majority of teachers use Examiners' reports. The various ways in which teachers apply the reports is summarized in Textbox 5A.

Textbox 5A: Ways in which teachers use Examiners' reports

- working through it to see what they need to share with the learners; to ensure they give relevant and essential information;
- to see which questions learners struggled with so that they can address those problems with their current learners and emphasize to them how those specific questions should be answered;
- to ensure that their learners are aware of the common mistakes previous learners made and try to correct those misconceptions as current learners may have the same misconceptions;
- to coach the learners about how to avoid the common mistakes made by the previous year's learners;
- reports are used as a guideline to help learners know how to deal with and respond to specific questions by discussing it with them, thus reducing misinterpreting questions;
- to acquaint themselves with some of the guidelines that are given about teaching or approaching certain topics;
- read the report carefully and thereafter try to incorporate any new or additional information they were not aware of into their lessons;
- to obtain the mark schemes of previous year's examinations; reports are used to compare teachers' own answers to the questions with the answers provided in the "final" mark scheme that was applied in marking at external level;
- they use the mark scheme to check what the acceptable answers were or how the question should have been answered especially if they have doubts about how they answered the questions or how they interpreted a specific question;
- to see if there were any changes to the marking and scoring approach; to compare their own standard of marking at school with April or August examinations and marking in general;
- to see if they mark appropriately and in line with what is expected at a national level; to get guidance on how to set-up valid mark schemes for their own questions compiled at school;
- use the mark scheme when they use past question papers to set questions/examinations for internal use; using the reports help them understand how marks were awarded;
- since they do not go for external marking, they use the reports to understand how marking is done which includes the marking mechanics used in marking for example rejected answers etc. to enable them to give better feedback to their own learners when they mark their internal test/examinations;
- using the reports helps to build on their subject content knowledge as a result of additional information and teaching or mistakes made in teaching the reports reflect on;
- the reports sometimes open their eyes to different ways of looking at a specific question, which they might not have thought of;
- they are used a tool to use for lesson preparation; to keep up to date with the latest information and changes in the subject;
- the reports are used to share findings of reports with grade 12 learners when they are doing revision

Three specific examples from T1 and T2 on how teachers utilize the reports in teaching and learning in a more elaborated form are now explained. T2 mentioned that when he teaches the topic on scientific drawings he always alerts his learners to what the reports say about mistakes learners made the previous year(s). Some of the things he alerts the learners to are the fact that when they are making drawings their drawings must be the appropriate size as requested in the question. Furthermore, he alerts the learners to refrain from using arrows to label the structures in their drawings and instead use label lines and many other common and regularly occurring mistakes. After informing his learners about the issues mentioned above he then gives them homework on these topics and checks that learners paid attention to the specific areas communicated to them.

Another example T2 mentioned was the definition of osmosis. Learners often incorrectly use the term “concentration” instead of “potential” when referring to the movement of water molecules. The term “concentration” when coupled with incorrect expression in English always results in learners losing marks because they express themselves incorrectly. He therefore makes an effort to alert the learners to the fact not to use the term “concentration”, but rather use “potential”.

T1 indicated that she normally gives her learners questions from old question papers either as a test or an assessment activity. When giving feedback she also gives them the expected mark scheme for that specific question(s). She then discusses with them the answers and points out what was expected in the answers and where the majority of previous years learners fell short in their answers, made language mistakes, experienced misconceptions or applied incorrect subject content. With this approach she then enforces correct answering techniques, tackles language mistakes and attempts to correct incorrect understanding of subject content.

5.2.4 Teachers’ perceptions about Examiners’ reports leading to improvement in teaching, learning and schools annual performance

Literature from McTighe and Conner (2005) about the importance of feedback to teachers and learners posits that significant gains in learning and teaching are possible provided that teachers and learners act on advice and suggestions given in feedback (see Section 2.4). Since the aim of the reports is to provide feedback on where teachers and learners did well as well as what was not well understood, teachers and learners will have a chance to correct mistakes which will

result in more efficient teaching and learning which will lead to improvement in pass rates. This question therefore provides information on teachers' perceptions about the value of Examiners' reports as mediational tools in the teaching and learning of Biology. Teachers' perceptions will also provide data in support of being a part of the team working towards improving utilization of the reports. Table 5.2 below summarizes teachers' perceptions about whether utilization of Examiners' reports can lead to an improvement in teaching and learning in Biology.

Table 5.2: Summary of teachers' perceptions on utilization of reports and improvements in teaching and learning

Perceptions of teachers	% yes	% no	not sure/no comment
Whether utilization of reports leads to an improvement in teaching and learning?	88.6% which represents 31 teachers	2.9 %which represents 1 teacher	8.6% which represents 3 teachers (2.9% representing 1 teacher was unsure and 5.7% which represents 2 teachers gave no response)

The majority of teachers' perceptions are that as a result of them using the reports their teaching as well as learning improved which lead to an improvement in their school's annual performance in Biology. The ways in which teachers used the examiners' reports point to teachers' perceptions about them and their significance in the teaching and learning process. Furthermore, teaching strategies in class are also illuminated. At the same time teachers' perceptions about their role and the learners' role in the teaching and learning process are evident from the data. Furthermore, the ways in which teachers said they used the reports highlighted their pedagogical content knowledge (PCK) and subject content knowledge (SCK) as discussed in Section 7.3.2. The perceived benefits to teachers and learners as a result of the utilization of Examiners' reports can be grouped into five main areas for teachers and four areas for learners. These are given in a more elaborated form in Textbox 5A.

The perceived benefits for teachers are:

1. Learning how to do proper mark schemes;
2. Increase in their subject knowledge and exposure to new or additional information on certain topics;
3. Learning marking mechanisms and what standard of marking is expected in external marking to which they can compare their marking and adjust it accordingly;
4. Get guidance and recommendations about how to approach and teach certain topics; and
5. They can compare their own understanding of questions and/or subject content using the mark scheme as it gives the acceptable answers to questions.

The perceived benefits for learners are:

1. They will know or be better able to deal with and respond to specific questions having specific action words;
2. They get training on how to avoid common mistakes in answering questions, doing calculations or drawings;
3. Misconceptions in specific topics can be resolved, to give them better subject content knowledge; and
4. They will be better equipped and prepared for their final examinations as all essential and relevant information to answer questions appropriately will be communicated to them.

More than 80% of the teachers concurred that utilization of the reports can lead to an improvement in teaching and learning (see Table 5.2). Their claim is based on the following reasons: there will be real improvement as the learners will know the expectations of what a good answer comprises. Improvement in teaching and learning can clearly be seen when one marks external examinations especially in using the correct terminology and improvement in spelling to name a few. A teacher felt that learners can learn about the detail and depth required in their learning of topics, as well as the answering of questions in general and related to specific

command words. The reports also give guidance on the teaching of certain topics; especially with so many textbooks around having different information teachers are sometimes also not sure what are acceptable or not acceptable.

As explained in section 2.2 the content in Examiners' report includes the final marking scheme that was used during national external marking. In the marking schemes individual marking points are clearly indicated using semicolons to separate them. Furthermore symbols such as A, I and R which indicates answers or candidates responses that were accepted, ignored or rejected is clearly indicated. This information can enable teachers not exposed to external marking to valuable knowledge that can aid their own teaching and marking internal assessments of learners. I am thus of the opinion that a lot can be learned about marking and how to mark at national level when teachers study and use the Examiners' reports. It can teach one to be not too lenient, in this way learners can indirectly benefit as they are prepared for the level of marking at the end of the year. One teacher said that the way in which he marks his internal tests and examinations is influenced by his experience from external marking, it gives his learners an idea of how much they know and their ability and readiness for external examinations.

Usage of biological terminology improved as well as correct usage of language with biological terminology. Seven teachers said more attention can be given to the problem areas to try and eradicate them, leading to an improvement in learning. Using the suggestions and recommendations from the reports ensures that teachers have relevant, up to date information, so can be resourceful and skillful in the subject. The mark schemes provide teachers with a guide on how to teach certain topics, or approach certain topics when teaching methods are changed.

Two teachers felt that learners learn to express themselves correctly when talking about energy and they also learn that it is important to pay attention to the action words in questions as it guides the answering of questions. Learners improve in the graphs and drawings section as certain techniques are required right from the start of teaching. Two teachers said that they made changes or adjusted their lesson preparations as a result of issues raised in the reports. Three teachers said that they realized small mistakes they made in their teaching which they could rectify. Two teachers were of the opinion that they learned where to improve or focus on in their teaching in general. Two teachers said that their results/symbols in the subject improved. Two

teachers said that they changed their teaching and the way they deliver content is different from the way it was before.

T2 said that once he started using the reports he was alerted to the things that learners find problematic. He realized that they did not understand the techniques they were expected to use and demonstrate in answering questions.

T2 revealed that he changed his teaching in the topic on photosynthesis in the syllabus because of what he read in the 2013 reports. He also said that the reports influenced his teaching and understanding of Biology significantly. Referring to the example of photosynthesis he said in the past he only expected his learners to draw the internal structure of the leaf, identify the various parts of the leaf and its functions. He taught his learners about the theory of carbon dioxide getting into the leaf, water getting into the plant etc., but he never showed his learners or expected them to demonstrate their understanding of how the carbon dioxide and water actually gets to a chloroplast so that photosynthesis can take place in the chloroplast. To this end he said

“I then realized that I have not taught my learners everything. I gave them that specific question that was asked in the 2013 question paper as a class activity. As I walked around in class while the learners were busy with that question, I observed that the learners found the question tough and I noticed that they are doing it completely wrong”.

He could thus correct his learners on how the question should have been answered. He also said that *“I realized that I also did not understand how the question should have been answered”*. He said he realized that he was not teaching and sharing with his learners everything expected in the syllabus.

T1 remarked she was first introduced to the Examiners’ reports when she joined her current school and the Grade 12 Examination Head gave her a copy of the Examiners’ report. However, not understanding what an Examiner’s report was and not having seen or used one in the past, she thought that it was just a mark scheme. Her previous school was a village school and she did not know about the existence of Examiners’ reports, yet when she had to take over Biology in the middle of the year as a result of one teacher being transferred to another school, she realized that the school had a file with old question papers and mark schemes which she used to compile the

end of year examination. However, she still did not know or see Examiners' reports in that file. When she joined her current school in 2010 another teacher in the science department alerted her to the Examiners' reports. Her colleague pointed out how useful the reports are for teachers not marking at an external level.

T1 also said when she started teaching she did not take the reports seriously. She thought it was just a mark scheme that can be used when she compiled her internal examinations using old question papers. She however, realized their importance once she got guidance from one of the teachers. For example, she thought she just had to teach from the textbook, but the reports alerted her to refrain from doing that and that to use the syllabus to guide her about what learners are expected to know before they sit for a final examination.

Only an insignificant percentage (2.9%) which represents one teacher was of the opinion that utilization of the reports cannot improve teaching and learning. Two teachers which represent 5.7% were either unsure or gave no response (see Table 5.2). Their reasons in support of their claims were because they hardly get the reports, so they cannot relate any improvement in teaching and learning to the use of Examiners' reports. A teacher said his/her learners are performing worse than before, but there are many factors that contribute to this problem and cannot be necessarily linked to the utilization or not of the reports.

HODs not following up and reports not being discussed in departmental meetings could also be reasons why there is no improvement in teaching or learning. Another teacher felt that because reports arrive late the time frame is too short, so she/he has to rush through the reports. Late arrival of reports also contributes to them not getting time to look at them and as a result they just file them away. Another teacher said he/she is new to the senior grades as he/she was previously teaching Physical Science for junior grades. Another teacher had only 1.5 years' teaching experience as he/she started teaching only in November 2012.

5.2.5 Teachers' perceptions about Examiners' reports leading to improvement in schools' annual performance

The feedback given to teachers and indirectly to learners often report on issues dealt with in previous reports, but also includes new information as questions asked in the different question papers differ from year to year. It can therefore be argued that when teachers study, internalize

and incorporate the feedback in the form of suggestions and advice their schools can show improvement in pass rates annually. Thus, eliciting teachers' perceptions about the significance of Examiners' reports in advancing schools' annual performances in Biology will be very useful as it could provide the evidence and backing needed to sensitize and encourage teachers who are not using the reports currently. Table 5.3 shows teachers' perceptions and experiences about utilization of Examiners' reports leading to an improvement in schools annual performance in Biology.

Table 5.3: Summary of teachers' perceptions about utilization of reports improving schools performance in Biology

Perceptions of teachers	% yes	% no	no comment	additional notes
Whether utilization of reports leads to an annual improvement in a schools performance?	91.4% which represents 32 teachers	2.9% which represents 1 teacher	5.7% which represent 2 teachers gave no comment	the teachers who did not comment were new teachers at the senior secondary level

This response seen in Table 5.3 would be important to sensitize parents and learners if our aim is to get them to embrace using the reports to improve learning. More than 90% of the teachers said utilization of reports can lead to an annual improvement in a schools performance (see Table 5.3). One teacher felt that these reports can help provided that similar questions are asked in the following years question papers. In reaction to this statement' my concern is that the consequence of having similar questions is that teachers/learners can spot topics or questions, which defeats the purpose of learning and testing.

Teachers were of the opinion that the reports are a tool or resource that can aid in teacher professional development leading to better teaching. Two teachers felt that an annual improvement in performance could only be seen if teachers adjust their teaching and act on the recommendations and suggestions given. Mark schemes included in the reports can guide teachers about what understanding and level of knowledge was actually expected from learners.

Three teachers said that it alerts teachers to the level and standard expected from learners. Thus, teachers can aim to get learning up to that standard using the recommendations given or adjust teaching strategies.

Further perceptions from teachers included learners having better subject content knowledge. That is, learners will use biological terminology better and improve their spelling. Four teachers were of the opinion that learners could benefit indirectly as the teacher would learn or become aware of problem areas. Two teachers said that learners can be alerted to what aspects they will get penalized for and coaching learners about things they can correct easily will help not to lose marks.

Nine teachers said that misconceptions learners and sometimes teachers have can be cleared up and eradicated by giving closer attention to the reports. Fourteen teachers were of the opinion that learners and teachers would learn how to correctly answer or respond to command words to ensure they do not lose unnecessary marks or are too vague in their answering and as a consequence actually do not answer the questions in line with the direction expected. Furthermore, learners and teachers could be alerted to the depth and detail expected in answers. Ten teachers felt that there would be a decrease in learners making the same mistakes.

Learners can learn effectively as they could learn the correct way of doing things and expressing themselves, provided they get and are given enough practice in school to reinforce understanding, but this would require that the reports be available as early as possible. T2 confidently said that his learners' performance improved as a result of him using the reports. The first improvement came from changing his teaching methods and secondly he now involves the learners during lessons. This suggests that with every topic he has to teach, he finds activities that can be given to the learners. Secondly, he uses the reports to see what techniques are mentioned in the reports and how to teach the different topics.

T1 had reservations about whether the Examiners' reports led to an improvement in her school's performance. She said it was really difficult to say. She admitted that her using the reports would ensure that she passed on better knowledge and better understanding to her learners. She said that her grade 10 learners are generally doing very well in their external examinations getting A and B symbols, but they struggle with Biology because they fail to master the

mathematics/calculations in Biology. Furthermore, the understanding and application of Biology is another stumbling block for them and said “*I do not know how to help my learners in that regard*”. Learners must be able to understand and apply their biological knowledge as that could improve their performance.

T2 said in his first year of teaching the results were a disaster. For instance, in 2008 his learners did not even get a C symbol, the highest was a D. Since then, however, his results have been improving annually, getting Cs in 2009 and even producing Bs in 2012. He was thus of the opinion that his school’s results improved over the years as a result of him using the Examiners’ reports.

Only one teacher said that there would be no improvement even if teachers used the reports because if learners do not study and take responsibility for their own learning there will be no improvement. Two teachers did not answer this question because they were new in the senior secondary phase having taught at this level for only 1 or 1.5 years.

Examiners’ reports as a mechanism for giving feedback to secondary school Biology teachers and learners are viewed as an important tool in the mediation of Biology, therefore utilization of the reports by all teachers and indirectly learners should be encouraged and initiated. Teachers’ responses to this question addressed research question 4. It could also aid in sensitizing all accounting officers to monitor implementation and utilization of the reports.

Everyone surveyed supported and encouraged teachers to make use of the reports. The teachers felt that one of the benefits was that it would ensure that the application of the syllabus was uniform throughout all schools so that learners are not unnecessarily penalized because teachers interpreted the syllabus differently. The target of the reports is to improve the quality of learners’ answers and hence the quality of the Biology results. Examiners’ reports could also be used to reassess one’s own teaching methods. From the questionnaires some teachers’ perceptions were that the reports are excellent as it provides a good opportunity for teachers to use for their own professional development.

Four teachers felt they could see what was accepted as correct answers, learn from this and check their own understanding. They were also able to reflect on the way they taught and their subject

content knowledge. Four teachers felt that if utilization of the reports was encouraged they would be exposed to new ways of teaching. Six teachers suggested that the reports and the additional subject content information or advice given would improve the level of teaching in Biology. New teachers would be exposed to some of the mechanisms of marking used in national examinations. It could help teachers to improve their experience and knowledge in the subject. The reports are also an important teaching aid.

Learners deserve the best, so to give learners the best; teachers should use the reports to ensure they are fully equipped when they go into the examinations. Reports contain useful information learners can benefit from; they improve the usage of correct biological language, give feedback on learners' subject content knowledge, and teachers can reflect on the biological knowledge past learners had. Five teachers were of the opinion that it gives useful feedback on misconceptions learners had in various topics.

Valuable knowledge is not tapped into or made use of for both teachers and learners in the biological science field if the reports are not used. Many teachers have not yet realized how useful the reports could be. They can help to improve learners' performance by teaching them about the correct way of answering and responding to questions and command words.

Eight teachers felt they could help teachers and learners not to repeat the same mistakes year after year. Fourteen teachers were of the opinion that they could ensure that learners portray the level of understanding and performance expected from them in line with the competencies in the syllabus. Better understanding could improve the pass rate and overall performance in the subject. The learners would benefit as better learning is a consequence and could lead to better performance in the subject.

5.2.6 Division of labour in utilization of Examiners' reports

This section reports on the data gathered with regard to who does what in the utilization of Examiners' reports. The degree of collaboration and team work is reported on by looking at discussions of reports taking place and any other form of support teachers receive in the utilization of the reports. Teachers point to inefficiency in dissemination, but also to the fact that some teachers may not know how to use the reports. Teachers' perceptions about whether

Biology teachers needed support or not in the use of Examiners' reports are reported on in this section. Information was generated for this section to respond to research question 4 where the focus is on ways of improving utilization of the reports. Teachers' perceptions on this issue illuminate ways in which teachers and all stakeholders in education can help to improve the utilization process.

Furthermore, teachers' perceptions make it possible for me to recommend ways in which teachers would like to be supported by schools or regional offices. Table 5.4 summarizes the division of labour at schools with regard to utilization of the reports.

Table 5.4: Division of labour in utilization of Examiners' reports

Perceptions of teachers	% yes	% no	additional notes
Discussion of Examiners' reports	42.9% which represents 15 teachers	57.1% which represents 20 teachers	4 schools had contradictory responses
Support at regional or school level	20% which represents 7 teachers	80% which represents 28 teachers (42.9% or 12 teachers did not give any reasons as to why they do not get support)	participants were not specific whether they were referring to school or regional support
Do Biology teachers need support in utilization of Examiners' reports?	91.4% which represents 32 teachers	8.6% which represents 3 teachers	participants were not always specific about what the benefits of such support could be

Table 5.4 shows that current support is not adequate or almost non-existent. Teachers' perceptions are that all schools should be encouraged to use the reports because of the perceived benefits (see Textbox 5A). Furthermore, almost all teachers (91.4%) are of the opinion that

teachers need to be supported in the utilization of the reports. A relatively high 74.3% of the teachers are of the opinion that they can play a role in improving utilization of the Biology reports.

The perceived benefits highlight what teachers and schools science departments (the community) can do to improve utilization of the reports. The summary in Table 5.4 shows that more than 50% of the participants are not involved in a discussion of the reports despite their perceived benefit. Lower grade teachers, for example, grade 10 and 11 teachers can be part of these discussions and apply relevant new knowledge or skills to the grade and topics they teach. Furthermore, teachers need to know about and to identify problems or problem areas in content knowledge in the lower grades in order to be able to manage and deal with them at an earlier stage. Discussions led to sharing information and can alert teachers to the importance of discussing the reports with their learners. Discussions are especially important for teachers that are not involved in external marking.

Some teachers were of the opinion that through discussions teachers could be helped to improve their teaching skills or be exposed to new ways of teaching certain topics. Discussions could thus potentially alert teachers to the examiners' expectations. Henceforth, clarity on marking and how to allocate marks could be discussed to ensure teachers are marking at the same level as the national level.

The teachers involved in this study also felt that the discussions could allow for talking about mistakes and learning about mistakes to try and improve on them so that performance can improve and schools' ranking in the region could improve. Talking about what the reports say could make teachers alert to the common mistakes learners made in answering questions. It further helps to talk about ways to eradicate the mistakes to benefit the current learners. Teachers said that the discussions could help them to prepare their grade 12 learners better for the examinations.

During discussions, teachers motivate and encourage one another and together they try to tackle the problem areas. Discussions ensure that teachers have recent and relevant information about previous learners' performance as a bench mark for current learners' instruction. Problem areas receive more attention when discussed in groups.

It emerged though that one of the reasons why Examiners' reports are not discussed is because some schools have only one Biology teacher. Teachers said that the fact that the reports are not available at the beginning of the year could also contribute to their not being discussed later on. They added that by the time the reports arrived at their schools, departmental meetings were already over as these meetings normally occur in the first week of a term. Late arrival of the reports contributes to HODs forgetting to discuss the reports.

Teachers felt that finding enough time during subject or departmental meetings is a problem. They were of the opinion that their science departments consisted of Mathematics, Biology and Physical Science teachers making it difficult to discuss the reports in such big groups.

Some teachers felt that perhaps teachers and management do not regard the reports as a vital tool that is why they are not discussed. Two teachers were of the opinion that this question should be responded to by HODs and subject heads saying that "*HODs and subject heads should be the ones answering this question, as we cannot answer it*".

During the interview with T2, he said that his HOD does not have the subject content knowledge because he specialized in Mathematics, thus would not be able to assist him even if he asked for assistance. One teacher felt that it was not necessary to discuss the report at departmental meetings as it is the teachers' responsibility to read and implement it.

In the school where T1 instructs a rotation practice for Life Science and Biology teachers is in place. This approach entails the Grade 10 Life science teacher continuing with the same group of learners in Grades 11 and 12. There are advantages to this approach, but there are also disadvantages which will be discussed in Section 6.3.

With regard to teachers perceptions about support at the regional or school level teachers in this study revealed that they are overloaded and that the national documents sent to their schools are just adding to their teaching load and are often a source of frustration to them as they do not have the time to read through such documents.

The majority of the participants in this study believes or is of the opinion that they are not getting support in the utilization of the Examiners' reports. The few that do get support said that they had a workshop at the beginning of the year to talk about the Examiners' reports. At some

schools the teachers advised one another to make use of the reports. The subject head of one school does an annual analysis of the results which helped.

One teacher mentioned that the one subject advisor for Biology stationed at the Khomas Regional Office encouraged the teachers at their school to use the reports to identify issues that need to be attended to in class. One teacher was of the opinion that support from the regional office does not really exist the only exception being that the regional office sends out the reports, thus ensuring that schools and teachers have access to them. This teacher added that if their school requested advice and assistance when they needed it, the regional office might provide it.

When I interviewed T1 and T2, they were both of the opinion that functioning clusters are useful because they provide platforms where teachers can meet to share problems, discuss issues about Biology and get assistance. For instance, T1 revealed that even though the clusters in the Erongo Region were functioning, she could not remember whether they actually discussed Examiners' reports.

T2 said that the reason why no support is given at his school is because the HOD responsible for Grade 12 examinations just hands out the reports and regards his/her responsibility as over. This also emerged from the questionnaires from those teachers who believe that once the HODs disseminate the reports they regard their task as completed. Teachers were of the opinion that no support was given because support was not requested. Teachers are aware that the Regional Office where the subject advisors and inspectors of Education are stationed can be approached for any subject specific or educational related requests and needs, yet it appears from the data gathered from the questionnaires that the majority of the teachers do not make use of the resourceful personnel at the Regional Office.

Teachers were of the opinion that when subject advisors do visit schools they are so pre-occupied with checking other things that there is little time left over for other issues. Maybe limited time is a factor for them not attending to Examiners' reports or support related to the reports. Some teachers felt that there are no workshops organized and administered by the region so teachers never interact with the subject advisors. These teachers are unaware of who their subject advisor is. A teacher suggested that maybe the regional office feels support to schools/biology teachers is not needed. A teacher from a private school felt that their staff in the

science department is small and that the fact that they are a private school could possibly be the reason why they get no support from the regional office.

The majority of the teachers felt that teachers need support especially new teachers as well as teachers who are not involved in external marking. T1 and T2 initially said they do not need support, but later on recommended that teachers be supported which contradicted what they initially said (see Appendix X and Y, interview transcripts 1 and 2).

T2's interview revealed that he complained to his HOD about the fact that he was never appointed as a marker at national level, yet he feels that he needs to go for marking to be exposed to the techniques markers pick up as a result of their engagement in the national marking. However, he admitted that many of reasons as to why he should be allowed to go for external marking are actually explained and covered in the Examiners' reports. He actually said "*the things are all there in the reports, yet teachers do not use them*". With this statement he also included himself as being guilty of not always using the available resources and tools. Some of the perceived benefits of providing teacher support are given in Textbox 5B.

Textbox 5B: Perceived benefits through providing support in utilization of reports

- can assist teachers with current common mistakes in areas where there is no improvement with so that they will be able to help their learners overcome these mistakes;
- can make interpretation of the report easier and teachers will be told how to use the reports effectively;
- can ensure that subject teachers will know how to include the ideas from the examiners and how to help their learners;
- to come up with a plan of actions to correct mistakes and improve performance;
- new teachers and teachers who are not markers can be trained and inducted on the use of Examiners' reports;
- discussing reports at workshops allows room for questions to be asked and answered about the latest reports;
- discussions about how marking was done will be helpful to new and old teachers;
- a workshop can be organized to tackle the topics and problems as this can often be an indication of a specific area where teachers might be lacking information;
- teachers can be guided, so that the teaching of Biological concepts and the level of teaching improves;
- teachers subject content knowledge can be improved through discussions and ironing out uncertainties;
- in supporting teachers, discussions are necessary as some advice is directly for the teachers, and teachers should know how to implement the advice so that results can improve;
- discussions are necessary so that recommendations given in the report can be fully understood by all;
- it will help in making all teachers aware of the existence of Examiners' reports; it will encourage discussions on specific topics which is a good platform to eliminate any uncertainties;
- teachers can be motivated and encouraged to read the report and use it in their teaching, implementing the suggestions and recommendations given;
- supporting teachers in utilization of the reports can help teachers to instruct learners on how to answer questions using specific command words;
- to assist teachers to try to set the more difficult, higher level of thinking questions instead of just the knowledge level questions;
- discussions will ensure all teachers are aware of the general and common mistakes learners made and misinterpretations learners have;
- discussions on the reports can aid in teachers understanding the value and importance of the reports and how to use them as a teaching aid

Responses to the questionnaires revealed that there were a few teachers who felt there was no need to support teachers in the utilization of the reports as they have many years of marking and teaching experience. Furthermore, they were of the opinion that it should be expected from teachers teaching at Grade 11 and 12 levels to know how to use the reports and how to

implement them as they are supposed to be subject experts. Teachers should therefore be able to understand and interpret the discussions given in the reports without any assistance.

5.2.7 Teachers' perceptions about how and what role or not Biology teachers can play in improving the utilization of Examiners' reports

The information collected on this question enabled me to address research question 4. This question's aim was to put the onus onto teachers as active agents in the teaching and learning process to recommend ways in which utilization can be improved in their own schools, but also in other schools for the benefit of all Biology learners in the country.

Not all teachers commented on this question, however, a fairly large percentage of 74.3% which represents 26 teachers were of the opinion that Biology teachers can play a role in improving utilization by going through the reports with the learners. They should also allow learners access to the reports. The reports were valid from Grade 11 onwards as well as for other subjects like Life Science as additional resources for professional development and developing content in biological knowledge.

Five teachers were of the opinion that if the reports are given to teachers when doing lesson preparations, utilization of the reports would increase. Five teachers felt that if teachers use Examiners' reports to revise old question papers with learners or doing revision in the third term with Grade 12 learners teachers would increase their utilization. Four teachers were of the opinion that the reports could be used when setting internal tests and question papers to get marking schemes and deal with aspects that the reports stress need more attention.

Marking schemes in reports could be used to coach learners on expected responses and how to answer correctly according to questions asked and command words in the questions. Teachers could use specific questions from previous year's examination papers as homework or assignments and follow it up with discussions in class. This would be an opportunity to address specific issues mentioned in the reports.

Ten teachers felt that efforts must be made to read the reports, work through them even if they arrive late and implement the recommendations. One teacher was of the opinion that the effective use of the reports depends by and large on a teacher's own circumstances.

So, teachers in the field or cluster schools must be encouraged to come together to discuss the reports. Discussions amongst teachers at individual schools are also necessary.

Four teachers said copies of the reports could be provided to the learners, but it must be discussed with them so that they themselves can see the mistakes previous learners made and what other learners experienced as problems.

Schools and or teacher(s) must seek assistance from the regional office, subject advisors if needed to ensure the reports are effectively used. Subject Heads should encourage all teachers sharing the subject to use the reports. HODs should ensure all teachers get the necessary reports and they must also follow up utilization through class visits.

T2 is of the opinion that teachers are not fully utilizing the Examiners' reports because they are either not aware of the importance of the reports and have not realized how the reports can help their learners answer better in the examinations.

5.3 Concluding remarks

Reflecting on one's teaching is necessary to drive change in the way we do things. When teachers take time to reflect on how they teach Biology they may be able to recognize shortcomings through feedback given in the reports to grow in their SCK as well as PCK. The type of feedback given in Examiners' reports can help teachers to adequately prepare and equip learners before they sit for final examinations. Improvements in pass rate are thus possible when feedback is internalized and teaching and learning becomes a collective effort from both teachers and learners.

It emerged from the teachers responses during the interviews as well as from some questionnaires that teachers do not use the Examiners' reports optimally. However, the ineffective utilization could partly also be attributed to the lack of dissemination at school level. Teachers were of the opinion that the reports arrive too late so they do not having adequate time to share the content of the reports with the learners. The teachers' perceptions are that urgent intervention in the dissemination procedure and practice be initiated at the regional and head office level. Recommendations to address the inefficiency will be made in Section 7.3.

Teachers concurred that using the reports can lead to an improvement in teaching, learning and consequently performance. What emerged is that teachers and especially new teachers, and teachers who are not exposed to external marking, need support in the utilization of the reports. Furthermore, teachers need support in enabling them to master the skill of targeting higher order and application based questions, and the ability to assist their learners in mastering how to respond to such questions. Teachers need to be supported in ways they can help their learners to bridge that gap. Recommendations to address this concern will be made in Section 7.3.

In the next chapter, I will use CHAT as the analytical framework, focusing on three key features of activity theory. The first feature is to construct meaning from the situation (thus trying to understand the situation). The second feature relates to what can be learnt from those meanings as a result of what was drawn out from meanings. The third feature involves responding to the meanings as a result of what was learned to the benefit of all part of the activity system.

Chapter 6

Data interpretation and discussion of findings

6.1 Introduction

The main aim of this study was to investigate Grade 12 Biology teachers' perceptions and experiences of the dissemination and utilization of Examiners' reports in the Khomas region. Chapters 4 and 5 presented data on teachers' perceptions and experiences on dissemination and utilization of the report. In this chapter I interpret and discuss the findings that emerged from the study using second generation CHAT as analytical lenses.

The following research questions guided this study:

1. How do Grade 12 Biology teachers perceive and experience the dissemination of Examiners' reports at their schools?
2. How do Grade 12 Biology teachers utilize Examiners' reports in their schools?
3. In what ways can Grade 12 Biology teachers improve the dissemination of Examiners' reports at their schools?
4. In what ways can Grade 12 Biology teachers improve the utilization of Examiners' reports?

Two activity systems were constructed around the hypothetically taken objects, namely, dissemination and utilization of Examiners' reports. Nine analytical statements were drafted to interpret and discuss the data generated. The interpretation and discussion of the different components of the two activity systems were done in two parts: dissemination and utilization of reports respectively. These were aligned and discussed under the analytical statements. The section that follows outlines the analytical framework used and how the research questions were reinterpreted to aid discussions.

6.2 An overview on CHAT as the framework in the context of this study

As highlighted above and in chapters 1 and 2, the information obtained through the questionnaires and interviews was combined, interpreted and discussed using CHAT as the

framework. The unit of analysis in activity theory in an activity system is the activity, that is, what happens in the system. Hardman (2005) defines an activity system as a community or a group of people that use artifacts acting on an object with the purpose of transforming it as a result of the common object or problem space the group shares. Within the group of people (community), division of labour and rules drive the activity as these can either constrain or afford action.

I thus used activity theory as a framework to understand teachers' perceptions and experiences of how they disseminate and use Examiners' reports to mediate the teaching and learning of Biology. Using activity theory in this research illuminated contradictions and disturbances in why things are done and the way in which things are currently done. I argue that these contradictions can serve as potential springboards for learning, innovation and development.

My assumption that underlies my analysis in parts 1 and 2 is that emerging technology, change in our actions and embracing new ways of acting, can drive change in activity systems at a schools' operational level, challenging the current operations with regard to dissemination and utilization of Examiners' reports. My personal experience as a teacher prompted me to believe that teachers' approach to the Examiners' reports would be influenced by their perceptions and beliefs about it. Hardman (2005) is of the same opinion that teachers' perceptions about computers, for instance, will have an impact on how teachers will use them as tools in the teaching and learning process. It is in light of what Hardman (2005) stated that I believe that teachers' perceptions and experiences about Examiners' reports may impact the dissemination thereof as well as how they use /or not use them as a teaching and learning tool. The extent to which Examiners' reports can affect teaching and learning and impact positively on it, depends on how teachers disseminate and use the Examiners' reports as an artifact in mediating Biology. In my analysis I focused on the role each component of the activity system plays in shaping activity.

The reliability of the analysis can be ensured by analyzing the data using the categories from activity theory (Hardman, 2005). The questionnaires and interviews focused primarily on eliciting teachers' (subjects) understanding of the objects (dissemination and utilization of Examiners' reports) in the activity system they are part of. The underlying reason for using

CHAT as the analytical framework is because it assisted me in bringing to light contradictions in the way things are currently done with regard to the dissemination and utilization of Examiners' reports at school level. As this chapter's focus is on interpreting and discussing the data, Figures 6.1 and 6.2 project how research questions 1 and 2 are reinterpreted to align it to my analytical framework CHAT. Contradictions that surfaced in the activity system paved the way for change in the different activity systems which responded to research questions 3 and 4.

6.3 Part 1: Dissemination of Examiners' reports analyzed using CHAT

An activity system was constructed around the hypothetically taken object dissemination of the Examiners' reports. The analysis thus mainly focused on research questions 1 and 3. Biology teachers (subjects) must act on dissemination of reports (object) to change it using the technological environment (artifacts) to get to the desired goal of an improved pass rate in Biology. The teachers and learners (subjects) position and actions will be influenced by the rules governing the school (activity system). The rules can either be specific or general with regard to control and administration of electronic media, physical facilities and the school finances.

The community includes all people in the context of this study (all teachers in the science department, biology learners, the teachers responsible for duplicating at school, the grade 12 examination head and the principal), who all work on the dissemination of the reports, the object. Everyone in the community though shares the object (dissemination of the reports); they act differently on it due to the different roles they play in the system. The different roles each member of the community plays means the division of labour will be different, with the teacher and school management providing the interaction and the learners engaging in their environment.

I reinterpreted research question 1 aligning it to CHAT as my analytical framework. Fig. 6.1 below shows how research question 1 was reinterpreted using CHAT as the analytical framework. In view of research questions 1 and 3, four analytical statements were drafted using inductive analysis of the data. The data gathered was thus interpreted and discussed under these four analytical statements using the components of the activity system constructed. The interpretation and discussion of the different components took on the format of starting off by reflecting on current practices, then pointing out tensions or contradictions and ending with

teachers' perceptions of what should happen. The last part responds to research question 3 which deals with what teachers can do to improve the dissemination of the Examiners' reports.

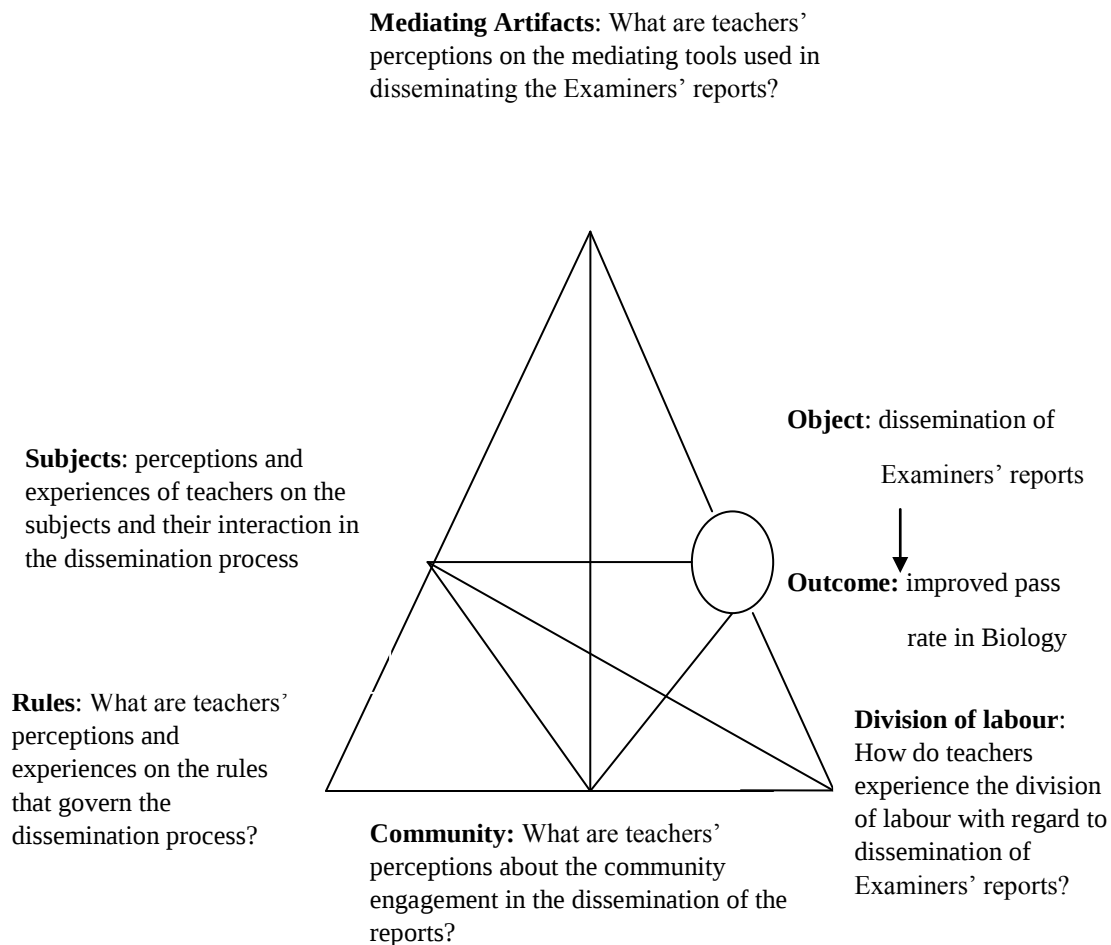


Figure 6.1: Activity System with dissemination of Examiners' reports as the object

Analytical Statement 1:

Dissemination of Biology Examiners' reports at school level must improve and it can be achieved by sensitizing schools and teachers about the reports

According to Kagaba (2005), Examiners' reports are artifacts instituted to reach teachers and learners to improve teaching and learning. Literature has shown that Examiners' reports have

the potential to be invaluable tools in the mediation process because of the feedback they give that enables reflection by the users and can drive self-regulated learning (see Section 2.4).

Yet, graph 4.1 in section 4.2.2, shows that between 22.4 and 18.4% of the teachers are not getting the reports. This state of affairs has a ripple effect as it means that some Namibian learners are taught by teachers that do not have access to the reports and are thus not exposed to the feedback on biological concepts and ineffective learning given in the reports. This state of affairs contradicts a very important goal of equity in education as stated in Namibia's *Toward education for all* mission. The reasons why some teachers are not receiving the reports are presented in Textbox 4A in section 4.2.2. This highlights a primary contradiction within the subjects in the activity system in that when teachers do not get the reports they cannot disseminate them to their learners or share the content of the reports with their learners. This impacts negatively on teaching and learning.

The need to sensitize schools and teachers about Examiners' reports also highlighted contradictions within the subjects that affect dissemination and ultimately utilization. This is evident in T1 who revealed that she joined the teaching profession six years ago, she was only introduced or exposed to Examiners' reports three years later (see Appendix X, interview transcript 1). This trend emerged from teachers' responses to the questionnaires. Evidence of some teachers teaching Biology, yet not receiving Examiners' reports for Biology is summarized in Textbox 4A. This evidence points to a contradiction within the subjects' component of the activity system. Inefficiency in dissemination appear to be a recurring problem as mentioned in section 1.2.2 that teachers in 2013 reported that they did not receive CASS manuals despite the fact that these manuals were distributed to all schools in 2010. The contradiction mentioned earlier on is evident between the community made up by all people in the context of this study (the principal, the Grade 12 examination head, HODs, Biology and science teachers (and learners) and the teachers responsible for duplication at school) in the activity system. The MoE through the DNEA produced and disseminated Examiners' reports with the aim to improve teaching and learning, yet some teachers do not receive them.

T2 revealed in the interview that he knew about and received Examiners' reports, yet he did not receive the reports for the 2011 examinations, but did not make an effort to follow up on why he

did not get the reports. This points to a lack of agency on the teacher's side and highlights a contradiction that surfaced between the members of the community that makes up the activity system. Within a school community there is division of labour and all members play a different role, in this context it is the dissemination of the Examiners' reports. When teachers do not follow up on Examiners' reports, irrespective of reasons (see Appendix Y, interview transcript 2) it reflects on the work environment, work relationships and possibly team work within that school community. Smith (2003) posits that teachers must take part and contribute in a community of practice according to Lave and Wenger (1991) if they want to enhance and strengthen their own learning. This has significant implications for my argument that teachers can learn and change their current practices if they receive and utilize the Examiners' reports. Thus, teachers lacking agency in ensuring that they do get the Examiners' reports furthermore, causes one to wonder about what value, importance or significance teachers assign to the reports as a mediational tool.

Kagaba (2005) posits that instruction and assessment are two of the three pillars education systems are built on (see Section 1.2.3). He continues to say that all activities and achievements in any education system must be evaluated, monitored, measured and assessed so that feedback on the quality of education can be given to all stakeholders in education. This suggests that teachers as the mediators in classrooms must get some form of feedback on how well their learners are learning, learners' weaknesses, how well they are teaching, what they are doing well and what aspects need to be improved on. It is thus essential that teachers demand some form of feedback, and if they do not get feedback become concerned, take the lead by following up why they did not get any feedback.

Another component within the activity system, the rule component, states that schools receive two hard copies of the reports. The Khomas regional's office receives Examiners' reports from the Head office, DNEA to be distributed to all schools in the region. As with any national document, schools have to duplicate and disseminate these reports to all respective subject teachers. Schools are further expected to have systems in place to keep back-up copies as teaching resources at their schools. Some teachers not receiving the reports thus highlighted another inconsistency in two different components in the activity system constructed.

Examiners' reports are official documents instituted along with the introduction of the CIE examination system in senior secondary education in Namibia. The aim of these reports is to provide feedback to teachers, learners and all stakeholders in education about assessment done at a national level (see Section 1.2.3) which suggests that all teachers should get them and use them in teaching. However, if teachers do not get the reports as a result of inefficient dissemination many Namibian learners are disadvantaged and disempowered due to the fact that they lose out on valuable information and feedback that can direct their learning and drive them to be active participants in the teaching and learning process. This is supported by Nicol and Marfarlane-Dick (2006) who are of the opinion that feedback must enable learners to take control over their own learning when they take responsibility for their own learning (see Section 1.2.3). This requires that teachers must initiate ways that will ensure learners can share the responsibility for learning (Nicol, n.d.); however teachers would not be able to carry out this mandate and responsibility if they do not get the reports.

Examiners' report can be a useful tool for new teachers as it can direct and enlighten teachers about the acceptable standard of questions and acceptable answers. Furthermore, studying the reports can enable teachers to pick up valuable marking mechanisms which they can apply in their own internal marking at school. The marking mechanism has the added advantage of providing learners with a small degree of feedback about the quality of their answers for example using symbols I or R will indicate to learners that a specific answer or part of the answer was not necessary to score a point when it is marked with an I or can indicate when a part of an answer was incorrect when it is marked with a R, which means the answer was rejected.

The first tension that emerged was the fact that not all Biology teachers do receive the reports. Teachers and more specifically HODs managing bigger government schools are of the opinion that the two copies schools receive are not enough and ensuring duplication of the reports is done is adding to their administrative responsibilities which are already heavy. Furthermore, the limited number of copies together with their teaching and administrative loads delays getting the reports to teachers as soon as possible. This highlights tension between a rule and the object of dissemination of the report. Recommendations for alternative ways of disseminating the reports such as capitalizing on innovation in technology are made in Section 7.3 to improve dissemination and address current problems and concerns teachers' experience.

Analytical Statement 2:

More robust subject orientation and induction is needed at schools for new teachers

In this section I explore the interaction between teachers and learners in distributing the reports and whether it is collaborative or not. The teachers that receive a hard copy of either ordinary level and or higher level reports indicated a high 85.7% utilization. According to Kagaba (2005), to develop learners knowledge is essential for learning and the feedback learners receive drives and directs their learning (see Section 2.5). Black and Williams (2001) are supported by McTighe and Conner (2005) by saying that feedback can allow self-regulation and adjustment by learners which is good to move learners towards taking responsibility for their own learning and make learning more personal.

I am of the opinion that the reasons for some of the teachers not getting the reports can be linked to no induction or inadequate orientation of new teachers at schools. An example taken from the questionnaires (see Textbox 4A) would be that the teacher did not receive the reports for the 2010 and 2011 examinations despite the fact that he/she joined the school in 2010. Another example that supports my statement is what transpired during the interview with T1 (see Appendix X, interview transcript 1). From this interview it was evident that teachers may have different ideas and understandings of Examiners' reports and mark schemes. It appears as if teachers value mark schemes more than the feedback given in the reports which is inclusive of the expected answers. This was also evident in the suggestion for improvements or changes in the reports some teachers gave "*have two separate documents, one for mark scheme and one for comments*" (see Section 5.2.2). Teachers need to see the bigger picture as it is not about the "right answer" instead effective teaching and learning is shown in understanding and learners' ability to apply their knowledge to new situations. Teachers as mediators should help learners' cognitive development by using feedback given in mediational tools (Vygotsky, 1978) such as the reports to reflect on their own teaching and understanding of Biology and adjust it accordingly in the interest of the learners.

Teachers currently do not copy or provide hard copies of the reports to their learners so learners are not physically interacting with the reports. Teachers thus currently aid in disseminating reports to their learners when they share the information contained in the reports with them.

Section 5.2.3 Textbox 5A summarizes the different ways in which teachers use the reports to help learners' bridge the gaps in their understanding of biological concepts that are problematic or the use of English to express biology subject content. Teachers must help in the meaning making process in social settings such as classrooms to aid cognitive development in learners. This process of meaning making can be enhanced if teachers and learners use tools such as Examiners' reports that provide feedback for the purpose of improving teaching and learning. Teachers internalizing the feedback from the reports can thus assist their learners to develop the necessary skills and mastery of biology subject content knowledge in a collaborative teaching process. For learners to demonstrate good subject content knowledge they should be able to explain how the facts they learned about a certain concept fit into a general picture. This means they must have knowledge with understanding and always keep the overall picture in mind in their explanations. I argue that teachers can help learners to do what is expected of them by ensuring that they do not just teach factual knowledge but help them to learn with understanding. This is in line with what Shulman (1986) posits about subject content knowledge which encompasses all the biological knowledge as well as the way in which teachers shape and consolidate this knowledge to be able to pass it on to learners at their level of understanding and development.

Teachers' discussing the content of the reports with learners indirectly aids in the dissemination of the reports. However, this practice is currently only done by some teachers considering the fact that some Biology teachers are not getting the reports.

Tudge (1990) refers to the providing of reports to learners to use on their own as impersonal feedback. He is of the opinion that this impersonal feedback can be as effective as giving personal feedback and assistance to support learners' development within their Zone of Proximal Development (ZPD) (Thompson, 2013). This implies a more knowledgeable person can help learners to bridge the gap from what they can understand and do on their own to what they would be able to understand and do with assistance. Thus, when learners focus on the comments and feedback given in reports regarding a specific aspect in a biological concept they struggled with, they would be able to get over that hurdle or stumbling block by applying the advice given in the reports. If the report is used as described, it can aid a learner to master knowledge at a higher level which they were previously unable to master.

However, teachers' perceptions of their learners' work ethics, motivation and abilities impact their actions and beliefs about passing along the reports to their learners. T1 was of the opinion that the learners will not use the reports. She said many would file them away with only a small percentage effectively using them. Teachers' perceptions and beliefs about their learners impact the teaching and learning process as is supported by Sirota (2009) and recommendations will be made in Chapter 7 to address this issue.

Analytical Statement 3:

The time the Examiners' reports arrive at school impacts utilization and teachers' efforts to use them

Graph 4.3 shows the time the Examiners reports are available to teachers. The majority of the teachers were of the opinion that the reports arrive too late. This fact was supported by the data gathered from the questionnaires and interviews conducted. Textbox 4B (see Section 4.2.3) show that teachers felt that "the reports are ineffective if it gets into teachers hands too late as teachers have to rush through the reports". T1 and T2 expressed similar sentiments. T2 specifically said that the reports should be at school when the school year starts because that is when teaching starts. Taking time as a rule in the curriculum process especially with regards to final examination, this then becomes a secondary contradiction between the rule and the object of dissemination of the report. Thus, if teachers are to use the feedback and suggestions in their teaching they have to get the reports early in the year (see Appendix X and Y, interview transcripts 1 and 2). T1 felt that if the reports were at schools before their internal examinations start she could use the questions and accompanying mark schemes in her schools internal examinations (see Appendix X, interview transcript 1).

Literature on feedback highlights the importance of the timing of feedback as feedback is specifically aimed at correcting errors so this is crucial if it is going to be relevant to a learner. This important aspect around feedback is supported by Muhaya (2005) who states that the timing of giving feedback is important as when feedback is delayed, and learners have already moved on to new work, they ignore the feedback as it becomes irrelevant to them (see Section 2.4). Black and Williams (2001) and McTighe and Conner (2005) are also of the opinion that feedback can aid learning and allow self-regulation, a process in the cognitive development

process of humans that is very important in Vygotsky's (1979) work when it is specific, timely and understood by the receiver. Teachers' perceptions and what literature reveals require urgent intervention to change the way in which the dissemination of Examiners' reports is currently done.

The dissemination of the Examiners' reports involve the head office as well as the regional office which includes two activity systems beyond the scope of this study, so recommendations pertaining to improving dissemination in general will be made in Section 7.3. This finding illuminates that reports are possibly produced too late, and consequently arrive in schools too late to be useful.

Analytical Statement 4:

Division of labour, accountability of all in the school community and using electronic means to disseminate Examiners' reports can improve dissemination

It emerged from this study that schools receive two hard copies of the Examiners' reports, with ordinary level and higher level bounded separately. Principals, examination heads and HODs are primarily involved in the dissemination process. Teachers are only involved in dissemination once they receive them from their respective HODs (see Section 4.2.4). Teachers are thus not involved in duplicating the reports and it emerged that teachers do not have access to photocopiers and duplicating machines as access to these machines is restricted (see Section 4.2.4) and this surfaced as a tension as teachers may want to copy the reports or parts of the reports for their learners but are restricted from doing so and must follow the procedures in place to get duplication work done. The task and responsibility of duplication is assigned to only certain people as there is division of labour at schools. The intention of division of labour is to ensure the smooth running of schools; however, the restriction may have the opposite effect which illuminates a contraction between different components of the activity system as these delay the teachers getting the reports (see Section 4.2.4) and this is pointing to a secondary contradiction in the activity system as teachers are restricted by the actions of others in the system.

Smith (2003) alerts us to the importance of communities of practice, a pertinent concept operating in schools with teachers being part of the community. He posits that the community of teachers' practices influence development within an organization or a community. This suggests that schools should revise current rules around duplication and instead educate teachers about economic and careful use of costly resources to keeping running cost to the minimum to ensure that duplication can be open to all teachers at all times. Recommendations in this regard will be made in Chapter 7.

HODs would like to see that more copies of the reports are provided to the schools as they believe it can influence their schools' performance (see Section 4.2.3, Textbox 4B). This belief that HODs and teachers hold is supported by Muhaya (2005) who posits that the type of feedback schools/teachers get influences the teachers'/schools' performance (see Section 2.3). HODs suggested that it would have been better if at least two copies per department in the school were provided by the DNEA or the regional office. Furthermore, examination heads would like to receive one copy that is separated and bounded per individual subject to help to speed up the dissemination process.

Another dilemma is that teachers are currently not aware when the reports arrive at their schools as they rely on their HODs or subject heads to inform them that reports have arrived. So, teachers would like to be informed when reports have been distributed from head or regional offices so that they could have an idea when to expect them at school and will hence know when to follow up on their availability with their HODs. Most teachers were of the opinion that at their schools there is team work and cooperation, yet in my opinion it is debatable as Table 4.8 showed that very little discussion about reports is taking place even in schools where rotation between Life Science and Biology teachers is a common practice.

Table 4.1 shows that in Alpha and Beta, which are two neighboring schools, the teachers received the reports in May and April respectively, yet these schools are about 500 m apart. Two teachers from neighboring schools receiving the reports in the second and first term respectively clearly highlights that there are inefficiencies at individual schools which illuminate a contradiction in the activity system.

This illuminates another contradiction in the activity system as teachers and HODs are part of the school community and should work together and support one another in the interest of the learners. According to Lave and Wenger (1991), teachers at schools form a community of practice as a result of the common activities of teaching and learning they are engaged in. These activities should give them a sense of identity, belonging together and working together. All teachers in for example the science department must share this identity to function optimally. They must realize as a group they share responsibilities and their focus should be to work together collectively and take responsibility for everything to reach the one goal of enhancing and mastery of learning in their learners. To accomplish this shared responsibility, cooperation is of utmost importance as cooperation is what binds them together and simultaneously develops and nourishes relationships. Teachers are not taking responsibility for their own learning and personal growth when they do not abide by the rules of following up on the availability of the reports ensuring that they get hold of them, and this is illuminated in the data collected and is another tension surfacing in the activity system.

Additionally, teachers would like to receive the reports as electronic copies as a way of ensuring that the reports get to the schools and therefore the learners earlier. The support for this argument being that most learners are connected to face book or have cellular phones which they can use to access the reports or pass them on to one another.

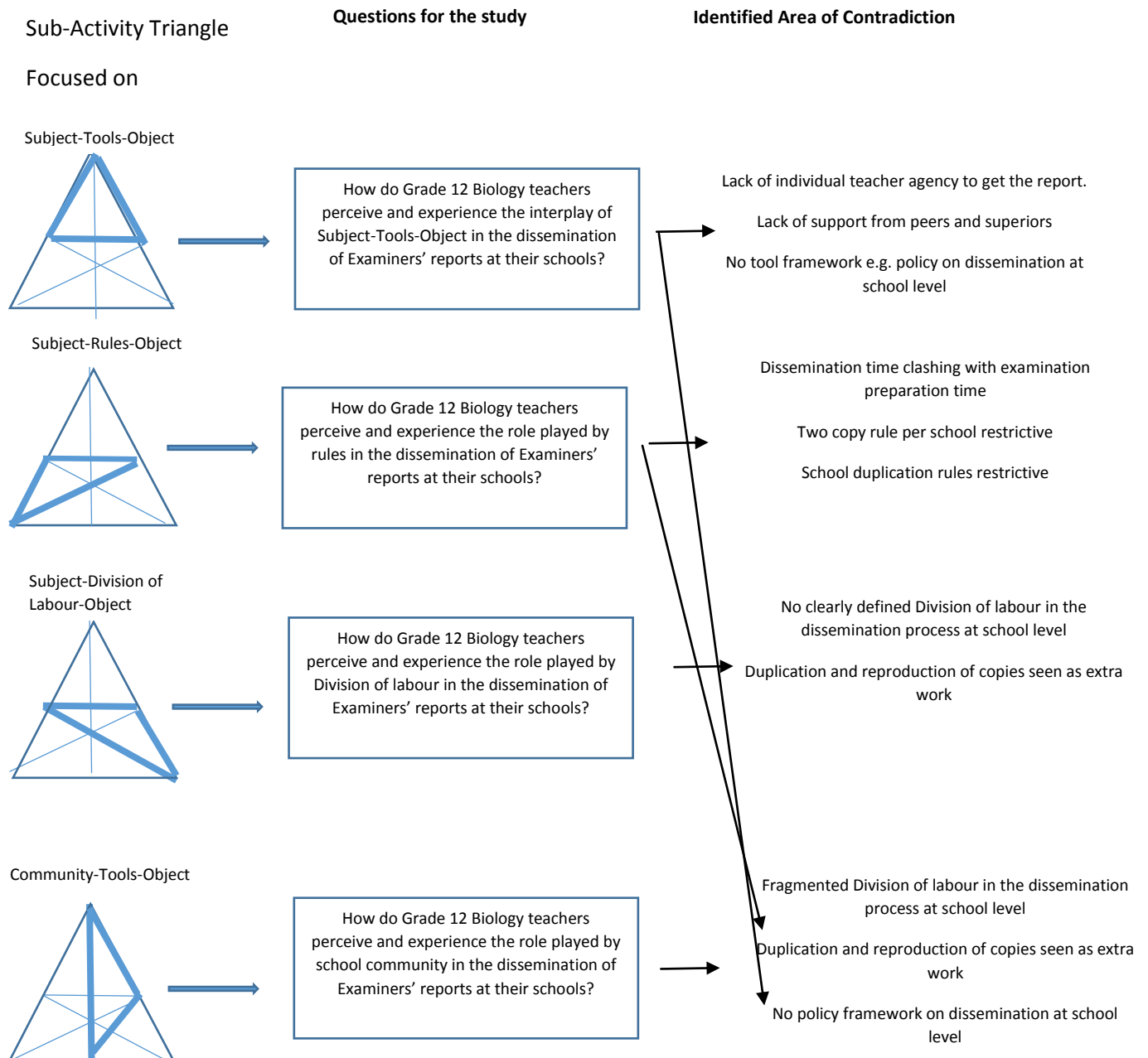
As seen in Section 4.2.5, Textbox 4C, 65% of the teachers gave valuable suggestions about how technology could be used as part a community of practice to strengthen the learning process. To this end, teachers' perceptions were that dissemination at schools could be improved at school level through discussing the reports especially when there is more than one Biology teacher at school. HODs should be responsible for initiating these discussions when reports are disseminated. According to Kind (2009) limited subject knowledge either on the side of HODs or subject heads impacts teaching and consequently the learning that can result, therefore subject advisors must be called in for assistance when the need arises.

In cases where the HOD has limited subject knowledge, Kind (2009) posits that a teacher or in this case a HODs qualifications in a subject, in for example, Physical Science or Mathematics is no guarantee that that teachers will be able to teach that subject or another science subject such

as Biology well or will be able to give appropriate advice on matters in Biology. Having subject content knowledge is not enough to ensure learners learn effectively. Teachers must also have effective teaching skills (Kind, 2009). The importance of teachers having pedagogical content knowledge (PCK) which Shulman (1986) refer to as “subject matter knowledge for teaching” is important to ensure teachers adequately and efficiently pass on subject content to learners (Shulman, 1986, p. 9). This highlights the importance of communities of practice which according to Lave and Wenger (1991) need to be established in subject specific fields where the more experienced and knowledgeable teachers could assist the novice and less experienced ones. Recommendations in this regard which include reviving school cluster systems and having regional workshops to discuss the reports are made in Chapter 7.

As a conclusion to this discussion, I provide below a pictorial view of the disturbances with the regards to the dissemination of the report as perceived and experienced by teachers. The pictorial view is a summary of contradictions in the dissemination activity system using the Sub-Activity Triangle Analysis. Teachers who participated in this study raised significant positive things that they perceive as going well in the dissemination of the report. Nevertheless, it is my hope that concentrating on contradictions will assist in improving the way the Examiners’ reports are disseminated in the country.

Summary: Sub-Activity Triangle Analysis of Contradictions in the Dissemination of the Examiners' Reports



6.4 Part 2: Utilization of Examiners' reports contextualized using CHAT

In constructing the activity system, the utilization of Examiners' reports was hypothetically taken as the object. This section further consolidates the discussion on research questions 2 and 4. I interpret and discuss utilization of Examiners' reports which is part of a complex system (classroom/school/activity system) at a minor level, depicting current practices with regard to teachers' and learners' engagement or lack thereof with the reports. Contradictions that surface will be highlighted as these will pave the way for change in practices which address research question 4.

All teachers and learners (subjects) must act on the utilization of Examiners' reports (object) to change the object using the Examiners' report (mediating artifacts) to drive effective and appropriate mediation and self-directed (self-regulated) learning to get improved pass rates in Biology as the outcome. Vygotsky (1978) posits that tools or artifacts whether physical or symbolic mediate activity and are necessary for cognitive development in humans. Lantolf and Thorne (2007) supports Vygotsky's (1978) theory on cognitive development and mediation of learning saying that self-regulated learning is only possible once learners internalize subject content. The mediating artifact (Examiners' reports), itself cannot improve teaching and learning, it is how they are used that can affect teaching and learning (Hardman, 2005). Thus, the more effective learning and the improvement in pass rate in Biology cannot be attributed to the physical reports itself, but it is the process of internalizing the feedback, comments and suggestions given in the reports by teachers and learners and changing the way in which work is done that will make the difference.

Teachers and learners (subjects) actions, utilization and attitudes will however be influenced by general or specific rules that are associated with the mediational artifact, Examiners' reports in the context of this study. All teachers directly involved in Biology and the learners form the community and they all act on utilization of the reports, the object. Even though, the community shares the object they will act differently on it as they have different roles to play.

Teachers as mediators must use appropriate tools during mediation to develop cognitive processes in learners as mediation is needed for learners' cognitive development. This cognitive development can be achieved through changing the learners' environment and by guiding and

initiating interactions with the object, in this context, utilization of Examiners' reports. The driving force for using Examiners' reports is to ensure that learners will take the initiative for their own as well as peer learning using the reports to reach the outcome of an improvement in the pass rate in Biology. All the learners taking Biology at a specific school according to Lave and Wenger (1991) form a community of practice and can influence each other's learning. Mediation of learning done by a more knowledgeable person which in some cases can be teachers as well as some of the more advanced learners is important to direct learners thinking and learning to facilitate more effective learning according to Vygotsky (1978) and it complements scaffolding.

However, the focus of this study was on the process of dissemination and utilization of Examiners' reports within the school as an activity system. Herein lies the importance of CHAT in this study as proposed by Engeström (2001). Activity theory is useful because it helps one to understand the system as a whole, for example, how artifacts such as Examiners' reports can impact teaching and learning and opening the ZPD in learning environments. One will thus be able to understand the process of change within a system, for example, in this research a school in general and a Biology classroom specifically. According to Hardman (2005), what makes activity theory very useful is the fact that it exposes contradictions within systems and it is these contradictions that drive changes in activity systems.

I will reinterpret research question 2 aligning it to CHAT as my analytical framework and this is shown in Fig. 6.2 below. The components in the activity system will be interpreted and discussed under analytical statements generated as a result of themes that emerged during the data analysis process. The discussion follows a specific format of firstly describing the current situation which will be followed by contradictions that surfaced and finally what teachers' perceptions are about what they would like to see happen and change which addressed research question 4.

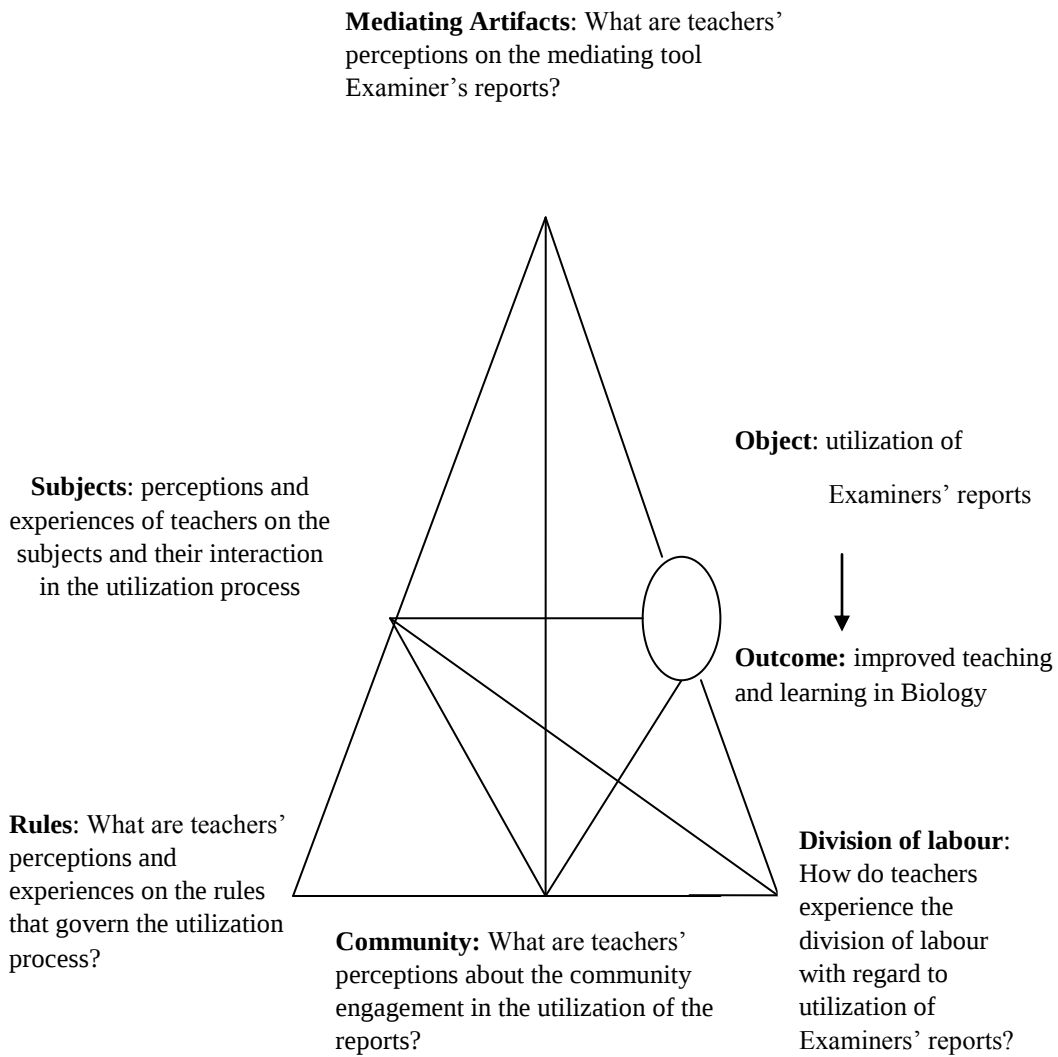


Figure 6.2: Activity System with utilization of Examiners' reports as the object

Analytical Statement 5:

Examiners' reports must become more user-friendly and provide acceptable responses for all graphics

Mediational artifact and the subject components:

This section reflects on the reports (mediating artifacts) themselves, their positive and negative features according to the 85.7% of teachers (see Table 5.1) using them. Teachers' perceptions and experiences about the content they cover, the detail and the layout amongst other aspects are interpreted and discussed. Furthermore, contradictions that surface between the two components, the artifact and the subjects using it will be highlighted when reporting on the improvements and changes teachers would like to see in the reports. Graph 5.1 shows that 57.1% of the teachers are satisfied with the current reports, while 22.9% would like to see some minor changes to the reports. The fact that not all teachers are satisfied with the current state of the reports, thus highlight a contradiction between two components in the activity system.

As explained in Section 2.2, Examiners' reports consist of the mark schemes for all components for a specific examination as well as comments on all questions. In many instances the answers are in short format or only give reference points as it is expected that the intended users of it, the teachers are knowledgeable in the subjects and should understand how to interpret some answers and the marking criteria. The comments are discussed in line with what was observed in learners' responses to the different questions.

Furthermore, Examiners' reports provide feedback about learners' biological knowledge in line with what is prescribed by the syllabus (see Section 2.2). The feedback includes concepts and skills expected from Biology learners at both the ordinary or higher levels which is in line with what Wees (2010) and Muhaya (2005) say. According to Wees (2010), feedback must ensure that the assessment criteria, the scheme of assessment that is operational as well as the subject content specified in the syllabus is understood by all as a result of the feedback being informative and constructive.

Examiners' reports also give feedback on cross-curricular issues such as English language used in mediating biological concepts because it is expected that all teachers irrespective of the

subject that they teach should be teachers of English language. This idea is supported by what O’Conner and Geiger (2009) and Kosonen (n.d.) posit about the importance of literacy in English language for future learning. Facility in English can ensure better expression in Biology for second language learners.

The value of the Examiners’ reports lies in the fact that it is a tangible document (a mediational artifact) teachers can use to first of all evaluate their own understanding of biological concepts and the basic competencies as outlined in the syllabus which is in support of Kagaba (2005); Wees (2010) and Dixon-Krause (n.d.) that ideas about the value of Examiners’ reports and the fact that they should enable teachers to do reflection. Furthermore, they increase teachers’ subject content knowledge which according to Kind (2009) gives teachers more self-confidence so they plan their interactions with their learners better and consequently improve teaching. It is an artifact teachers can use to guide their teaching as there are many different textbooks on the market with some having more correct and appropriate knowledge than others. Referring to what T2 said (see Appendix Y, interview transcript 2) *“I can become a master in Biology myself if I can find time to read and work through all previous years reports”*.

Literature from Muhaya (2005) supports teachers’ perceptions that the reports are tools that can aid and improve teaching and learning and consequently lead to an annual improvement in schools’ performances (see Tables 5.2 and 5.3). However, some teachers (22.9%) are of the opinion that there is room for improvement in the current reports as they pointed out some shortcomings such as the actual graphs and scientific drawings not shown. The fact that the report in its current state may not provide in all the needs of teachers and learners as a mediating artifact, illustrates a contradiction between the subjects and the artifact. Another tension between two activity systems which are the head office producing the reports and schools utilizing the reports surfaced. This tension is a result of some teachers appearing not to like the current combined format of acceptable answers followed by comments. Some teachers, although in the minority, prefer two separate documents for the mark scheme and the feedback in the form of comments respectively. However, since looking at contradictions between two activity systems is outside the scope of the research recommendations concerning the aspect of separate documents will be dealt with in Section 7.3.

This section highlights some of the changes and additions teachers would like to see in the current reports (see Section 5.2.2 for detailed recommended changes). Prince, Handley, Miller and O'Donovan (2010) alert us to the importance of the amount of detail in reports if the reports are to be effective. It appears as if teachers in this study would like to have more detail.

Suggestions from teachers ranged from including specimen answers using actual responses given by different learners, explanation of abbreviations and marking mechanisms used in the mark schemes, the actual graphs and scientific drawings expected as answers as well as more detail in some answers and the multiple choice feedback (see Section 5.2.2 and Appendix X and Y, interview transcripts 1 and 2). Teachers were of the opinion that if the reports are to be disseminated to learners and to be used by them either with or without assistance from the teachers, some of the changes given above must be incorporated to ensure that they aid their learning. Teachers were concerned about learners being able to use them on their own considering their current format (see Appendix X, interview transcript 1).

Analytical Statement 6:

Examiners' reports as mediational tools that can improve teaching, learning and performance in Biology

Subject component:

It is evident from Table 5.1 (see Section 5.2.3) that most teachers are interacting with and using the reports. Textbox 5A summarizes the different ways in which teachers use the reports. It appears that currently learners are not given the physical report itself, thus are not directly interacting with the reports. Learners are only exposed to the information from the reports through what teachers share with them. The importance of learners getting this feedback on performance in external examinations is stressed by Weimer (n.d.) as he is of the opinion that the outcomes of examinations given to teachers in the form of feedback through Biology Examiners' reports can drive individual learning in learners. A case for how teachers can use the reports as a mediational artifact to assist them as well as their learners within their individual ZPD is presented as part of the findings and recommendations in Section 7.3.

Examiners' reports through the feedback they give alert teachers to the different ways in which they do things in class or during instruction. Thus, according to Lopes, et al. (2008) when teachers are aware of what it is that they do or do not do teacher mediation can be improved (see Section 2.6). The process of mediation involves more knowledgeable others to help in the meaning making process. It can enable learners to master skills or concepts with assistance, therefore, I argue that the Examiners' reports can be used as mediational artifacts because teachers can read the comments, internalize them and pass them on to their learners in the most appropriate ways at their individual cognitive levels. I also argue that the additional detail, information and suggestions on how to teach concepts that are given can similarly help teachers to help their learners reach levels of thinking and reasoning that learners on their own would be unable to do. Support for this is found in Lopes, et al. (2008) who state that teacher mediation involves knowing the learners' learning demands, action and development pathways.

Teachers' perceptions about Examiners' reports contributing to an improvement in teaching, learning and annual performance of schools in Biology (see Sections 5.2.4 – 5.2.5, Tables 5.2 and 5.3 and Appendix Y, interview transcript 2) concur with Muhaya's (2005); Stracke and Kumar's (2010) findings. These authors maintain that feedback can change teaching and learning in class. For instance, the teachers that participated in this study were of the opinion that their subject content knowledge (SCK), their teaching strategies and correct usage and expression of biological concepts in English changed as a result of using the reports (see Table 5.1, Textbox 5A and Appendix X and Y, interview transcripts 1 and 2). The reports can be very helpful for new teachers as supported by Stracke and Kumar (2010) as it can aid not only their SCK but also pedagogy.

Although currently learners are not actively engaging with the reports because teachers are not giving the reports to them, many teachers feel that learners can use the reports to learn with teacher support, but also on their own (see Section 4.2.5, Text box 4C).

Teachers felt that the reports in their current state was a document developed for teacher use because of the short answer style format, abbreviations and marking mechanisms used in it, but can be used by learners as a mediating artifact to improve their learning, provided that the reports are given to learners together with the corresponding question papers and teachers must guide

learners in how to use them (see Appendix X and Y, interview transcripts 1 and 2). To fully utilize the reports in its current state, learners would need the help of significant others as suggested by Vygotsky (1978).

Teachers thus must play an active role in guiding learners in utilization of the reports (see Appendices X and Y, interview transcripts 1 and 2). Herein lies the importance and role of mediation of learning (see Section 2.6). Some teachers were of the opinion that it might be difficult for learners to fully understand and use for example answers in the mark scheme that only states “reference to” such as “ref. to tissue cut from growing tip/meristem of stock/parent plant” as it appears currently in the mark schemes. This illuminates a contradiction as learners should be encouraged to use Examiners’ reports and learn from them, but if the current format poses challenges to them the intended outcomes of better learning to improve their pass rate might not be achieved. Recommendations to change the format of the answers are made in Section 7.3 to address this contradiction.

T2 was of the opinion that as a result of what he learned and continued to learn from the reports as a result of using them, his status as a teacher and mediator has been boosted. He is of the opinion that learners will see teachers not just as someone that is passing on information through explaining, but as someone that also passes on other skills, for example, how to present things and how to answer. He felt that these skills and information teachers can get through the reports (see Appendix Y, interview transcript 2). This is in line with what Daniels (2004) says that mediators can scaffold learning in learners’ ZPD so that learners do not just have knowledge, but also have skills and the ability to reach the higher order thinking (Vygotsky, 1978) thus, responding to questions that require evaluation and synthesis.

Rule component:

Examiners’ reports provide feedback; therefore the rules that apply to other methods of feedback also apply to them. For instance, rules include studying the reports, reflecting on one’s own understanding and practices, internalizing new information and sharing the information with their learners. This again highlights the importance of interaction in teaching and learning during the mediation process. Evidence that some teachers are doing what is expected can be seen in Textbox 5A.

Sharing the content of the reports requires that teachers study them carefully, using them in conjunction with the respective question papers so that they are aware and informed about all questions that were covered in the previous examination and the corresponding feedback. However, when some teachers are not getting the reports it contradicts the aim of sharing the information with learners. Thus, getting to the envisaged outcome of more efficient learning and improvement in pass rate is unlikely. Teachers are aware of what suggestions reports give, for example, doing more practical work, but implementing the suggestions can sometimes be a challenge as the majority of teachers seldom do practical activities. This is a tension that surfaces between two activity systems and requires intervention from the regional office and head office sides. The end result is that what teachers end up doing in class contradicts what they would like to do, due to a shortage in resources. This importance of practical/hands-on investigations and activities is supported by Hart and Lee (2003), Pea (1993) and Kamini (2001) to help learning Biology in English which is more significant for English second language learners. It will help in literacy development and learners becoming more proficient in English.

Community component:

Examiners' reports dating back many years since the introduction of IGCSE and HIGCSE now replaced with NSSCO/H should be available to teachers as it is expected that schools should have procedures in place for keeping back-ups (see Section 4.2.4). The corresponding years question papers and mark schemes should also be available at schools. In most schools teachers are aware of this resource; yet do not use it adequately as emerged from the interview conducted (see Appendix Y, interview transcript 2). This also highlights a tension surfacing between the subjects, the rule and the community component as the artifacts are available and accessible to some teachers, yet teachers are possibly not motivated to use them. Another tension that surfaced was when T2 said that he does not have enough time to go back to all previous year's Examiners' reports to study them yet he knew he could learn a lot from them (see Appendix Y, interview transcript 2).

Teachers were of the opinion that support at school level from HODs as well as support at regional level would alert and inform all teachers, but especially new teachers about the existence of the reports and their value in teaching and learning. Teachers must be prepared to

take responsibility for their own learning. T2 was of the opinion that teachers do not necessarily have to be part of external marking for them to understand how the marking was done. According to T2, when teachers study the reports they will know what happens during marking.

Analytical Statement 7:

Optimal utilization of Examiners' reports requires involvement and control from the Regional office

Subject, community and division of labour components:

Learners are part of the school community, but the division of labour in utilizing Examiners' reports depends on individual subject teachers and schools. As a result of teachers not getting the reports in some schools (see Graph 4.1), both teachers and learners cannot use the reports. Even in schools where teachers are getting the reports it is evident that learners are not playing an active role in manipulating and interacting with the reports (see Appendices X and Y, interview transcripts 1 and 2). The current situation is thus in sharp contrast with what Vygotsky's constructivism theory suggests. The theory stresses the importance of learners manipulating and interacting with materials in the learning environment to aid their learning. Currently, teachers only facilitate learners' engagement with the content of the reports through sharing the information with them or testing the learners using questions from past examination papers and thereafter share feedback from the reports with them.

So the degree of division of labour in terms of utilization of the reports is contradictory to what should happen in constructivist classrooms. Learners should be actively involved in the learning process while teachers assess their learning as instruction progresses on a continuous basis. Feedback teachers give using either the actual Examiners' reports or verbally sharing the content can aid learning as proposed by McTighe and Conner (2005). According to Black and Williams (2001) and Morrissey (2007), the success of giving immediate, specific feedback that is understood by learners can result in more effective learning, but it requires that teachers change and adapt their teaching strategies (see Section 2.3).

Table 5.4 (see Section 5.2.6) shows that support in the form of discussions, utilization of the reports or any other form of support at school level or regional level is almost non-existent with

the exception of three schools. This is a very unfortunate situation considering the perceived benefits that can be derived from discussions of the reports (see Section 5.2.6, Textbox 5B). Therefore, such discussions must be initiated and implemented and recommendations in regard to this will be made in Section 7.3. Furthermore, according to Prince, et al. (2010), teachers must be willing to act on the feedback, as it is teachers' actions after getting feedback that determine the effectiveness of the feedback (see Section 2.3).

In this study, more than half of the participants were not involved in discussions around the content of the Biology Examiners' reports. Teachers were of the opinion that the HODs must initiate such discussions. The problematic situation in many schools, however, is HODs are not always experts in Biology, thus lack appropriate SCK to be of assistance to the Biology teachers (see Appendix Y, interview transcript 2). This tension surfaced as in many instances HODs cannot initiate discussions around Biology Examiners' reports as teachers are of the opinion that their HODs are not knowledgeable in the subject (see Appendix Y, interview transcript 2). A large percentage (91.4%) of the teachers, however, said they need help in using the reports, yet the majority of the teachers do not ask for assistance from the regional office which is an example of a tension surfacing in the activity system. T1 and T2 responses were contradictory (see Appendices X and Y, interview transcripts 1 and 2), first saying they can use the reports on their own, but later on said teachers need help, and such help could be in the form of discussions.

Some HODs were of the opinion that the reason why they do not discuss the reports in departmental meetings was because they arrive at schools late. The importance of timely feedback suggested by Muhaya (2005) is thus highlighted yet again. It appears that the late arrival of the reports at school is an example of a contradiction that surfaces between three different activity systems and would require that recommendations to solve this problem be made to all relevant stakeholders in education.

At Alpha, the Life Science and Biology teachers rotate as they continue working with the group of learners assigned to them in Grade 10 right through to Grade 12. Rotating and teaching the Grade 10 group right through to Grade 12 has advantages for the learners. It can also have possible disadvantages as the teacher preparing the learners for the Grade 12 examinations in any particular year could potentially miss out on two consecutive years feedback. For instance, T1

said when she is responsible for the Grade 10 in any specific year she does not really attend to the reports on the Grade 12 examination. How does her missing out on two years' feedback affect the Grade 12 learners she taught in the past or will be teaching in the future? What is happening on the ground in that school and maybe in many other government schools where rotation is operational contradicts the rule component regarding utilization of the reports. In view of this, ways must be found to ensure all teachers are kept in touch with the developments and feedback given on all Grade 12 examinations even when they are responsible for teaching grade 10s that specific year. Recommendations to address this will be made in Section 7.3.

It emerged from the interviews conducted that T1 found the school cluster system very useful when she joined the teaching profession as teachers were working together, sharing knowledge and assisting one another as a result of discussions and communicating with one another. However, school clusters a possible avenue that can strengthen discussions and cooperative work in the Khomas region is not operational.

In contrast, some of the participants were of the opinion that teachers could use the reports on their own, thus no support is necessary. The question that arises is “are the reports actually user-friendly so that no assistance or guidance in their utilization is needed?” However, it should be noted that only 8.6% of the teachers shared this opinion.

When teachers reflected on how they could improve the utilization of the reports they saw merit in giving learners' copies of the reports whether it be a hard or an electronic copy (see Section 4.2.5, Textbox 4C). Teachers would like to have discussions at a regional level (see Section 5.2.6, Table 5.4) as a way of supporting them in utilization of the reports. HODs would like the reports to be available in schools earlier so that they can take the lead in discussing them during departmental meetings (see Section 4.2.3, Textbox 4B).

Analytical Statement 8:

The pool of resources of qualified and experienced Biology teachers must be tapped into to get all teachers SCK on par with what is required in the syllabus

Although (8.6%) felt no support was necessary in using the reports as they are qualified teachers in the subject, the majority were of the opinion that support was needed. Other suggestions (see

Section 4.2.3, Textbox 4B and Section 5.2.6, Text box 5B) such as “*the teachers that are part of external marking or examiners must be used to lead and direct such discussions or workshops to help other Biology teachers*” shows that teachers acknowledge that they are willing to learn from more experienced others. This also shows that some Biology teachers were of the opinion that being part of a community of practice in the Biology field could make a small contribution in helping each other in the interest of the learners.

Analytical Statement 9:

Mass sensitization on the importance of Examiners’ reports is necessary to optimize effective utilization of the reports

T2 commented in his interview session that the reports should not just be made available, but awareness must be created of their value especially amongst the new teachers (see Appendix Y, interview transcript 2). It was only when the Examiners’ reports on the 2007 examination were handed to him by his HOD in April 2008 that he became aware of Examiners’ reports. A similar scenario was reported with the interview conducted with T1, who only heard about the reports after three years of teaching senior grades.

Teachers and especially new teachers can only enquire about reports from their respective HODs if they know about their existence see Textbox 4A for some of the reasons given as to why they do not get reports. Furthermore, T2 stating that he thinks the reason why teachers are not using the reports can be attributed to “*teachers don’t know how important it is and how it can help them in their correct teaching of Biology and understanding of it*” alerts one to the need for raising awareness amongst teachers and learners. Recommendations on how this can be achieved will be made in Section 7.3.

6.5 Concluding remarks

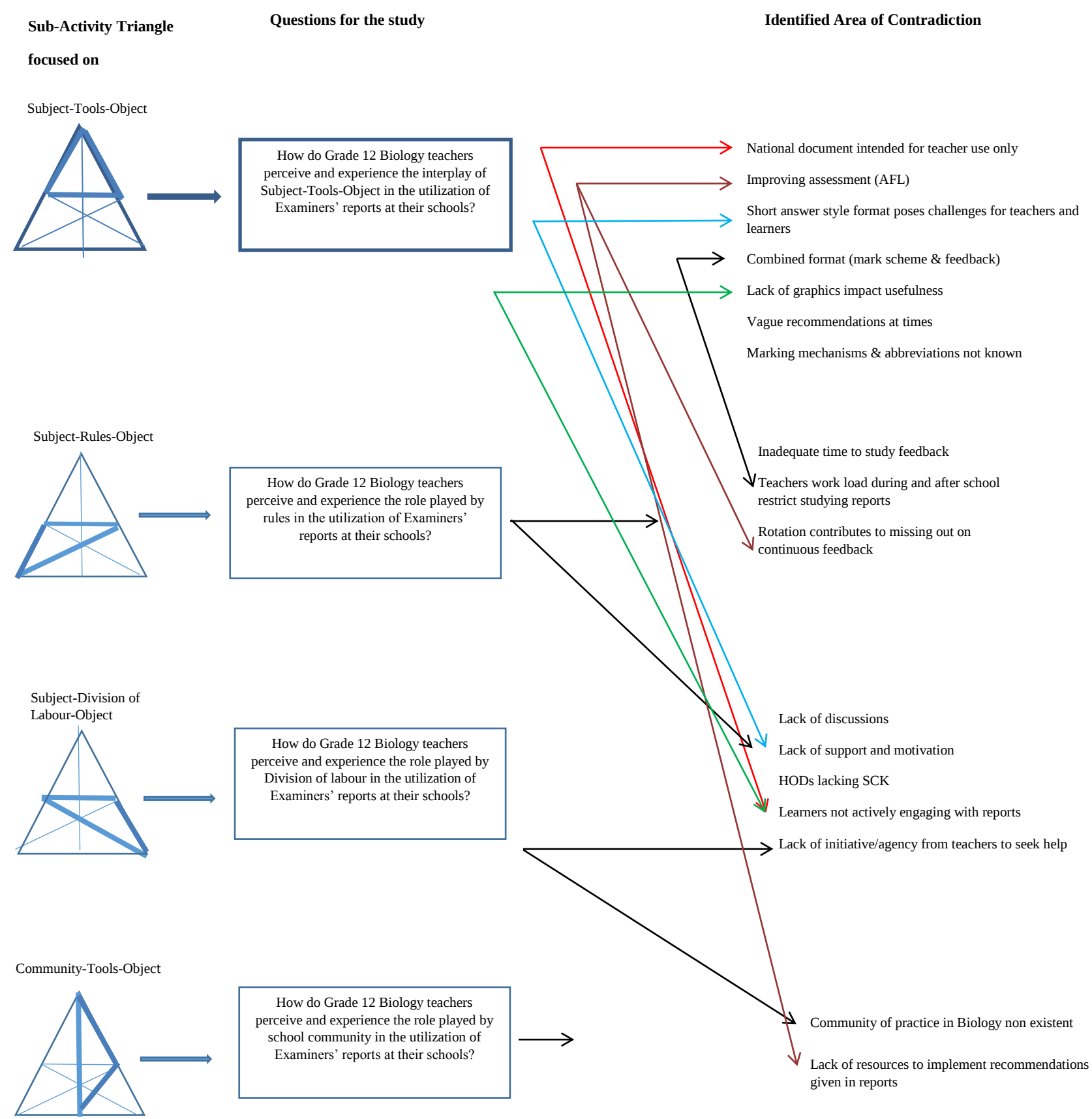
This chapter analyzed two activity systems constructed around the hypothetical objects; the dissemination and utilization of Examiners’ reports respectively. The activity, what happens in an activity system was analyzed using the components from the two activity systems. The components of the activity system constructed were discussed under analytical statements that were generated in line with the themes that emerged during the data analysis process. Relevant

literature about dissemination of the reports, utilization and the importance of feedback in assessment was used in support of the interpretations and discussions. In the activity systems analyzed, all components of the activity system constructed were interpreted and discussed in terms of teachers' perceptions and experiences of the current situation regarding the dissemination and utilization of the reports. Contradictions that surfaced between the different components of the activity system were highlighted. Finally, since the aim of using CHAT is to analyze work done in activity systems to illuminate contradictions in order to drive qualitative change in activity systems, the interpretation and discussion of the components under the analytic statements generated ended by looking at what teachers' perceptions were about what should happen with regard to dissemination and utilization of Examiners' reports.

This section concludes with a pictorial view of the disturbances with the regard to the utilization of Examiners' reports as perceived and experienced by teachers. The pictorial view summarizes some of the contradictions in the utilization activity system using the Sub-Activity Triangle Analysis. Teachers who participated in this study raised many positive things that they perceive as going well in the utilization of the report. Nevertheless, it is my hope that concentrating on contradictions will assist in improving the way the Examiners' reports are disseminated and utilized in the country.

The next chapter looks at the findings of the study and suggests recommendations in line with the work done and possible changes necessitated as a result of the outcomes found in the two activity systems. Furthermore, areas for further research on the topic are suggested.

Summary: Sub-Activity Triangle Analysis of Contradictions in the Utilization of the Examiners’ Reports



Chapter 7

Summary of findings, recommendations and conclusion

7.1 Introduction

This chapter provides the findings and limitations of this case study. Recommendations regarding the improvement in the dissemination and utilization of Examiners' reports are given in the light of all stakeholders involved in the production, dissemination or utilization of the reports. Limitations of the study undertaken are mentioned in the hope that something worthwhile can be learned from the findings to shape the direction for future research in this field. The chapter ends with a critical reflection on my research journey and concluding remarks.

7.2 Summary of the findings

This study reported on Grade 12 Biology teachers' perceptions and experiences of the dissemination and utilization of Examiners' reports in their schools in the Khomas region. My interest in pursuing this topic is a result of two incidents. The first incident was the result of a contextual profile assignment that was given to the Rhodes University Masters students by our lecturers. This assignment involved interviewing the Education officer responsible for Biological Sciences (see Section 1.2.2). What emanated from the interview task was one of my fellow Rhodes Masters students revealing that she never received the CASS manual the NIED Education Officer referred to during the interview in 2010. NIEDs records show that all schools received the manuals in 2010. The second incident was a personal communication with some teachers in 2012 during the national marking exercise that alerted me to the fact that some subject teachers for Biology do not get the Examiners' reports. According to this teacher she last received Examiners' reports in 2006 even though DNEAs record show that reports for all schools were distributed to all Regional Offices. These events caused me to question the distribution of national documents to schools and whether these documents and specifically Examiners' reports, which are intended to be used as a resource to improve teaching and learning in schools are being received and used by teachers.

The findings from this study expose tensions in the schools which affects both the dissemination and utilization of the reports. Using the reports is vital if change in the teaching at school level is to occur. However, the recommendations pertaining to utilizing available information technology to disseminate the reports may not be applicable to all schools in all regions, because of the challenges the more remote and rural schools face. Therefore, further studies on this aspect of dissemination of reports should be undertaken to include these regions as suggested in Section 7.5.

The focus of the research was on establishing how and why dissemination and utilization of Examiners' reports, thus presents "a case in context" according to Cohen, et al. (2011) (see Section 3.2.3). An interpretive paradigm underpinned this study and quantitative and qualitative data were gathered. The questionnaires were distributed randomly to secondary schools while purposeful sampling was done to select the two neighboring schools that took part in the interviews. All ethical issues were considered in terms of getting permission from all relevant people involved at regional and school level and anonymity was guaranteed and maintained throughout the data gathering process.

A 78 to 82% rate of dissemination of Examiners' reports is significantly high. However, this percentage should be understood in a broader sense which is influenced by the time teachers receive them and what they do with them. The statistics from Table 4.3 as well as the reasons given in Textbox 4B suggest a need for intervention to improve dissemination at school level. This would ensure equity, a goal in Namibia's national document "*Toward education for all*" that is strived for in all Namibian schools.

The results in this study show that 22% of the Biology teachers do not having access to the reports. This inevitably means a reasonable number of Grade 11 and 12 learners have no exposure to the feedback about learning in Biology given in these reports. Yet, Examiners' reports are mediational tools as proposed by Vygotsky (1978) that give feedback on teaching and learning in Biology. This has major consequences for improving dissemination not just at school but at regional and head office level as well.

In addition to teachers not receiving reports, learners also do not have access to the actual physical reports, in most cases because teachers never really thought about disseminating the

reports to the learners. Most teachers were of the opinion that it is an official document for teachers' use only. Teachers' hesitancy to disseminate the reports to their learners is however also influenced by their perceptions about their learners and their ability to make good use of them.

This scenario is further compounded by teachers' perceptions about their own ability to help their learners as one teacher admitted that she does not know how to help her learners overcome their battles with Biology (see Appendix X, interview transcript 1). This would require that teachers and subject advisors do much more than just change learners' perceptions. Teachers' PCK also needs strengthening. Furthermore, with teacher intervention and support learners need to believe that they play a major role in what they learn, how much they learn, and eventually their success in education and in their future life. A detailed discussion on how this can be done follows in Section 7.3.

It emerged from this study that a relatively high percentage of teachers use the reports. The effective utilization of the reports is however difficult to determine as one of the participants was of the opinion that the reports are easily accessible and available, but said "*I think the usage is the problem. I think it is not fully utilized at schools by the teachers*". I want to draw the reader's attention to the word 'fully' which implies teachers use them to some extent. When asked for a reason to support his answer he said that he could not give an answer but he thought that it could be because teachers do not know how important the reports are and how they can help them in improving their teaching of Biology by providing a better understanding of the subject which would have a positive knock-on effect on their learners.

All the teachers in this study agreed that all schools should be encouraged to use the reports as a mediational tool because of the improvement in teaching and learning and consequent improvement in Biology pass marks (see Table 4.4). Owing to the range of teaching experience from 1.5 to 32 years - it is inevitable that opinions about whether teachers need to be supported in the utilization of the reports varied. However, the overwhelming majority agreed with this view. The main source of this support teachers felt should be via discussions, which according to Table 4.4 more than 50% of the teachers are not currently involved in. The advantages of discussions around the reports are many (see Section 4.4.2) which include strengthening

teachers' SCK and PCK. Furthermore, discussions will also inform all teachers' especially new teachers about other mediational tools, for example, Examiners' reports that are accessible to all and sensitize teachers about using them.

Only 23% of the participants suggested that the reports in their current state need minor improvements. Recommendations in this regard and the feasibility of some of the recommendations given by teachers are discussed in Section 7.3.

7.3 Recommendations

This section discusses recommendations pertaining to improving the dissemination and utilization of the reports. It is important to mention that recommendations given and discussed here may not necessarily be applicable to all schools or be received in a positive manner by some schools because schools' individual situations in terms of resources, infrastructure and learner population differ. However, it suggests possible ways for change in the way work is done at schools in the future. The ultimate reason for carrying out this research is to learn from current practice and to suggest ways to change current practices so that dissemination and utilization can become more efficient in the interest of the Namibian learner. How teachers interpret the syllabus and consequently what and how they teach contributes to what their learners learn and master. A few examples will be used in Section 7.3.2 to illustrate this point and suggestions as to what can be done to remedy the situation are made.

7.3.1 Dissemination of Biology Examiners' reports

This study illuminates that teachers receive the reports late and improvements in this regard is essential to ensure optimal utilization of the reports. School managers and HODs as accounting officers must be held accountable to ensure that all teachers receive and utilize the reports which can be achieved when proper induction and orientation processes are in place for all teachers, but especially new teachers at all schools. The regional office through the subject advisors must play a more prominent role in supporting Biology teachers with subject specific advice and effective utilization of the reports. Regional workshops must be organized to allow a platform for discussing the content of the reports as this will ensure that the more knowledgeable others in

Biology can bring all teachers and especially all new teachers up to an acceptable level required for teaching in the senior secondary phase.

The success in disseminating reports to learners would require a mass sensitization campaign to first of all change learners' and maybe some teachers' perceptions and mind set about the "right answer". Learners and teachers need to see the value in the comments that go along with the possible acceptable answers so that they can approach the reports in a positive manner and embrace them as resources that can aid teaching and learning.

The possibility of head office or regional offices providing schools with electronic copies has not been tapped into or explored. Disseminating the reports electronically would have financial implications for schools that need to be considered and planned for when schools want to pursue this route. For example, teachers need to have access to reliable internet connectivity.

Furthermore, printing of the reports by individual teachers would have financial implications for schools as ensuring that ink cartridges for the printers have to be available all the time and this could become very costly for schools if access to the printers is not controlled. Not all teachers are privileged to have internet connectivity at their respective homes, so they would be restricted to the resources the schools have, which in most cases is one or two computers that are available in staff rooms for all teachers to use.

Providing hard copies of all components within the subject Biology for all Grade 11 and 12 learners could be costly for some schools as well. Teachers gave a few suggestions on changes they would like to see included in the reports (see Appendix X and Y, interview transcripts 1 and 2 and Section 4.4.9). Incorporating these changes would result in the reports becoming even more bulky and Grade 11 and 12 learners enroll for six different subjects. Additionally, some subjects have between three to four different components. Schools would have to agree on the importance and need for duplicating the reports to all Grade 11 and 12 learners and it would require planning and budgeting. This would become even more important in the future because of the introduction of free senior secondary education from 2016 as schools would then have to cope with the challenge of a reduced budget. Furthermore, duplicating Examiners' reports for Grade 11 and 12 learners for six subjects would also add to the work load of the teachers responsible for duplication at schools.

Providing electronic copies to schools to make them easily accessible to learners might not necessarily be well received by teachers from government schools. The reality is that many learners attending government schools often do not have access to internet facilities at their respective homes. The question that surfaces is, Can this problem be solved and if so how? One can argue that most of the learners in senior secondary schools have access to cellphones and are connected to various social networks like face book for example. Thus, learners could have direct access to the reports, provided that they see the need to get hold of them as teachers are not all convinced that learners would make an effort to use the reports even if they get it (see Appendix X, interview transcript 1). Thus teachers and learners need to be informed about the value of the feedback given in the reports.

In the section that follows I would like to argue a case for more support to Biology teachers from the regional office.

7.3.2 Examiners' reports as mediational tools opening the zone of proximal development

Hardman (2005, p. 259) states that “learning is a complex result of tool mediated interactions, rather than as something opaque which happens in a student’s mind”. She thus posits that the strength of activity theory lies in the fact that it helps one to understand the complex nature of learning. The envisaged function of Examiners’ reports which I argue could be mediational tools to help teachers and learners reflecting about their own understanding, thinking about their own thinking and see the link or the bigger picture in topics or concepts individually covered in class. They can therefore be used as teaching and learning artifacts within learners’ ZPD.

Mediation incorporates amongst other things the scaffolding of teachers as mediators of learning. Hedegaard (1990) posits that through providing learners with new and different kinds of activities, teaching/mediation can create zones of proximal development. Bucat (2005) adds to the debate about what makes a teachers stand out from the rest saying that teachers must have three types of knowledge namely; general pedagogical knowledge, subject content knowledge and pedagogical content knowledge (PCK). This implies that for teachers to become more effective in mediation and scaffolding learning they have to have good foundations in all three types of knowledge. Lopes, Cravino, Branco, Saraiva and Silva (2008) are of the opinion that what learners learn is influenced by the nature and type of work demanded by them. In this

section I would like to highlight the importance of teachers knowing the requirements of the Biology syllabi, and teach accordingly if we are to ensure that the learners learn the knowledge and skills that would be expected of them to demonstrate when sitting for external examinations. I argue that the Examiners' reports can be used as tools to assist teachers and learners to open up areas learners would struggle to comprehend on their own. To try and get my point across I will use an example of a question a teacher referred to in the 2013 Biology question paper that posed challenges to him as well as his learners. In my discussion I also touch on the importance of teachers having excellent PCK.

The teacher was referring to a specific question that was in the 2013 question paper he gave to his learners on the topic of photosynthesis he had finished teaching. I would like to quote the response of the teacher interviewed.

“I was explaining I was teaching my learners yesterday we were looking at the internal structure of the leaf. They asked them that on the diagram label the movement of the following: number one is water, number 2 is carbon dioxide. Then you see what learners are doing is completely different. Now I also did not understand how as I used to put the two arrow coming from the stomata thinking that water can still get in through the stomata, but when you go to the report they will tell you. No the learners should draw using arrows as arrows show the movement and the arrow should come from the xylem vessels going to the part asked the chloroplast while the carbon dioxide should come through the stomata to the chloroplast, the part asked”.

Firstly, I would like to draw the reader's attention to some of the expectations stated in the Biology syllabus on the topic on plant nutrition.

Leaf structure: learners have to

- identify the cellular and tissue structure of a dicotyledonous leaf, as seen in cross-section, and demonstrate the significance of these features in terms of functions, i.e. distribution of chloroplasts for photosynthesis; stomata and mesophyll cells for gaseous exchange; vascular bundles (xylem and phloem) for transport.

Photosynthesis: learners have to:

- define photosynthesis as a process by which light energy is trapped by chlorophyll in chloroplasts and used to reduce carbon dioxide to form carbohydrates;
- state the balanced equation for the production of simple sugars and oxygen (in words and symbols); and
- describe the intake of the raw materials, the trapping and storing of energy (conversion of light energy into chemical energy, the formation of food substances and their subsequent storage (no detail required)).

I would like to alert the reader to the definition of the command word *describe* as it is given in the syllabus in the section glossary of terms in science papers. Describe requires the learner to state in words or using diagrams where and when appropriate the main points of a topic. During the interview the teachers said what he used to normally do in the past was to ask learners to draw the internal structure of the leaf and identify the various parts of the leaf. He also explained the functions of the different parts of the leaf to the learners and then he was done with the chapter. As far as the theory was concerned, he taught the learners that carbon dioxide gets into the leaf and water gets into the plant and all the other things. Once his learners mastered that, he considered the chapter as covered and done.

The question in the question paper referred to earlier on expect the learners to use the transverse section through a portion of a leaf that was given as figure 2.1 and indicate on the figure, using labeled arrows how water and carbon dioxide get into a chloroplast that was indicated on the figure as cell structure B. The teacher gave this question to his learners after covering the section on plant nutrition in the syllabus as a class activity. He observed that his learners all attempted the question but struggled to answer the question and neither could they produce correct responses. He also confessed that he also was not sure how to answer the question. His direct words were “*I also did not understand how as I used to put the two arrows coming from the stomata thinking that water can still get in through the stomata*”. When he consulted the Examiners’ report on the 2013 examination, he saw that the correct answers were supposed to be for water and carbon dioxide respectively:

- water: the arrow must be drawn from the xylem vessels through the cells to the chloroplast; and
- carbon dioxide: the arrow must be drawn through the stomata and air spaces to the chloroplast. He could thus use that specific activity and explain to the learners how it should have been done when he realized that his learners struggled to answer it.

The two raw materials needed for photosynthesis (water and carbon dioxide) examined in this question referred to above, according to the syllabus should have been dealt with in an earlier chapter on passage of substances. Diffusion was supposed to be taught and understood by learners. This being the case when the topic of photosynthesis was now introduced, learners should have been able to make the link with regard to carbon dioxide being a gas and water being a liquid and that these two substances diffuse in response to differences in concentration gradients. Thus, exposing learners to the new knowledge about the internal structure of the leaf and the functions of the different parts of the leaf expected from learners to draw on their prior knowledge about the substances water and carbon dioxide which was in this instance needed to teach them about xylem vessels that are responsible for the transport of water in plants and stomata which are responsible for gaseous exchange in plants. The question that arises thus is why did those learners not know that water is supplied from the xylem vessels considering that they covered the functions? Similarly, why did the learners not know carbon dioxide will diffuse through the stomata?

Reflecting on the PCK that was required in this question, in my opinion teachers should at all times enable learners to demonstrate their understanding of knowledge. One of the main reasons stipulated in Examiners' reports annually as to why Biology learners generally perform poorly can be attributed to the fact that learners cannot apply their knowledge. It is not just enough for learners to have the knowledge. Instead, learners must be prepared in schools to get to the higher levels of Bloom's taxonomy such as application and synthesis. Learners' prior knowledge and skills they developed at the lower levels of Bloom's taxonomy are essential requirements to reach the higher levels of evaluation and synthesis of knowledge - a necessary requirement for work in the twenty first century. Teachers as mediators must help learners make the connections between sections of the syllabus taught at different times.

Another issue that Examiners' reports address annually is the fact that teachers must be mindful of the language they use in class and in teaching. It is expected from Biology learners to use correct biological terms and concepts when expressing themselves. Nakale (2012) agrees with Carrier (n.d.) that English Language Learners (ELL) need scaffolding to develop their use of science vocabulary. Furthermore, the ability to express themselves using full sentences in grammatically correct ways requires that teachers incorporate and use different teaching strategies to develop English language. Thus, when teachers are not careful with language they pass on incorrect ways of expressing/explaining and learners pay the price as learners are penalized when they use incorrect terminology. This teacher taught the learners that carbon dioxide gets into the leaf and water gets into the plant and all the other things. The appropriate way to express that sentence should have been "carbon dioxide (being a gas), diffuses into the leaf (through the stomata) and water (a liquid) enters the root hair cells of plants through osmosis. It is crucial that teachers teach correct expression and terminology in classes in the interest of their learners.

The Examiners' reports also alerted teachers to the fact that in many instances where learners knew what to do in response to the question, they also lost marks because their arrows were not touching the chloroplast, resulting in their arrows not indicating any organelle. Furthermore, many learners also drew arrows that showed water passing through air spaces instead of through cells. This concept and movement of water is dealt with in-depth in the section on transport in plants. Learners' not transferring knowledge they acquire in one section to another section is a big concern for examiners of question papers and teachers must help learners to be skillful in this aspect, as applying knowledge in new situations is showing effective learning and mastery of Biology.

Earlier on in this chapter, I stressed the need for teachers to be supported in PCK and general pedagogic knowledge in the light of one teacher confessing in the interview "*I don't know, I don't know how to help the learners*". She was referring to her learners' inability to apply their knowledge. Kind (2009) stresses the importance of good PCK. She stated that her learners think they can memorize Biology and sit for examinations and expect to do well in the examinations. She said her learners still think that they are given the knowledge by their teacher and they just have to study it and reproduce it. She said her learners cannot apply their knowledge and she

does not know how to help them to move away from rote memorizing of Biology facts. She is of the opinion that learners must be able to apply their biological knowledge if an improvement in their performance is to be seen.

Teachers said they use Examiners' reports to see how certain questions for example questions that reads "with reference to" should have been answered (see Section Textbox 4D and Appendix X, interview transcript 1). The following example deals with this. This example was also taken from a question in the 2013 question papers. The question read as follows:

Cereals are monocotyledonous plants and their seeds contain most of the nutrients needed for a healthy human diet. With reference to the seed, distinguish between monocotyledonous and dicotyledonous plants.

This type of question format including "with reference to..." is common in Biology question papers. Examiners' reports always emphasize that when learners answer this type of question, they must specifically refer to what is mentioned in the question and linked with the words with reference to. Still in the 2013 examination learners' responses were just general differences which were not specifically linked to or concentrating on the difference in the seed of monocots and dicots only. Teachers can use this type of feedback they get through the reports to coach learners in how to respond to questions that have the wording "with reference to". This is an example of a small technicality in learners' responses that can be corrected when learners have practice with questions of this nature.

The last example I will look at focuses on the drawing of graphs as T1 said "she struggles with graphs" thus uses the report to see how it should have been answered (see Appendix X, interview transcript 1). Questions that require a graph to be drawn or interpreted can either be in a paper 2 or 3 question paper depending on the nature of the question(s) asked or the skill tested. In this question learners were given a grid on which to draw the graph using the information provided in a table on fibre composition of different cereals. Feedback on graphs are given annually as it is always tested in either the paper 2 or 3 examination, still it appears as if learners have not mastered the basic skills when it comes to drawing and presenting graphs. This question tested knowledge on bar graphs, a skill that must be known to learners according to the syllabus. The feedback that was given in the report included:

Learners must stick to the grid provided and use only the available space given to them. Teachers must emphasize the difference between histograms and bar graphs. Labels should be put in the order as they appear in the table that was provided. The scale used for the y-axis must be consistent and maintained throughout. This type of feedback is common and can be traced back many years either as feedback on paper 2 or paper 3 questions. To encourage skill development in learners, teachers must give appropriate practice that is followed up by feedback so that learners can correct recurring mistakes and master these skills which in most cases is always worth 4 or 5 marks.

Wrapping up this section on ZPD and Examiners' reports fulfilling that purpose I want to alert the reader to what Tudge (1990) says. He posits that when teachers' emphasis is on learners' ZPD, the type of interaction as well as the processes involved in the interaction must be carefully thought through and considered. This would require that teachers make a deliberate effort to study the reports outside normal class time so that they can plan what and how to incorporate suggestions and recommendations in various topics. Teachers must be sure of their knowledge and what they want to pass onto their learners.

It emerged from the study that teachers need support in the utilization of Examiners' reports and I am of the opinion this support can be provided by regional subject advisors. Teachers not knowing who their regional subject advisors are is a matter of concern. I thus recommend that a platform be created for all Biology teachers from the Khomas region to interact with their subject advisor through a compulsory national workshop to discuss the content of the Examiners' reports, but also to address other educational and teaching related issues. This type of interaction will help to build unity and cooperation in a community of practice of Biology teachers in the region.

The possibility of reviving school cluster meetings should be looked into in an attempt to establish a spirit of learning from each other, supporting each other and sharing physical resources especially in light of some schools being more equipped than others. Teachers need support in strengthening the NSSC syllabi interpretation, SCK and PCK. Teachers lack the know how to help their learners to master the higher cognitive level understanding and reasoning of biological concepts and knowledge. To become an expert in one's field requires continuous

and consistent engagement with content in the field which is unlikely to happen if teachers teach Biology on a rotational basis, thus a concrete solution to this challenge and situation must be found.

Changing the format of the Examiners' reports into two separate documents for mark scheme and feedback comments, defeats the purpose of the rationale behind producing reports. Teachers and learners must be sensitized about the notion of "the right answer" and learning and mastery of subject content being more than just the right answer. Emphasis should be on understanding which will allow expression in ways that is understood by all. It will show mastery of subject content when learners can demonstrate all the different ways in which their Biology content knowledge can be applied and synthesized.

7.4 Limitations of the study

This study focused on two schools from one region, the Khomas region that took part in interviews. It is the biggest region in terms of the number of secondary schools in the country and 26 secondary schools responded to the questionnaires. All the schools that took part in this study are situated in the capital city Windhoek with some schools being more equipped than others in terms of resources. It must be stressed that some of the recommendations to improve dissemination and utilization of Examiners' reports might not receive the same support and enthusiasm with other schools or teachers in other regions. It is in light of that reality that the need for more research especially in other regions be done to get teachers' perceptions and experiences of a larger and more representative sample of schools or regions across the country as it will impact future decisions and planning at head office and regional offices.

7.5 Areas for future research

This study only focused on dissemination at school level excluding the other activity systems which are the regional office and head office. Thus, to get a complete picture of distribution and dissemination of Examiners' reports from the starting point to the end point additional research into distribution of the reports from head office and regional office needs to be conducted. This may require pushing the theoretical analysis from second generation CHAT to third generation.

Further research can also get into the whole expansive learning process of practically improving on the dissemination and utilization of the report.

The pilots conducted before the actual research commenced included participants from twelve of the fourteen regions. These regions as well as the number of participants in brackets are; Oshana (7), Omusati (8), Oshikoto (3), Ohangwena (5), Omaheke (1), Otjozondjupa (1), Zambezi (2), Kavango East and West (5), Erongo (1), Karas (1) and Khomas (2). The findings from the forty two participants that took part in the pilot revealed results similar to that found in the actual study with regard to teachers' perceptions about the dissemination and utilization of Examiners' reports at their respective schools. An understanding of what other regions feel they can do to aid in dissemination and utilization of the Examiners' reports suggests that research that addresses research questions 3 and 4 should be carried out. I am of the opinion that Biology teachers in the other regions responses to research questions 3 and 4 may reveal different ideas and suggestions because circumstances, infrastructure and educational resources in the regions differ.

Another potential area for future research would be to look at teachers' actions in line with specific recommendations given in the reports. Thus, do teachers incorporate the recommendations given, how they do it and what are their positive and negative experiences? This could be done through observing teachers using the Examiners' reports in their classrooms.

Another possible area to research is to probe the impact on the pass rate in Biology if the actual Examiners' reports are given to learners to use as a learning resource. The focus would thus be on learners using the reports and how they use them.

Some teachers were of the opinion that learners would not make an effort to use the reports even if it were given to them. Undertaking research in this area would provide interesting information that could challenge teachers' beliefs as it is known that learners often use old question papers and mark schemes to prepare for tests and examinations.

Interviewing the subject advisor was beyond the scope of this study, but I would recommend that the subject advisor be included as a research participant in future studies in this area to get a holistic picture that includes the regional office.

7.6 My critical reflections

The nature of this study reflected indirectly also on the institution I work for (the DNEAs) work practices. It reflected on the quality of work DNEA and more specifically I as the Education Officer responsible for producing Biology Examiners' reports do. It thus challenged me to remove myself from the situation as an employee in the DNEA and stand back and not become emotional about and emotionally involved in what the participants either put down on paper through the questionnaires or verbally communicated to me through the interviews conducted. I had to remind myself that whatever feedback I get I should not take personal because nothing other people say or do is because of me, but what they say is rather a projection of their own reality. I also learned never to make assumptions, but the only way to get answers about the way DNEA and I am carrying out work and our mandate is to ask questions and allow people we are supposed to serve to express themselves verbally or in written form. I was skeptical about using CHAT as it was a theory and analytical framework that was all new to me, but I can gladly say that it was the best framework to use considering the nature of my research and I learned something new which I can feel proud about.

Discovering that many teachers value the reports motivated me to lobby and fight for improvement and more efficiency in production and distribution at head office. Despite the initial disappointment I had in getting permission to conduct the research in the schools in the Khomas region (see Section 3.6) which delayed the data gathering process in general the majority of schools and principals were very cooperative. I am of the opinion that the schools' cooperation was probably influenced by the supporting letters from the Permanent Secretary of the MoE and the Khomas Acting Regional Director which I presented to the school principals or HODs when I met them initially when delivering the questionnaires. I am grateful for the support I got from schools as I know that without their participation this research would not have materialized.

7.7 Conclusion

A brief summary of the findings of the four research questions were given. Teachers were of the opinion that dissemination must improve and they see themselves actively playing a part in aiding dissemination to their learners. Although a relatively high percentage of teachers are having access to the reports adequate utilization becomes challenging as teachers rush through the reports and sometimes do not use them effectively because of inefficient time to study them and to act on the recommendations given. The state of affairs can in part be contributed to the late arrival of the reports at school.

Teachers assign value to the reports as a mediational tool that can improve teaching and learning, but need additional support to optimally utilize it to strengthen their own as well as their learners' content knowledge. Teachers were of the opinion that the available technological resources must be tapped into and used to make dissemination and utilization of the reports more efficient. PCK an essential form of knowledge for Biology teachers can be enhanced and improved if teachers are sensitized and encouraged to utilize the reports to equip and enable them to become effective mediators. Developing learners that are involved in their own learning and reflective thinkers is possible when Examiners' reports are optimally utilized and instruction adjusted within learners ZPD.

Recommendations to improve dissemination and utilization are given as well as limitations in this study are highlighted. As a result of the research journey and the process of gathering data undertaken in this study numerous areas that require further research and possible other areas of research emerged which are mentioned. The Chapter and thesis concludes by critically reflecting on my research journey, the positive and negative aspects, new knowledge and better understanding of the research process acquired as well as lessons learned for any future research endeavors I will undertake.

References

- Abdullah, N. (2009). Language and Malaysian children's scientific understanding. *Jurnal Pendidik dan Pendidikan, Jil, 24*, 33–54.
- Assessment for learning*. (n.d.). Retrieved April 14, 2014, from <https://sites.google.com/site/assess4learning/assessment-defined>
- Black, P., & William, D. (2001). *Inside the black box: Raising standards through classroom assessment*. British Educational Research Association: London.
- Blacker, F., Crump, N., & McDonald, S. (2000). Organizing processes in complex activity networks. *Organization Articles, 7*(2), 277-300.
- Bucat, R. (2005). Implications of Chemistry education research for teaching practice: pedagogical content knowledge as a way forward. *Chemical Education International, 6*(1). Retrieved August 18, 2014, from www.iupac.org/publications/cei
- Bournot-Trites, M., & Tellowitz, U. (2002). *Report of current research on the effects of second language learning on first language literacy skills*. The Atlantic Provinces Education Foundation.
- Carrier, S. J. (n.d.). *Effective strategies for teaching science vocabulary*. Retrieved March 20, 2014, from <http://www.learnnc.org/lp/pages/7079?ref=search>
- Cohen, L., & Manion, L. (2005). *Research methods in education (4th ed.)*. London: Routledge.
- Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education (7th ed.)*. London: Routledge.
- Creswell, J. W. (2014). *Educational research: Planning, conducting and evaluating quantitative and qualitative research (4th ed.)*. London: Pearson.
- Cummins, J. (1979). Linguistic interdependence and the educational development of bilingual children. *Review of Educational Research, 49*(2), 222-251.
- Cummins, J. (n.d.). *Bilingual children's mother tongue: Why is it important for education?* Retrieved March 31, 2013, from file://E:\Cummins 3.htm.

- Daniels, H. (2004). *Vygotsky and pedagogy*. London: Routledge.
- Dawber, A., & Jordaan, H. (1999). *Second language learners in the classroom*. Pietermaritzburg: Natal Witness Printing and Publishing Company.
- Dendrinoss, B. (2006). Mediation in communication, language teaching and testing. *Journal AL* 22, 9-35.
- Dixon-Krauss, L. (n.d.). *A mediation model for dynamic literacy instruction*. Retrieved December 20, 2013, from <http://psych.hanover.edu/vygotsky/krauss.html>
- Edwards, A. (2005). Let's get beyond community and practice: The many meanings of learning by participating. *The Curriculum Journal*, 16(1), 49-65.
- Edwards, A. (2007). Relational agency in professional practice: A CHAT analysis. *An International Journal of Human Activity Theory*, 1, 1-17.
- Engeström, Y., Miettinen, R., & Punamaki, R. L. (1999) (Eds.) *Perspectives on Activity Theory*. New York: Cambridge University Press.
- Engeström, Y. (2001). Expansive learning at work: Towards an activity theoretical re-conceptualisation. *Journal of Education and Work*, 1, 133-156.
- Ferreira, J. G. (2011). Teaching life sciences to English second language learners: What do teachers do? *South African Journal of Education*, 31, 102-113.
- Fickeisen, D. H. (1991). *Learning how to learn*. Retrieved April 22, 2014, from <http://www.context.org/iclib/ic27/greenbrg>
- Foot, K. (2001). Pursuing an evolving object. *Mind, Culture, and Activity*, 9, 132–149.
- Garfield, J. B. (1994). Beyond testing and grading: Using assessment to improve student learning. *Journal of Statistics Education*, 2(1), 1-10.
- General guidelines for conducting an interview*.
<http://www.managementhelp.org/evaluatin/interview.htm>
- Ghawi, M. (n.d.). *L2 Influence on L1 at the Elementary School level*. College of Education, King Khalid University.

- Goos, M. (2004). Learning mathematics in a classroom community of inquiry. *Journal for Research in Mathematics Education*, 35(4), 258-291.
- Hart, J. E., & Lee, O. (2003). Teacher professional development to improve the science and literacy achievement of English language learners. *Bilingual Research Journal*, 27(3), 475-501.
- Hardman, J. (2005). Activity Theory as a framework for understanding teachers' perceptions of computer usage at a primary school level in South Africa. *South African Journal of Education*, 25(4), 258-265.
- Hardman, J. (2007). An Activity Theory approach to surfacing the pedagogical object in a primary school mathematics classroom. *Critical Social Studies*, 1, 53-69.
- Hedegaard, M. (1990). The zone of proximal development as basis for instruction. In L.C.Moll (Ed.), *Vygotsky and education*. Cambridge: Cambridge University Press.
- Henning, E. (2004). *Finding your way in qualitative research*. Pretoria: J. L. van Schaik.
- Hodson, D., & Hodson, J. (1998). From constructivism to social constructivism: A Vygotskian perspective on teaching and learning science. *School of Science Review*, 79(289), 33-41.
- How to plan and conduct an interview*. <http://saulcarliner.home.att.net/id/interview.htm>
- Jegede, O. J. (1997). School science and the development of scientific culture: A review of contemporary science education in Africa. *International Journal of Science Education*, 19(1), 1-20.
- Johnstone, A. H., & Selepeng, D. (2001). A language problem revisited. *Chemistry Education: Research and Practice in Europe*, 2(1), 19-29.
- Jonassen, D. H., & Rohrer-Murphy, L. (1999). Activity theory as a framework for designing constructivist learning environments. *ETR & D*, 47(1), 61-79.
- Kagaba, P. (2005). *Using feedback from public examinations and teacher assessment to improve classroom teaching*. Kampala: Uganda National Examination Council.

- Kamini, J. (2001). *English second language students in a Grade 11 Biology class: Relationships between language and learning*. British Columbia: EDRS.
- Kellough, R. D., & Kellough, N. G. (1999). *Secondary school teaching: A guide to methods and resources*. New Jersey: Prentice Hall.
- Kind, V. (2009). Pedagogical content knowledge in science education: perspectives and potential for progress. *Studies in Science Education*, 45(2), 169-204.
- Kocakulah, S., Ustunluoglu, E., & Kokakulah, A. (2005). The effects of teaching in native and foreign language on students' conceptual understanding in science courses. *Asia-Pacific Forum on Science Learning and Teaching*, 6(2), 1-30.
- Kosonen, K. (n.d.). *First language-based multilingual education can help those excluded by language*. Thailand: Payap University.
- Lantolf, J. P., & Thorne, S. L. (n.d.). *Sociocultural Theory and Second Language Learning*. Retrieved March 23, 2014, from <http://language.la.psu.edu/~thorne/Lantolf.Thorne.vanpatten.2007.pdf>
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. New York: Cambridge University Press.
- Leahy, S., Lyon, C., Thompson, M., & William, D. (2005). Classroom assessment: Minute by minute, day by day. *Assessment to Promote Learning*, 63(3), 19-24.
- Lee, O., & Fradd, S. H. (1998). Science for all, including students from non-English-language backgrounds. *Educational Researcher*, 27(4), 12-21.
- Lemke, J. L. (1989). *Using language in the classroom*. Australia: Oxford University Press.
- Lemke, J. L. (1990). *Talking science language, learning and values*. West Port: Ablex Publishing.
- Lopes, J. B., Cravino, J. P., Branco, M. J., Saraiva, E., & Silva, A. A. (2008). Mediation of student learning: Dimensions and evidences in science teaching. *Problems of Education in the 21st Century*, 9, 42-52.

- Lowe, I. (2009). *Adult first language acquisition*. Retrieved June 26, 2009, from www.Scientificlanguage.com/adultl1a/adult-l1-acquisition.pdf
- Marsh, D., & Lange, G. (2000). *Using languages to learn and learning to use languages*. Retrieved January 8, 2014, from <http://www.tieclil.org/html/products/pdf/%201%20UK.pdf>
- Martin, M. O., Mullis, I. V. S., Foy, P., & Stanco, G. M. (2012). *Trends in International Mathematics and Science Study (TIMSS) Report*. USA: TIMSS & PIRLS International Study Center.
- McRobbie, C., & Tobin, K. (1997). A social constructivist perspective on learning environments. *International Journal for Science Education*, 19(2), 193-208.
- McTighe, J., & O'Conner, K. (2005). Seven practices for effective learning. *Educational Leadership, Association for Supervision and Curriculum Development*, 63, 10- 17.
- Module 9: Introduction to research – the advantages and disadvantages of questionnaires* (n.d.). Retrieved September 16, 2013, from <http://libweb.surrey.ac.uk/library/skills/Introduction%20to%20Research>
- Morrissey, N. (2007). *Assessment for learning: professional development for teachers*. Retrieved April 2, 2009, from http://www.curriculum.edu.au/leader/assessment_for_learning:_professional_development
- Moseley, L. (n.d.). *The role of Assessment: White Paper*. Retrieved June 26, 2013, from www.glencoe.com/glencoe_research/Math/trawp.pdf
- Muhaya, A. (2005). *Using feedback from public examinations and teacher assessment to improve classroom teaching*. Kigali: Rwanda National Examination Council.
- Mukute, M., & Lotz-Sisitka, H. (2012). Working with Cultural-Historical Activity Theory and Critical Realism to investigate and expand farmer learning in Southern Africa. *Mind, Culture and Activity*, 19(4), 342-367.

- Mullis, I. V. S., Martin, M. O., Foy, P., & Drucker, K. T. (2012). *Progress in International Reading literacy Study (PIRLS) Report*. USA: TIMSS & PIRLS International Study Center.
- Mutorwa, J. (2004). National Report on the Development of Education in Namibia. *Proceedings of the National Conference on Education* (pp. 1-23), Geneva.
- Mwanza, D. (2002). Conceptualising work activity for CAL systems design. *Journal of Computer Assisted Learning*, 18, 84-92.
- Nakale, E. (2012). *Understanding how teachers scaffold learners to make sense of biological language and concepts when using English as a mediational tool: A case study*. Unpublished master's thesis, Education Department, Rhodes University, Grahamstown.
- Namibia. Ministry of Education and Culture. (1993). *The language policy for schools – 1992–1996 and beyond*. Windhoek: Longman/ODA.
- Namibia. Ministry of Education and Culture. (1993). *Toward education for all: A development brief for education, culture, and training*. Windhoek: Gamsberg Macmillan.
- Namibia. Ministry of Education. (2007). *Report on the examinations: JSC & NSSC*. Windhoek, DNEA.
- Namibia. Ministry of Education. (2008). *Report on the examinations: JSC & NSSC*. Windhoek, DNEA.
- Namibia. Ministry of Education. (2009). *Report on the examinations: JSC & NSSC*. Windhoek, DNEA.
- Namibia. Ministry of Education. (2010). *Report on the examinations: JSC & NSSC*. Windhoek, DNEA.
- Namibia. Ministry of Education. (2011). *Report on the examinations: JSC & NSSC*. Windhoek, DNEA.
- Namibia. Ministry of Education. (2012). *Report on the examinations: JSC & NSSC*. Windhoek, DNEA.

- Namibia. Ministry of Education. (2013). *Report on the examinations: JSC & NSSC*. Windhoek, DNEA.
- Namibia. Ministry of Education. (2010). *Namibia Senior Secondary Certificate Biology Syllabus, Higher Level*. Okahandja, NIED.
- Namibia. Ministry of Education. (2010). *Namibia Senior Secondary Certificate Biology Syllabus Ordinary Level*. Okahandja, NIED.
- Namibia. Ministry of Education. (2013). *Appointment of Chief Examiners for NSSCO/H Examination*. Windhoek, DNEA.
- Namibia. Ministry of Education. (2013). *Duties of chief markers for NSSCO/H Examination*. Windhoek, DNEA.
- Namibia. Ministry of Education. (2013). *Marking instructions to the chief marker for NSSCO/H Examination*. Windhoek, DNEA.
- Naylor, S., & Keogh, B. (2007). Active assessment: Thinking, learning and assessment in science. *School Science Review*, 88(325), 73-79.
- Nicol, D. (n.d.). *Principles of good assessment and feedback: Theory and practice*. Retrieved February 12, 2014, from <http://www.reap.ac.uk>
- Nicol, D., & Marfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practices. *Studies in Higher Education*, 31, 199-218.
- O'Conner, J., & Geiger, M. (2009). Challenges facing primary school educators of English second (or other) language learners in the Western Cape. *South African Journal of Education*, 29, 253-269.
- Ogawa, M. (1995). Science education in a multiscience perspective. *Science Education*, 79, 583-593.
- Ortiz, A. (1997). Learning disabilities occurring concomitantly with linguistic differences. *Journal of Learning Disabilities*, 30, 321-332.

- Pea, R. D. (1993). Learning scientific concepts through materials and social activities: Conversational analysis meets conceptual change. *Educational Psychologist*, 28(23), 265-277.
- Pinnock, H. (2009). *Steps towards learning*. London: Save the children.
- Prince, M., Handley, K., Millar, J., & O' Donovan, B. (2010). Feedback: All that effort, but what is the effect? *Assessment & Evaluation in Higher Education*, 35(3), 277-289.
- Qualitative analysis of data*. Retrieved September 27, 2013, from www.smartpsych.co.uk/wp-content/uploads/2012/02/psych_method1.pdf
- Roth, W., & Lee, Y. (2007). Vygotsky's neglected legacy: Cultural historical activity theory. *Review of Educational Research*, 77(2), 186-232.
- RWJF Qualitative research guidelines project/the interpretive paradigm*. (2014). Retrieved February 20, 2014, from <http://www.qualres.org/HomeInte-3516.html>
- SACMEC III Results*. (2011). Available at <http://www.sacmec.org>.
- Shaakumeni, S. S. (2012). *An exploration of Natural Science teachers' experiences and perceptions of the National Standardized Achievement Tests: A case study*. Unpublished master's thesis, Education Department, Rhodes University, Grahamstown.
- Shaw, S. (2010). International assessment through the medium of English: Analysing the language skills required. *Research Matters*, 13, 2 -9.
- Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15, 4-14.
- Shulman, L. S. (1987). Knowledge and teaching: Foundations of new reform. *Harvard Educational Review*, 57(1), 1-22.
- Sirota, E. (2009). *The impact of teachers' expectations on diverse learners' academic outcomes*. Retrieved June 8, 2014, from <http://www.freepatentsonline.com/article/Childhood-Education/198931267.html>

- Smith, M. K. (2003). '*Communities of practice*', the encyclopedia of informal education. Retrieved July 25, 2014, from [www.infed.org/biblio/communities of practice.htm](http://www.infed.org/biblio/communities%20of%20practice.htm).
- Stathem, L. (1997). Scattered in the mainstream: Educational provision for isolated bilingual learners. *Multicultural Teaching*, 15, 18-22.
- Stracke, E., & Kumar, V. (2010). Feedback and self-regulated learning: Insights from supervisors and PhD examiners' reports. *Reflective Practice: International and Multidisciplinary Perspectives*, 11(1), 19-32.
- Sawchuk, P. H. (2009). *Social movement studies and the role of socio-cognition for understanding change: The case of emergent community/union coalition in Toronto, Canada*. Retrieved July 23, 2011, from <http://www.adulterc.org/Proceedings/2011/papers/sawchuk.pdf>
- Terenzini, P. T. (1989). Assessment with open eyes: Pitfalls in studying student outcomes. *Journal of Higher Education*, 60(6), 644-664.
- The qualitative paradigm*. (2014). Retrieved February 20, 2014, from <http://www.computing.dcu.ie/~hruskin/RM2.htm>
- Thompson, I. (2013). The mediation of learning in the zone of proximal development through a co-constructed writing activity. *Research in the Teaching of English*, 47(3), 247- 276.
- Thorne, S. (n.d.). *Data analysis in qualitative research*. Retrieved September 27, 2013, from <http://bmj-ebn.highwire.org/content/3/3/68.full>
- Tudge, J. (1990). Vygotsky, the zone of proximal development, and peer collaboration: Implications for classroom practice. In L.C. Moll (Ed.), *Vygotsky and education: Instructional implications and applications of sociohistorical psychology* (pp.155-172). New York: Cambridge University Press.
- Torres, H. N., & Zeidler, D. L. (n.d.). *The effects of English language proficiency and scientific reasoning skills on the acquisition of science content knowledge by Hispanic English language learners and native English language speaking students*. University of Massachusetts and South Florida.

- Types of assessment*. Retrieved August 1, 2014, from <https://www.brookes.ac.uk/services/ocslid/resources/assessment/purposes.html>
- Van der Mesch, H. (2013). *Interviews in qualitative research*. 'Lecture handout, unreferenced'.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. MA: Harvard University Press.
- Warmington, P., Daniels, H., Edwards, A., Brown, S., Leadbetter, J., & Martin, D., et al. (2005). Surfacing contradictions: intervention workshops as change mechanisms in professional learning. *British educational research association annual conference, University of Glamorgan*, (pp. 1-27). University of Glamorgan.
- Wees, D. (2010). *David Wees: Thoughts from a reflective educator*. Retrieved February 18, 2014, from <http://davidwees.com/content/role-immediacy-feedback-student-learning>
- Weimer, M. (n.d.). *Making exams more about learning*. Retrieved February 18, 2014, from <http://www.facultyfocus.com/articles/educationsl-assessment/making-exams-more-about-learning>
- Wells, G. (2002). The role of dialogue in activity theory. *Mind, Culture, and Activity*, 9, 43–66.
- Wenger, E. (1998). *Communities of practice, learning, meaning and identity*. Cambridge: Cambridge University Press.
- What is the purpose of questionnaires?* (n.d.). Retrieved September 16, 2013, from <http://www.economicsnetwork.ac.uk/handbook/questionnaires/13>
- Wolfaardt, D. (2005). *Namibia: A case for a gradual transitional bilingual language program*. Proceedings of the 4th International Symposium on Bilingualism. Arizona US.
- Yamagata-Lynch, L. C. (2003). Using Activity Theory as an Analytic Lens for Examining Technology Professional Development in Schools. *Mind, Culture and Activity*, 10(2), 100–119.
- Zhang, Y. (2008). Classroom discourse and student learning. *Asian Social Science*, 4(9), 80-83.

APPENDICES

APPENDIX U1:

PERMISSION LETTER TO KHOMAS DIRECTOR OF EDUCATION

P O Box 10156
Khomasdal
Windhoek
Cell: 0812619442
W: 061-293 3426
Fax: 061-293 3412
07 February 2014

The Director
Khomas Education Directorate
P/Bag 13236
Windhoek

Dear Ms T. Seefeldt

PERMISSION TO CONDUCT RESEARCH FOR A MASTERS DEGREE IN SCIENCE EDUCATION

I am a Senior Education Officer at the DNEA, currently enrolled as a student to a Master's programme in Science Education with Rhodes University. This master's programme requires research to be conducted.

Therefore, it is against this background that I am humbly requesting for permission to conduct research in the Khomas region. The research will explore the distribution and utilisation of Examiners' reports produced by DNEA for Secondary schools. The research is will take place between February and August 2014.

Questionnaires and interviews will be used to collect data from secondary schools. The questionnaires will be including **all** Senior Secondary schools in the Khomas region, to be completed by the school's principal, HOD for sciences, Biology subject teacher(s) and Examination centre heads. Face to face interviews will only focus on **two** specific schools still to be selected. However, four schools offering Biology Higher and Ordinary level has been short listed, namely; Delta SSS, HTS, Concordia College and St Joseph's Roman Catholic School. Prior arrangement will be made with principals as not to disrupt the academic programmes of the envisaged secondary schools.

The questionnaire is attached. I am looking forward to a positive response.

Yours in Education,

Anthea Bezuidenhoudt
Senior Education Officer
DNEA: Assessment Test Item Development

APPENDIX U2:

**PERMISSION LETTER TO THE UNDER SECRETARY FOR FORMAL EDUCATION
IN THE MINISTRY OF EDUCATION**

Enquiries: Anthea Bezuidenhout
Telephone: (061) 293 3426
Cell: 0812619442
Fax: (061) 293 3412

P O Box 10156
Khomasdal
Windhoek
17 February 2014

TO: Mr A.M. Ilukena
The Permanent Secretary
Ministry of Education
Private Bag 12026
Windhoek

Dear Mr A Ilukena

**PERMISSION TO CONDUCT RESEARCH FOR A MASTERS DEGREE IN SCIENCE
EDUCATION**

I am a Senior Education Officer at the DNEA, currently enrolled as a student to a Master's programme in Science Education with Rhodes University. This master's programme requires research to be conducted.

Therefore, it is against this background that I am humbly requesting for permission to conduct research in the Khomas region. The research will explore the distribution and utilisation of Examiners' reports produced by DNEA for Secondary schools. The research is will take place between February and August 2014.

I hereby include the two attachments for your perusal and clarity that were channelled to Ms Seefeldt:

- (i) Permission letter to conduct research
- (ii) Questionnaire and the research proposal for your attention.

Participation in this research is voluntary and prior arrangements will be made with principals as not to disrupt the academic programmes of the envisaged secondary schools.

Feedback about the findings of the research can be availed on request to participating schools and the region.

Yours in Education,

Anthea Bezuidenhout
Senior Education Officer
DNEA: Assessment Test Item Development

Cc: Mr C.M. Kabajani (Deputy Permanent Secretary)

APPENDIX U3(a):

PERMISSION TO CONDUCT RESEARCH FOR THE UNDER SECRETARY FOR FORMAL EDUCATION IN MINISTRY OF EDUCATION



REPUBLIC OF NAMIBIA
MINISTRY OF EDUCATION

Enquiries: Ms. H. Amukana
Tel. No: 061-2933277/3357
Fax. No: 061-2933922
Email: Hilleni.Amukana@moe.gov.na

PRIVATE BAG 13186
WINDHOEK

24 February 2014

Ms. Anthea Bezuidenhout
P.O. Box 10156
Khomasdal

Dear Mr. Bezuidenhout

**RE: PERMISSION TO UNDERTAKE MASTERS DEGREE RESEARCH IN
KHOMAS REGION**

Your later dated 17 February 2014, on the above-mentioned matter is hereby acknowledged.

Your request to conduct research for your Masters' Degree in Khomas Region on "*exploring the distribution and utilization of examiners' reports produced by DNEA for secondary schools*" is approved. Please take note that the permission to visit schools is subject to the following conditions:

- Before visiting the schools, you should acquire authorization from the Regional Director of Education concerned.
- Interviews or discussions with teachers and learners must not be held during normal school time. In other words, the normal school programme of teaching and learning should not be interrupted.
- Please arrange your schedule with the principals of the concerned schools to securing their cooperation.
- Participation of learners and teachers in your interview is voluntary.

The Khomas Region is notified by copying of this letter to Regional Directors of Education.

All official correspondences to be addressed to the Permanent Secretary

APPENDIX U3(b):

PERMISSION TO CONDUCT RESEARCH FROM THE DEPUTY DIRECTOR – KHOMAS REGION



KHOMAS REGIONAL COUNCIL DIRECTORATE OF EDUCATION

Tel: (0926461)293 4410
Fax: (09 264 61) 231367
Enquiries: Ms. A. Steenkamp

Private Bag 13236
Windhoek
File No: 12/2/6/1

Date: 28 February 2014

Ms. Anthea Bezuidenhout
P.O. Box 10156
KHOMASDAL

Dear Ms. Bezuidenhout

RE: PERMISSION TO UNDERTAKE MASTERS DEGREE RESEARCH IN KHOMAS REGION

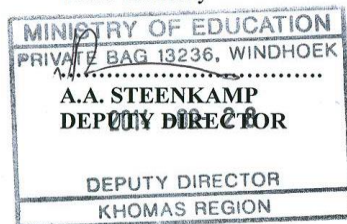
Your letter dated 17 February 2014 is hereby acknowledged.

Your request to conduct a research at all Senior Secondary Schools in the Khomas region on "*exploring the distribution and utilization of examiners reports produced by DNEA for secondary schools*" is approved with the following conditions:

1. The principal of the different schools to be visited must be contacted before the visit and an agreement should be reached between you and the principal.
2. The school program should not be interrupted at all.
3. The school should not be forced to take part in the programme.
4. Learners or teachers who will take part in this exercise will do so voluntarily.
5. Khomas Education Directorate should be provided with a copy of your findings.

Wishing you all the success in your endeavor.

Yours faithfully



APPENDIX V1:
QUESTIONNAIRE PILOTED – 1ST PILOT

Introduction

The questionnaire seeks to understand issues around distribution, dissemination and utilization of Examiners' report(s). The data collected will be used in fulfilment of the requirements for the completion of a Master in Education degree.

Teachers are humbly requested to assist in the data collection process by completing this questionnaire. The information provided will be confidential. The results of this research project can be made known to you on request.

REGION: _____ **POSITION AT SCHOOL:** _____

Instruction: Encircle either **YES** or **NO**

PART 1: DISTRIBUTION AND DISSEMINATION OF EXAMINERS' REPORT(S)

(Principals/HODs/Subject teachers)

1. Did you receive any Examiners' report(s) for 2010 - 2012?

YES

NO

1.1.1 If **yes**, indicate the grade(s), subject(s) and levels (higher and or ordinary). If **no**, could you provide a reason or reasons why you did not receive the report(s).

1.1.2 Indicate when and how the Examiners' report(s) were further distributed from management to teachers in the school.

2. Is it the appropriate time to provide the Examiners' report(s) to schools during the first term?

YES

NO

If **yes**, provide reasons. If **no**, provide reasons and suggest an alternative time when the Examiners' report(s) should be provided to the schools.

3. Do you think the school management should be held responsible and accountable for the distribution of Examiners' report(s)?

YES

NO

Provide reasons.

4. Do you think school management and subject heads should be held responsible and accountable for the dissemination (distribution at school level) of Examiners' report(s)?

YES

NO

Provide reasons.

5. How can the distribution of Examiners' report(s) be improved?

6. How can the dissemination of Examiners report(s) be improved?

PART 2: USE OF EXAMINERS' REPORT(S)

(Subject teachers)

1. Do you use the Examiners' report(s)?

YES

NO

If **yes**, in which ways do you use Examiners' report(s)? If **no**, why not?

2. Do you discuss the Examiners' report(s) for your specific subject(s) in your departmental or subject meetings?

YES

NO

If **yes**, what are the benefits arising from such discussion of Examiners' report(s)? If **no**, provide possible reasons why the Examiners' report(s) are not discussed in your departmental or subject meetings.

3. Did you get any support or advice in relation to the previous (2009 – 2011) and current (2012) Examiners' report(s) from your subject advisor/Regional office?

YES

NO

If **yes**, state the type of support you get from your subject advisor/Regional office. If **no**, provide reasons why is there no support is provided.

4. Do you discuss the Examiners' report(s) in your cluster meetings or not?

YES

NO

If **yes**, what are the benefits of discussing Examiners' report(s) at cluster level? If **no**, provide reasons why you do not discuss Examiners' report(s) in your cluster meetings?

5. From your experience, has there been an improvement in teaching and learning as a result of using the Examiners' report(s)?

YES

NO

Provide reasons.

6. Do you think that the implementation of the Examiners' report(s) recommendations by schools/teachers during teaching and learning could lead to an annual improvement in a schools' performance or not?

YES

NO

If **yes**, how does it contribute to the improvement of performance? If **no**, what could be the reasons why there is no improvement in performance?

7. Do you think all schools should be responsible for the implementation or utilization of Examiners' report(s)?

YES

NO

Provide reasons.

8. Do you think that the Examiners' report(s) can be improved?

YES

NO

If **yes**, suggest ways in which the Examiners' report(s) can be improved. If **no**, provide reasons why the current form (status) of the Examiners' report(s) should be maintained.

PART 3: GENERAL COMMENTS

Thank you for the time that you have put a side to complete this questionnaire.

I trust that you have been very open and specific in your comments as this research project is aimed at making recommendations to the various stakeholders to improve service delivery.

APPENDIX V2:

FINAL QUESTIONNAIRE DISTRIBUTED IN THE KHOMAS REGION

Introduction

The questionnaire seeks to understand Biology teachers' perceptions and experiences of the dissemination and utilization of Examiners' report(s). The data collected will be used in fulfillment of the requirements for the completion of a Master in Science Education degree.

Teachers are humbly requested to assist in the data collection process by completing this questionnaire. The information provided will be confidential. The results of this research project can be made known to you on request.

KHOMAS REGION

POSITION AT SCHOOL: _____

Instruction: Put a cross (x) in the appropriate box.

PART 1: DISSEMINATION/DISTRIBUTION OF EXAMINERS' REPORT(S)

(Principals/HODs/Subject teachers/Examination head)

7. Did you receive any Biology Examiners' report(s) for the years 2010 to 2013?

YES ☐

NO ☐

If **yes**, indicate the **level(s)** higher and /or ordinary **by putting a cross in the appropriate block(s)** as well as the **month** you received it.

Year	2010	2011	2012	2013
Higher level				
Ordinary level				
Month received				

If **no**, could you provide a reason or reasons why you did not receive the report(s).

8. Is the **first term** the appropriate time for the Examiners' report(s) to be delivered to schools or not?

YES ☐

NO ☐

If **yes**, provide reasons. If **no**, provide reasons and suggest an alternative time when the Examiners' report(s) should be delivered to schools/teachers.

9. Should the dissemination/distribution of Examiners' report(s) within the schools be improved or not?

YES ☐

NO ☐

Provide reasons.

-
-
10. In what ways can Grade 12 Biology teachers improve the dissemination/distribution of Examiners' reports?

PART 2: UTILIZATION OF EXAMINERS' REPORT(S)

(Subject teachers – current and previous)

TEACHING EXPERIENCE: _____ years

9. Do you use the Examiners' report(s) or not?

YES

☐

NO

☐

If **yes**, in which ways do you use Examiners' report(s)? If **no**, why not?

10. Do you discuss the Examiners' report(s) for your specific subject(s) in your departmental or subject meetings?

YES

☐

NO

☐

If **yes**, what are the benefits arising from such discussion of Examiners' report(s)?
If **no**, provide possible reasons why the Examiners' report(s) are not discussed in your departmental or subject meetings.

11. Do you get any support or advice in relation to the Examiners' reports at your Regional office/subject advisor/school level?

YES

☐

NO

☐

If **yes**, state the type of support you get. If **no**, provide reasons why no support is provided.

12. Do you think support/advice on the use of Examiners' reports should be provided to subject teachers or not?

YES

☐

NO

☐

If **yes**, please give specific suggestions on how subject teachers can be assisted on the use of the Examiner's reports. If **no**, provide reasons.

13. Do you think all schools should be encouraged to utilize the Examiners' report(s)?

YES

☐

NO

☐

Provide reasons.

14. From your experience, has there been an improvement in teaching and learning as a result of using the Examiners' report(s)?

YES ☐

NO ☐

Provide reasons.

15. Do you think that the utilization of the recommendations contained in the Examiners' report(s) by schools/teachers during teaching and learning could lead to an annual improvement in a schools' performance or not?

YES ☐

NO ☐

If **yes**, how does this contribute to the improvement of performance? If **no**, what could be the reasons why there is no improvement in performance?

16. In what ways can Grade 12 Biology teachers improve the utilization of Examiners' reports?

17. What you think could be improved in the Examiners' report(s)?

PART 3: GENERAL COMMENTS

Thank you for the time to complete this questionnaire.

APPENDIX W:

INTERVIEW SCHEDULE

THEME 1: Physical accessibility

Points to:

- dissemination effectiveness
- division of labour

1(a)(i) How many years are you teaching Biology?

1(a)(ii) Are there other Biology teachers besides yourself at your school? If **yes**,

- How many classes are you teaching?
- Do you discuss the Biology Examiners' reports amongst yourselves at school or with teachers from other schools? If **yes**, what are the benefits of such discussions?
- If it is shared, but there are no discussions find out why?
- Establish the activeness of clusters + their opinion on the need for clusters as an alternative avenue for discussions, support and sharing.
- Do you feel there is a need to have a workshop where Examiners' reports can be discussed? If **yes**, give reasons **and** state whose responsibility it is in your opinion to arrange and facilitate the workshop? If **no**, give reasons.
- Determine whether any support is provided by the HOD or Subject Advisor. If **yes**, support is given, elaborate on the type of support you get. If **no**, no support is given, give reasons why.

If **no**, no sharing

- Find out if Examiners' reports are discussed with teachers from other schools. If **yes**, why? If **no**, why?
- Establish the activeness of clusters + their opinion on the need for clusters as an alternative avenue for discussions, support and sharing.
- Do you feel there is a need to have a workshop where Examiners' reports can be discussed? If yes, give reasons and state whose responsibility it is in your opinion to arrange and facilitate the workshop? If no, give reasons.
- Determine whether any support is provided by the HOD or Subject Advisor. If yes, support is given, elaborate on the type of support you get. If no, no support is given, give reasons why.

- 2(a) Have you received the Examiners' reports for Biology for the past four years? (2010 – 2013)
- (a)(i) From who have you received it?
- (a)(ii) Which levels (OL/HL) did you receive?
- (a)(iii) When exactly (**month**) did you get the Examiners' reports?
- (a)(iv) Do you give copies of the Examiners' reports to your learners? If **yes**, give reasons why. If **no**, give reasons why.
- (a)(v) What do you think should or can be done to ensure that all Biology teachers and indirectly learners' can have access to the Examiners' reports?
- 2(b) If Examiners' reports were not received....
- (b)(i) Can you think of reasons why you did not receive the reports?
- (b)(ii) Who do you think should be held responsible and accountable for the dissemination of Examiners' reports **at your school**?
- (b)(iii) What do you think should or can be done to ensure that all Biology teachers and indirectly learners' can have access to the Examiners' reports?
- 3(a) Examiners' reports are produced annually. Thus it is therefore expected that all schools should have all reports of previous years filed in the HODs subject files. Do you know whether your school has copies of previous years (before easily accessible to all subject teachers in the science department)? If **yes**,
- (a)(i) How did you get to know about these reports?
- (a)(ii) Are the reports easily accessible to you?
- 3(b) If teachers **do not have access** to previous years reports ask why?
- 4(a) Do you think that the dissemination of Examiners' reports for Biology is efficient at your school? If **yes**, give reasons. If **no**, give reasons.

- 5 Do you think you yourself as a Biology teacher can play a role in the dissemination of Biology Examiners' reports? If **yes**, elaborate on how you can help in the dissemination. If **no**, give reasons why you feel you cannot help.
- 6 When do you think is the appropriate time for the Examiners' reports to be available in schools and why?
- 6(a) Many teachers' feel that the Examiners' reports get to schools very late and is therefore not very useful when it arrives.....*Depending on response I would like to find out why teachers are not falling back on the previous year's Examiners' reports as those reports often report on similar mistakes that were made in the most recently written examination.*

THEME 2: Conceptual accessibility

- 1 Have you ever marked Biology at a National level? Ask for reasons for yes or no.
 - 1(a)(i) Do you use the Examiners' reports for Biology in your teaching?
 - 1(a)(ii) If **yes**, can you tell me **how/in which ways** you use the reports by giving examples.
 - 1(a)(iii) If **no**, why do you not use it?
- 1(b) Do you think you can play a role in improving the utilization of Examiners' reports? If **yes**, how can you help to improve the utilization of the reports? If **no**, give reasons.
- 2 Do you think that the Examiners' reports for Biology in its current state is user-friendly and accessible to all teachers?
 - 2(a) Can you use the Examiners' reports in its current state on your own or do you need assistance from other teachers, HOD or Subject Advisor on how to use it?
 - 2(b) In terms of the language used in the reports is it appropriate and at the level of all Biology teachers?
 - 2(c) Will your learners or learners in general be able to use the reports themselves to

- aid their learning if it is given to them?
- 2(d) The level and the depth of explanations is it appropriate in terms of what the syllabus requires for Biology?
- 2(e) What if any, have you learned from the current or previous Examiners' reports for Biology that aided your teaching and understanding of Biology?
- 3 Do you think there is a need to encourage and sensitize all Biology teachers' about Examiners' reports and the importance of using it? If **yes**, give reasons. If **no**, give reasons.

THEME 3: Impact/effectiveness of reports and accountability

- 1(a) Has there been an improvement and change in your teaching as a result of the use of the Examiners' reports for Biology? If **yes**, give examples. If **no**, give reasons.
- 1(b) Have you changed your teaching approach in any of the topics in the syllabus as a result of recommendations given in the Examiners' reports for Biology? If **yes**, give examples. If **no**, give reasons.
- 2 Do you think that the utilization of the Examiners' reports for Biology by teachers can lead to the improvement in learning? If **yes**, give examples. If **no**, give reasons.
- 3 Do you think that the Examiners' reports can help teachers to support learning (mediate learning) in learners especially in the competencies they find difficult to master? If **yes**, give examples. If **no**, give reasons.
- 4 Do you think that the use of the Examiners' reports for Biology by teachers can lead to the improvement in learners' performance in your school? If **yes**, give examples. If **no**, give reasons.
- 5 Do you think that all Biology teachers should be responsible (and held accountable) for the implementation or utilization of the Examiners' reports for Biology? If **yes**, why? If **no**, why?
- 6(a) Do you think if copies of the Biology Examiners' reports are given to learners' they can use it and learn from it? If **yes**, give reasons. If **no**, give reasons.

- 6(b) Do you think learners' learning can be improved if they use the Examiners' reports themselves to learn from? If **yes**, explain how their learning can be improved. If **no**, give reasons.

THEME 4: Improvement in reports

1. Do you think that the Examiners' reports for Biology can be improved? If **yes**, suggest ways in which it can be improved. If **no**, give reasons why.
2. What information should be added to the Examiners' reports for Biology to ensure the report is comprehensive and contains sufficient information to be used by Biology teachers and learners about the most recently written examination?

APPENDIX X:

INTERVIEW TRANSCRIPT OF TEACHER FROM ALPHA SCHOOL (T1)

Key:

R: researcher

T1: teacher from Alpha school

Theme 1: Physical accessibility

R: How many years are you in the teaching profession?

T1: 7 years.

R: How many years are you teaching Biology?

T1: I think four years.

R: Are there other Biology teachers besides yourself at your school?

T1: Yes, there are two others, so in total we are three.

R: How do you share the teaching load in Biology specifically?

T1: *The teaching will depend on who had the Grade 10's the previous year and that specific teacher will be requested to continue with the Grade 11 and 12 Biology. So if you were teaching Grade 10 Life Science you will continue with your classes into Grade 11 and take them through to Grade 12*

R: So does it mean you have three Life Science teachers who take the science group through in Grades 10, 11 and 12?

T1: Yes.

R: Since you are three in the school teaching biological sciences, do you discuss the Biology Examiners' reports amongst yourselves at school?

- T1:** *We do not really discuss the Examiners' reports per say, unless I am experiencing problems with something than I will consult my head of the subject.*
- R:** Are you aware of the school cluster system operating?
- T1:** *The cluster, ahm the cluster... my first year of teaching I have been in the Erongo region at Uis neh and that is where I have been introduced to the cluster system where schools meet and then set up a common paper, but when I moved to Windhoek it was a different setting. Yes I heard there is a cluster to which my school belongs but I have never met with them. Nor do I even know the schools we are in the same cluster with.*
- R:** So you do not know whether the cluster system in Windhoek is operating or not?
- T1:** *I don't think they are operating cause I have never been exposed to anything from the cluster. No paper, no scheme of work, no help from other teachers, no nothing, no meetings.*
- R:** From your experience in Erongo region, do you think the cluster system is useful?
- T1:** *Clusters are very very useful. From my experience in Erongo region, we were meeting and imagine I was in Uis. Uis is outskirts, it is out of all the towns, but yet we will either drive to Swakop or to Walvis, or Omaruru where all teachers within that cluster will meet. We will set up a common paper and even before that we will discuss the scheme of work that we are supposed to cover. Which topics we are supposed to cover in the first term, the second term and the third term. Than before the examination we will meet again to set up the paper together and then that paper was than photocopied at the regional office and then that paper was than written at the end of the semester.*
- R:** Did you discuss Examiners' reports in your cluster meetings?
- T1:** *I don't remember discussing Examiners' reports at those meetings at all.*
- R:** I think you have mentioned that if there is anything you experience problems with you can go to your subject head and discuss it with him?
- T1:** Yes.
- R:** Have you received the Examiners' reports for Biology for the past four years? (2010–2013)?
- T1:** *Yes, however I will not say per say myself because we are sharing so sometimes it goes to the previous teacher, the teacher who had the Grade 12's the previous year. Sometimes we file it. But most of the time my main access to it is through the NAMCOL*

booklets which contain the question papers and the marking schemes. So sometimes I don't really go and look for the reports because I know I have a NAMCOL booklet that has the information I am looking for. Or sometimes I will get an Examiners' report from my colleague for example my colleague went for marking last year and he already had a memo, so the beginning of this year already I had that cause he gave it to me, we made copies and I filed it.

R: So does it mean with the example you gave me now, you had just the marking scheme and not really the report?

T1: *Yes, I really just had the marking scheme of 2013 papers and not really the report.*

R: So besides just receiving last year's marking scheme did you actually get the examiners' report for 2013 and the previous years?

T1: *Yes, I got the reports as well.*

R: From who have you received it?

T1: *I received it from the teacher who is responsible for the Grade 12 external examination. She at times will distribute it to us or at times she will give it to the management, the head of department of say Biology or science and then he is the one who will then distribute it to us.*

R: Which levels did you receive (OL and or /HL)?

T1: *We mostly receive both ordinary and higher.*

R: Does the school offer Biology on HL?

T1: Yes.

R: Have you taught higher level at some stage?

T1: *Yes, we teach higher level at Grade 11 and the first examination in Grade 12 will determine if the learners can continue with higher level or whether they should down grade to ordinary level. So most of the time it is only a few learners that we advise to continue with higher level.*

R: Can you recall more or less when exactly (**month**) did you get the Examiners' reports?

T1: *I call recall the ones for this year (2013) we received about three weeks ago, if I am not wrong (week of 20 May 2013).*

R: What about the previous year's reports. Did you also get them more or less at the same time?

T1: *Yes, in the second term.*

R: Can you explain to me how duplication procedures work at your school and who copied the Examiners' reports you received?

T1: *I am not sure who copied the reports it could be the people responsible for photocopying or my HOD. Certain people at school are responsible for the duplication in the afternoons as part of their extra mural activities. All HODs and management members and secretaries can also help out with photocopies. These people all have codes so making copies at school is restricted as they are the only ones to make copies. Duplication work must be handed in two days before the time and copied work can be collected in the mornings. The teachers responsible for photocopying have a time table so copy work is not generally done every day.*

R: Do you give copies of the Examiners' reports to your learners?

T1: *We don't. I did not make copies of the reports for my learners. Not at all. I have never made copies of the reports for my learners.*

R: Is there a reason why you do not give them copies? Do you think they don't need the copies?

T1: *No. I have never really thought of it in that way. I don't know why I have never thought of giving them copies. Yes I think I don't know. I don't really have a reason why I did not give the reports to them. I don't know why I have never really thought of it that way. I don't know why I never thought of giving it to them. I have always just verbally shared with them what I read in the reports. For example I will give the learners questions from old question papers and then I will give them the expected marking scheme. That is the time I will discuss with them the answers and point out what was expected in the answer and there the majority of the learners fall short or made language or subject content knowledge mistakes. So using this approach I then enforce correct answering every time I gave them practice with old questions when I use them in tests or other assessment activities.*

R: From what I gathered the teachers at your school get the Examiners' reports, however in some questionnaires it came out that some teachers are not getting the reports. What

do you think should or can be done to ensure that all Biology teachers and indirectly learners' can have access to the Examiners' reports?

T1: *Yes, we all do get the reports, and not only do we get the reports, but also copies of all reports are filed and kept in the management's office. So for example if someone misplaced his/her report another copy can be made from the copy kept in the file. Last year I misplaced my copy of the report and when I needed the report when I wanted to compile a question paper I went to my HOD and I could use the copy from the file and make another copy for myself. So even if there would be a situation that I did not get it, I can get access to it by going back to the resource file and make a copy of the original that is in the file.*

R: Even though it appears that there is not a problem with distribution of the reports in your schools what do you think can be done in other schools to improve the distribution of reports?

T1: *I think with the distribution problem the main thing is the filing. Firstly when the Examiners' reports come they come in two copies, one that need to be filed and one that need to be given to the teachers. So thus one that needs to be given to the teachers depending on the number of the teachers that are sharing the subject or are going to teach it in the years to come even if they don't have the Grade 12's for that specific year will also be given a copy and that copy should be filed. And I think if that file can also be controlled because sometimes the teacher receives it but does not file it, it can get lost. So checking up must be done to ensure the teachers received it and filed it for future references. I think that will also curb the distribution and use of the reports problem.*

R: In your opinion who's responsibility is it to check up and do controlling to ensure teachers have Examiners' reports filed?

T1: *Management or subject heads.*

R: From what I gathered from you it seems as if you also have all the other previous years Examiners' reports filed and kept in the HODs office?

T1: *Yes we do have all other previous years' reports. Even though some teachers might not have it on file or misplaced it, or may have lost some of theirs we have a backup that is kept safe in the HODs office and is accessible any time to all teachers who need it.*

R: Do you think that the dissemination of Examiners' reports for Biology is efficient at your school?

- T1:** *Yes the system is working fine for us. I think the main thing is that there must be a backup system in place so that there is no need for us to run around to other schools and teachers to beg for copies of reports. Our backup system is good because even new teachers can get access to previous reports if it is copied for them and they can carry on and be assisted when they join the school. Copies of previous reports can be made available to them without any problems.*
- R:** Can you explain the distribution channel at your school?
- T1:** *From the Principal it goes to the examination head. From the head it goes to the HOD. From the HOD it goes to the subject teachers.*
- R:** Do you think you yourself as a Biology teacher can play a role in the dissemination of Biology Examiners' reports?
- T1:** *Is that to the learners or to the other teachers?*
- R:** Distribution in general. It could be to the learners as well as teachers.
- T1:** *Yes one can. Yes I can because once I have received my copy and I have filed it and my other colleague who just came say for example that year there were only two teachers and next year the school gets another teacher, and that teacher is responsible for teaching Biology, I will have my copy on file so I can take mine out of the file and make a copy and give to the teacher who need it.*
- R:** It is evident from the questionnaires that most teachers feel the reports are getting to the schools to late. When do you think is the most appropriate time for the teachers to receive the Examiners' and why.
- T:** *Ahmm I'm assuming that the reports come late because maybe after the marking has been done they have to go back and check how many learners answered specific questions well and all that before they can compile the report. I'm assuming that is the reason why the reports are late, but we feel like other teachers as well that the reports actually are coming late. If maybe if by March or if before our examination because it is very useful for us to have the marking scheme because you also want to use some of the questions from the previous year's question paper. And with Biology for example it is so hard. Biology is not like any other subject where you can just have all the answers and sometimes you struggle yourself as a teacher you need to have a marking scheme. So if it can come to school even before our first term examination which is normally around early April it would be good.*

THEME 2: Conceptual accessibility

R: Have you ever marked Biology at a National level?

T1: *I have never marked at national level.*

R: Is there a reason for that?

T1: *I don't want to say it on record.*

R: Do you apply for marking?

T1: *I have applied. I have applied once for Life Science, but not for Biology and thereafter I have never applied ever again.*

R: So you have never marked Biology?

T1: *Yes I have never marked Biology.*

R: Do you use the Examiners' reports for Biology in your teaching?

T1: *I do use the reports in my teaching and especially when it is terms that the learners are supposed to know or how they are not supposed to say or answer or say certain things or how they are not supposed to answer certain things than you emphasize when you are doing that specific thing during that time because you have a clue of what is expected of them at the end of the year.*

R: Are there any other ways in which you use the reports?

T1: *I use them when I am marking. I use them say for example like I said previously if I have to set up a question maybe I took a question from a past question paper I refer back to see how did they mark, what did they expect from the learners so that I can also mark that way in my internal exam.*

R: Do you think you can play a role in improving the utilization of Examiners' reports and what role you think you can play?

T1: *I don't know. I can't think of something now. The role that I can play...can you repeat the question again?*

R: Utilization of the reports, if we want to encourage teachers to use it or sensitize teachers to use it. Do you think you have a role to play in it?

T1: *I think like I said say for example if you have a new teacher coming on board and you knowing what the importance of a marking scheme is and you enlighten the person that has just came in telling them you need to use a Examiner report or you need even though you are going to set up a question which is like that you need to familiarize yourself and know what and how they mark at the end of the year because at the end of the day if we don't know how they mark at the end of the day we actually disadvantage our learners.*

R: Now when you started teaching what was the first subject that you taught?

T1: *I had a group of subjects that I never even had the slightest clue on because I was in a village school which usually have very few teachers so they give you whatever subject. If there is no teacher they give you whatever subject. I was given Physical science. I was given Business Management. Ja, Physical science, Business Management and Life Science.*

R: So was there someone that introduced you to the Examiner reports or how did you come to hear about the reports?

T1: *Ahm.. I think the second term the Biology teacher went so I was given the Biology to teach in my first year. And when I was setting up the question papers there was a file, a question paper bank where they have filed all previous question papers and at the end they filed all the marking schemes. So that is when I realized that actually they do send this to the schools and you can actually use this integrate this either within your marking or teaching.*

R: But no one at the school told you that there is such a thing as a Examiner report or mark scheme.

T1: *No. no one informed me, no never.*

R: The Examiners' reports in its current state do you think it is user friendly?

T1: *I don't think so sometimes because sometimes..I have never marked externally so sometimes they put letters there and sometimes I don't understand what the letters is standing for so I am struggling now...did they say reject because sometimes I see an R and then I am assuming that it means the answer is reject. Or sometimes I see AW and then I think okay does it say allow? So sometimes you have to figure out what are they trying to say. It's hard because I'm thinking maybe a solution could be that at the top they could put what the abbreviation stands for. I have seen on online papers they*

display it. Unless I am not sure if it is not displayed on our reports at all as I have not checked the cover pages.

R: Is there anything else you think need to improve in the reports?

T1: *I think that is the only thing as I cannot think of anything else right now. The other thing that I am also struggling with is the graph. If I am using it the marking scheme to see how they marked the graph. Sometimes they will just put the S standing for the size and X standing for the axis and so forth, but then for a new person the person will like seeing that but will not know what they looked at. So I am thinking why did they not put a graph to show how they marked it so that I can also see how they marked it because sometimes we struggle with that as well.*

R: What are your comments on the language used in the reports?

T1: *I think the language is user friendly.*

R: Do you think that the level and depth of the explanations given in the reports are adequate?

T1: *I think it depends maybe from one question to another, but at times I also feel they could have added more to make a person understand better as well.*

R: Can you think of one example right now where you felt you wanted more explanations?

T1: *My mind is freezing now. I feel like I have a block. I can remember what I have experienced, but then I cannot recall now what exactly it was.*

R: If you had to give the Examiners' reports in its current state to your learners do you think they will be able to use the reports themselves to aid their learning?

T1: *Ahmm.. I think so though they can at a certain extent. I think it will be useful for them if I give it to them.*

R: Do you think your learners would need to help to use it on their own?

T1: *Ahmm...I think where they say most learners struggled with this...emphasize that that could be useful to the learners, but then sometimes the answers would be a problem to the learners as the answers don't explain in depth what they mean, what was expected etc.*

R: What if any, have you learned from the current or previous Examiners' reports about Biology that helped in your teaching and understanding of Biology?

T1: *I think ahmmm.... Where the...the way they write. Say for example question one, question one was well answered. Most learners thought say that ingestion or they could not differentiate between ingestion and excretion emphasize on the following or tell them that when you teach emphasize that ahmmm chlorophyll traps sunlight energy those sort of things. Ya I think they are useful and especially when they are explaining what they expect in the first line or two lines. Actually what they picked up that the learners did not understand before they give the answer. I think that is very useful to us.*

R: Do you think there is a need to encourage and sensitize all Biology teachers' about Examiners' reports and the importance of using it?

T1: *Very very much because like I said earlier if you do not understand how to use them or how they mark or have an idea of what is expected cause we use terms. You yourself you use a term which you think is fine and then the learners will pick it up from you and then they will write it in the exam because you also you are not well informed on it or you were taught that way or that is how you understood it and then you are passing it onto them like that. But then reading the Examiners' report you actually get to know you don't say that but that this the correct way of saying it.*

THEME 3: Impact/effectiveness of reports and accountability

R: From your experience has there been an improvement or change in your teaching as a result of using the Examiners' reports for Biology?

T1: *I think so yes.*

R: In what ways?

T1: *Like it just knowing what is expected rather than just you teaching your own things you are not familiar with the examiners' report. The Examiners' report and especially if you are a new teacher or us who never marked a national examination you will know or you are reading what they expect you actually feel that you are there or you were there marking cause you the Examiners' report and you read it and you familiarize yourself with that.*

R: So from your first year of teaching Biology to where you are now have you changes a lot in your teaching?

T1: *My first year was a disaster, but then it was not just me picking up the Examiners' report...the first year I saw the Examiners' reports I thought okay these are answers. That is how I referred to it. Okay these are answers to the question paper, but then when I came here a colleague of mine told me about the examiners' reports, how they work, how they strictly mark it and I have to look at the Examiners' report to get a feeling for how they mark and that is how I go to seriously look at it. Because first I just thought it was a memo.*

R: So you got guidance in using Examiners' reports?

T1: Yes.

R: So do you think that it is important that every teacher and especially new teachers must be guided in how to use Examiners' reports?

T1: *Yes yes it is very important ahmmm such workshops should be carried out where teachers are and especially new teachers we struggle a lot. I mean when I was a new teacher I struggled a lot. I did not know..it is not just that it is a whole lot of other things. I know we are just talking about the marking schemes but it is whole lot of things where you go wrong. First off all you think you have to teach from the text book. Once you get the marking scheme you think it is just another memo that you can just use. So a lot of guidance needs to go into this and integrate all those other things together to make that whole system work.*

R: In your opinion who's responsibility is it to give that guidance?

T1: *I think...I don't know now who should be responsible maybe the management, the HOD for that specific field should be responsible and maybe maybe because the schools don't really have in place a real orientation where they really take new teachers sit them down and say this is a syllabus; this is how I use it. This is a mark scheme; this is how you use it. You don't use a textbook, you don't try to finish the textbook, and you finish the syllabus such things. Ja you don't have the knowledge at the beginning you will finish the textbook covering everything that is in it.*

R: Do you think that the utilization of the Examiners' reports for Biology by teachers can lead to the improvement in learning?

T1: *Yes definitely it can help learners if teachers are well informed of what is correct and wrong, obviously you will not teach them the wrong things because you know how the marking is done. At the end of the day if you know how marking is done your learners will also follow those guidelines that you are giving them.*

R: What is your experience about whether the use of the Examiners' reports for Biology by yourself can lead to the improvement in your learners' performance in your school?

T1: *It is really difficult to say. I don't know whether ahmmm me using an Examiners' report..yes obviously I embarked better knowledge or better understanding to them. I prepare them better and very well for the examination having the background and information contained in the reports okay, but I am not sure if that really plays a role in the improvement of results. I don't know.*

R: So what do you think is going to lead to or help in getting to the improvement in results and performance that we want?

T1: *I don't know...it's hard to say because I have looked at my learners and I have tried to understand because they were actually very good. There were learners that had A's and B's in Life Science and they Biology thinking that it was just as easy Life science, but then Biology has a lot of things that are involved...it is not just...I keep on telling them that Biology is not a subject that you can just memorize and go write exams. There is calculations involved, mathematics involved, and understanding and application of knowledge involved and once you have mastered all those different aspects then only can you be sure that I am going to ace that paper. And I feel that our learners are still at the point where they think we are given knowledge and I just have to study it. I don't have to understand it and once you...I don't know I don't know how to help the learners. Like once you give them a question in a different way they cannot answer it because they don't know how to apply. I don't know how to help them in that regard. I think that is the only way that will help to improve the Biology results and performance. Once the learners get to understand that you need to apply the knowledge that you have studied.*

R: And you don't think that the Examiners' report can help if you give it to them?

T1: *Maybe it will. Maybe maybe I have to try that. Maybe it will give them an understanding but then again if you I have seen with my learners if you give them a question paper they think that it is all that is coming in the exam and they study that, so I am afraid that they will go and then study the Examiners' reports without any understanding. Maybe I should try giving them the reports.*

R: Do you think if copies of the Biology Examiners' reports are given to learners' they can use it and learn from it?

T1: *Yes and no. Cause we will have those that will take it and put it away or file it and never open it again and then we will have those the few that will really take it read it and take it to heart and understand what is expected of them or how they should answer the questions.*

R: If learners would use the Examiners' reports do you think they can learn anything from it?

T1: *Very much they can learn something from it just like the teacher would for example I am supposed to teach you this way they will learn that I am supposed to learn this way and this is how I am supposed to answer that specific type of questions.*

R: If the reports were given to the learners do you think they will improve in performance or understanding or learning Biology better?

T1: *I am thinking that the way we are saying it now I am actually seeing it now at a different point of view now that you are asking me actually. I am thinking that maybe if I take obviously the question paper of the end of the year and then give them with the marking scheme and then referring to the question paper obviously we will have to do it together I cannot just give it to them cause at the end of the day then it will not serve its purpose. But maybe if I have the question paper and marking scheme and I give it to them and then look at the question okay how would you answer it before even looking at the marking scheme and then they would answer it and then they would compare it and see where they went wrong and then look at what the Examiners' report is saying regarding answering that question maybe that will work.*

THEME 4: Improvement in reports

R: Do you think that the Examiners' reports for Biology can be improved?

T1: *Yes. The abbreviations used in the reports should be explained while more detail can be given in explanations of questions as sometimes I feel some answers required more explanation. Also the graphs must be included together with explanation of how it is marked. It would also be good to include the scientific drawings if possible an example. Maybe examples of learners answers can be included however I don't know if it is legal which can show why certain answers were accepted and marked correctly while other were not accepted.*

APPENDIX Y:

INTERVIEW TRANSCRIPT OF THE TEACHER FROM BETA SCHOOL (T2)

Key:

R: researcher

T2: teacher from Beta school

Theme 1: Physical accessibility

R: How many years are you in the teaching profession now?

T2: *Seven years.*

R: Of the seven years how many years are you teaching Biology?

T2: *Seven years.*

R: Can you maybe just explain your schools set-up to me? How many Biology teachers does the school have?

T2: *At the school we only have one grade 11, one grade 12, and the teacher that is actively teaching Biology, I am the only one.*

R: Who is teaching Life science?

T2: *I am also teaching Life science, but I am sharing it with two other colleagues of mine. I have two grade 9 classes and four grade 10 classes.*

R: Do you have a HOD for science at the school?

T2: Yes.

R: Do you have a Biology subject head at the school?

T2: *Yes I am also the Biology subject head at the school.*

- R:** Do you get Examiners' reports for Biology?
- T2:** *Yes I do get it.*
- R:** When you do get the reports since there are no other Biology teachers at your school, do you discuss the Biology Examiners' reports with teachers from other schools?
- T2:** *No.*
- R:** Since you are the only Biology teacher at the school and no discussion about the reports take place with teachers from other schools, do you discuss the reports with your HOD or get any support concerning the reports from your HOD?
- T2:** *The problem now with my HOD is that I am teaching Biology and the HOD can only teach Mathematics and Physical science. Even if you consult him you can see that the Biology subject knowledge is not always there. I do read the reports and I also sometimes try to implement the advice and the techniques recommended in the reports.*
- R:** Do you think that if teachers are given the reports, they can use it on their own? Or do you think teachers' need help or guidance in using the reports?
- T2:** *I think the Examiners' reports are very clear if you just get the document any teacher can implement it and use it on his or her own.*
- R:** Do you feel there is a need to have a workshop where Examiners' reports can be discussed?
- T2:** *Very much important. I think this workshop can be called where teachers can look at the reports. The workshop can be called where teachers can also discuss question papers, how to mark question papers, how to set question papers, how to implement the reports and things like that.*
- R:** Now who's responsibility should it be? Who should be responsible for conducting those workshops?
- T2:** *It can be a school level, but like I am saying my HOD is a Mathematics and Physical science teacher so HODs can discuss the reports but, if the HODs have to call and conduct such workshops there might be a problem with their knowledge and expertise in the specific subject Biology, but the subject head or the subject teacher can also do it, but in my case where I am the only teacher, I have never marked before, I am just teaching at school and then to come and talk about the report may be difficult, but maybe subject advisors, those markers, examiners can come and explain it to us.*

R: So you feel there should be a workshop where the reports are discussed and utilization of it explained. Should it be one workshop, two, how many do you feel should be organized?

T2: *That kind of workshop can take place once a year.*

R: Your school is a fairly new school, when did the school open?

T1: 2006.

R: When did you start teaching here?

T1: *In 2007. However I in 2006 I started just helping out a bit, but started full time in 2007.*

R: Did the school have grade 12's in 2007?

T2: Yes.

R: Did you teach the grade 12's in 2007?

T2: Yes.

R: Now reflecting on all these years since 2007, have you received Examiners' reports for all these years?

T2: *There are years that I did not get the reports, for example 2007 I did not get the reports because I did not have learners that wrote the external examination in 2006. For 2008 to 2010 I got reports. For 2011 I did not get a report. For 2012 and this year the 2013 reports I got.*

R: Is there a reason why you did not get the 2011 reports?

T1: *I don't know if it was not send. Or if it was sent I do not know why I did not get the report. I also did not follow up why I did not get the Examiners' report. The teaching environment is very hectic and one can easily overlook certain things.*

R: When you started teaching in 2007, did you know about Examiners' reports?

T2: *No not at all.*

R: So when and where did you come to hear about Examiners' reports?

T2: *When I got my first Examiners' report in 2008, I realized that there are reports.*

R: From whom do you normally get the Examiners' reports?

T2: *From my head of department.*

R: Is the HOD responsible for photocopying it or are specific people at school assigned to do the task?

T2: *I am not sure who copied the reports, as I only got it from my HOD. It could be him or it could be the teachers who are responsible for photocopying as part of their extra mural activities.*

R: Which levels do you get OL or HL or both?

T2: *Ordinary level only because the school does not have higher level.*

R: Can you maybe recall which time of the year, month do you get the Examiners' reports?

T2: *I think mostly they come in around April – March.*

R: When did you receive the 2013 report?

T2: *I received it in April.*

R: Do you give copies of the Examiners' reports to your learners?

T2: *Not at all.*

R: Is there a reason why you don't give your learners copies of the reports?

T2: *There is no reason. But I think the Examiners' report is not a ...it is not used mostly during teaching so I don't use it to be honest. So that is why if you don't then use it you will also not think about giving them copies also.*

R: Okay Can you just make it clearer or elaborate for me when you say you don't use it during teaching what do you mean by that?

T2: *I take it as if it is a document that is there to guide the teacher. That when you teach you just come to them and share with them that when you are answering questions like*

these you need to give them the technique you need to answer them like this as suggested in the Examiners' reports that I have read as a teacher. So then I don't give them to my learners, thinking that if I will just explain to them and show them the techniques.

R: Do you think it can be useful or help your learners in learning if you have to give them copies of the reports?

T2: *It will help them if you give learners the Examiners' reports together with the previous year's question papers it can help them a lot.*

R: From the questionnaires it was evident that not all teachers are getting the Examiners' reports. What do you think should or can be done to ensure that all Biology teachers and indirectly learners' also gain from it?

T2: *I think maybe the people that are sending those reports to school ahhh should also maybe ahhh talk to the HODs that please talk to your teachers emphasize more on the use of examiners reports. Because I can't remember a day my HOD came to me and ask me whether I was using the Examiners' report, do you implement it? Questions like that, they are not there. You are just given the document and then the HOD is gone so you can either file it or use it, it is up to yourself. So I think maybe the HODs should also start to realize the importance of implementing the Examiners' reports and then approach their teachers. Most of the time I tell my HOD I want to go mark also because I want to know the techniques while some of the things are also in those reports yet we don't use them. HODs also don't call their teachers together and workshop them on those reports. If they can't, they can also request help from someone else who can come and give a workshop. I think if the reports are discussed at a workshop in the beginning of the year, all teachers will be alerted to the reports its existence and importance. Through these discussions teachers will sharpen their biology subject content knowledge and will be better equipped not just with subject content but also skills and techniques they can pass on to their learners.*

R: So I gather from what you said that you don't discuss Examiners' reports in you departmental meetings?

T2: *No not at all. They just drop it off and then that is it.*

R: Examiners' reports are produced annually. To your knowledge is there somewhere in your school a system in place where all reports of previous years are kept or filed?

T2: *I assume so because I remember there was a year that I did not get the Examiners' reports then I went to the HODs office and I saw a very big booklet. I then went and took the booklet and I copied the report for my subject. So I think there is a file and place like that where the Examiners' reports are kept.*

R: Do you yourself have a file where you keep all Examiners' reports?

T2: *With me I just keep them in my administration file.*

R: So does it mean you can still go back to all the past years reports cause you have them in a admin file?

T2: *Yes but some of them are missing however they can be traced or replaced because it can be copied from the booklet in the HODs office.*

R: So what you are basically saying is that anyone who is in need of copies of Examiners' reports can get it and have access to the booklet in the HODs office?

T2: *Yes it is easily accessible and available, but I think the usage is the problem. I think it is not fully utilized at schools by the teachers.*

R: Why do you think teachers are not using the reports?

T2: *I can't really say or I don't have an answer for that, but I think it can also be because teachers don't know how important it is and how it can help them in their correct teaching of Biology and understanding of it and it also help learners to answer exams better.*

R: So in your opinion the distribution and dissemination of the reports are working fine at your school?

T2: *Yes. I think nowadays it has even changed. I received Life science from the teacher who is responsible for the grade 10 examination (examination head for grade 10) while the Biology report I get from my HOD and I think he is also the head of examination for the grade 12 examination. So the distribution is fine.*

R: Do you think you yourself as a Biology teacher can play a role in the dissemination of Biology Examiners' reports and in which ways you think you can play a role?

T2: *It is really very difficult because teaching is very hectic. Now...but..I can say that to give the reports to other class teachers you can do, but sometimes it is very difficult for a teacher like say my timetable I teach all the Biology and some of the Life science. The time table is so packed in such a way that sometimes you even forget to visit other teachers. So then having time that you can take the reports and make sure that it can reach all the teachers in my subject area in our school think it is a bit difficult. Even to get it to teachers from other schools is very difficult because of time pressures. You see*

I knock off at pass one, today we have to do cleaning after school, I then afterwards have to go for sports and also extra classes so really taking up the responsibility of distributing it to other teachers or school will be too much.

R: Do you think that be making copies of the reports for your learners at school would be one way in which you can help in the dissemination of the reports?

T2: *Yes, that one can be done. That one I will be able to do.*

R: Do you think it will be worthwhile giving copies of the reports to the learners?

T2: *Ahhh...you know learners are a bit difficult...you can give them, but the question is will they be able to use it, will they be able to interpret the reports correctly that's the concern. So you can give them, but there may also be other factors that will contribute to effective use of the reports. If teachers can just take the reports and go through the reports with the learners I think that to me will be the best way.*

R: From the questionnaires it was clear that teachers felt the reports are getting to schools to late. What is your opinion on that?

T2: *I got the reports in April and I agree that it is too late.*

R: When do you think is the appropriate time for the Examiners' reports to be available in schools and why?

T2: *The beginning of the year when we start. When we start we prepare the learners by giving them content already in January. So by February when we teach each topic that we teach we can consult the Examiners' report to see what things I can include and give the learners.*

R: Okay let's say last year's report (2013) you got in April this year. Do you think the previous year's reports are not to be used at all? Are they not useful in general? So when you started teaching let's say classification in January could you not have gone back to other reports that commented on problems learners made around classification?

T2: *They are useful, but the new one and the latest one is relevant also. With the latest one it is still fresh in one's mind because the examination was still written recently, so mostly teachers reflect and fall back on the latest question papers and reports, but the previous ones are also useful.*

THEME 2: Conceptual accessibility

R: Have you ever marked Biology at a National level?

T2: No.

R: Is there a reason?

T2: *I have been applying maybe the principal knows since 2008, but up to now I have been unsuccessful in my application for Biology and or Life science both as I have never been selected or appointed.*

R: I gathered from you that you are using the Examiners' reports for Biology in your teaching?

T2: *Yes I use it, but not that much.*

R: Can you give me examples of how you use the reports in your teaching?

T2: *Let's say there are questions on the graphs...I sorry on drawings when the learners have to draw a diagram and label the diagram and identify the various parts and things like that then the report will tell you that when learners are drawing diagrams, their diagrams should be large enough and if they don't do that they will lose marks...this come from the report. When learners are labelling their diagrams learners must not use arrows, if they use arrows they lose marks. Now while I am also teaching that topic of scientific drawings I will give them something to draw and having checked the report before the time and before I come to class than I can tell learners about mistakes other learners made on scientific drawings. I can tell them listen to this advice as other learners made these mistakes. You should do it like this, like this referring to what I alerted to in the reports on mistakes learners made in drawings.*

R: Any other examples that you can think off?

T2: *A lot. A lot. Even answering questions using describe, explain or listing, defining. I alert learners to the correct way in answering questions that use these various command words. Even when they have to define osmosis. The reports always emphasize learners must refer to the water potential gradients instead of using water concentration and I teach them about water potential and thus alert my learners to not use water concentration when answering any question that deals with osmosis.*

R: In your opinion using Examiners' reports...is it a good thing or practice for teachers?

T2: *Yes very much so. You know when you use the Examiners' reports, while presenting a lesson your learners will be exposed to and get that knowledge and even techniques and that also affects the way learners look at you. Because teaching is not only about explaining things, explaining, explaining, but you should tell them how to explain things, how to present things, how to answer questions, and that is what you have to teach them as well. Learners themselves can read content but teachers must come and give them the techniques, what is required, what is expected from them and that knowledge we only get from the reports.*

R: Do you think you can play a role in improving the utilization of Examiners' reports and how can you as a Biology teacher help to improve the utilization of the reports?

T2: *I think is necessary and like I said to encourage teachers to use it and then we also see what are some of the improvements that we get. To me I have seen when you start implementing the reports you will even see that these are the things which are failing my learners not only because they don't know the content, but it is the lack of knowledge of the techniques or what the examiners are expecting that's why my learners are failing and then if teachers realize that it is not only about preaching and preaching and preaching it is about giving them the techniques and the techniques are in the reports then teachers will take that reports seriously and start implementing it. And also we can also ourselves start calling meetings If you are a subject head you can call your teachers and you can then look at the reports. I even found that some of the books we use have a lot of mistakes. When one read the reports one can even see the reports is opposing some of the information that is in the text books so that is why to me we can convince the teachers to start using the reports. We need to sensitize them. We need to show them why the reports are important. Not just to drop them to teachers.*

R: In your opinion who's job is it to sensitize the teachers?

T2: *At all levels. The teacher levels, HOD to teacher and then subject head to HOD and then subject heads to teachers also,,,at all levels.*

R: Do you know about the cluster systems operating in schools?

T2: *Yeah I heard about the cluster system.*

R: To which cluster does your school belong?

T2: *I should think the Delta cluster.*

R: Is your cluster meeting at a regular basis?

- T2:** *No not at all. For the past seven years I was never invited to a meeting or met as a cluster.*
- R:** Do you think it will be useful for teaching and education in general to have a functioning cluster system operating where teachers meet, share resources and help each other on a professional level to better teaching and learning in their respective schools?
- T2:** *It will be very very much useful cause you learn from other people also, you will learn from one another. You know last week on Saturday we had a Biology meeting with a few teachers and we were discussing question papers even the report was also discussed there.*
- R:** Who organized that meeting?
- T2:** *It was NAMCOL cause I am a Biology tutor on a part time basis also for NAMCOL. In that workshop teachers who are setting question papers for NAMCOL were also present. I felt when I walked out of that workshop after all the discussions; I could advice my learners better because I have picked up a few things from different teachers the experienced ones as well as the non-experienced ones.*
- R:** Do you think that the Biology Examiners' reports in its current state are user-friendly and accessible to all teachers?
- T2:** *Yes I personally think it is fine, it is easy to use and can be used by any teacher.*
- R:** Can you use the Examiners' reports in its current state on your own or do you need assistance from other teachers, HOD or Subject Advisor on how to use it?
- T2:** *No. In its current state I can read it myself and follow the explanations without the need to seek assistance from anyone else.*
- R:** In terms of the language used in the reports is it appropriate and at the level of all Biology teachers?
- T2:** *Yes the language is clear and plain simple English of an acceptable level is used. The biological terminology used is not a problem to any teacher who is well equipped in the subject content.*
- R:** If you had to give the reports in its current state to your learners will they or learners in general be able to use the reports themselves to aid their learning?

- T2:** *I think what I have learned is that for the learners to interpret even the teachers' memo is very difficult. Therefore it will also be very difficult for them to interpret the Examiners' report properly. For example the symbols and abbreviations used in the marking schemes such as AW, A, R as well as all the other used learners will not be able to interpret. Unless the teacher explains to them, you go through from A to Z with your learners to explain to them and then give them the document.*
- R:** So are you saying that with the teachers help the learners will be able to use the Examiners' reports to learn better or improve their learning?
- T2:** *Yes, but just giving it to the learners like that without any assistance and guidance will not help at all.*
- R:** In terms of the level and the depth of explanations is it sufficient and appropriate in terms of what the syllabus requires for Biology?
- T2:** *More detail can be given in the explanations that accompany the multiple choice question section. Things like graphs and drawings can be more detailed. In the report the memo only say the diagram should be big, the scale should be this and this, but they don't draw a graph so that if you give it to learners, learners can see oh this is how the graph should look like. The graph should also at least be put there as part of the answer. The actual graph but also be drawn and be part of the memo and thus report. When it comes to the drawing also examiners should also make an effort to draw the drawing in the memo and report so that learners can see the physical drawing for learners to visualize the expected drawing versus an incorrect drawing with all its necessary requirements needed to score full marks.*
- R:** From having used Examiners' reports now for the past six years what if any, have you learned from the Examiners' reports that aided your teaching and understanding of Biology?
- T2:** *A lot.*
- R:** Can you mention any or give examples?
- T2:** *Like I explained just now even on the drawing that I explained now. Even on the.. I was explaining I was teaching my learners yesterday we were looking at the internal structure of the leaf. They asked them that on the diagram label the movement of the following: number one is water, number 2 is carbon dioxide. Then you see what learners are doing is completely different. Now I also did not understand how as I used to put the two arrow coming from the stomata thinking that water can still get in through the stomata, but when you go to the report they will tell you. No the learners should draw using arrows as arrows show the movement and the arrow should come from the xylem vessels going to*

the part asked the chloroplast while the carbon dioxide should come through the stomata to the chloroplast, the part asked.

R: Can you just explain to me how did you think that question should have been answered before you consulted the report?

T2: *I gave the learners that activity as it was a question in last year's question paper and while they were busy answering it I also realized it was tough. While the learners were busy I read about that specific question in the Examiners' report on that section only and that is then when I got that information that on a question like this, learners should answer it like this as explained above using the arrows showing the movement of water and carbon dioxide from the xylem vessels and stomata respectively to the chloroplast and thereafter I could easily show them and direct them to do it themselves.*

R: Do you think there is a need to encourage and sensitize all Biology teachers' about Examiners' reports?

T2: *Yes. These reports should not just be made available. Besides making them available, awareness should be created even amongst the new teachers also. When I started teaching I did not know about Examiners' reports, so new teachers must be informed that there are Examiners' reports and encourage them to use the reports also. HODs must be encouraged to talk to the teachers in their department about the reports. When HODs do class observations they must also emphasize the utilization of the reports.*

THEME 3: Impact/effectiveness of reports and accountability

R: I think you mentioned earlier that you learned a few things about Biology as a result of reading the reports. So am I correct when I say that your teaching has improved and changed as a result of the use of the Examiners' reports for Biology?

T2: *Yes, very much so. I feel I learned a lot and that influenced my teaching and understanding of Biology over the years.*

R: Can you think of any topic within the syllabus in which you changed your teaching as a result of what you read in the Examiners' reports?

T2: *Ahhmm...a lot, recalling all of them will be tough. I think one of them the one which I explained earlier on in the photosynthesis topic. Normally what I used to do in the past when I was teaching that topic I just asked them to draw..they should be able to draw it, the internal structure of the leaf. They should be able to draw it and identify the various parts of the leaf and also the functions, than I was done with the chapter. If and once they have mastered that I considered the chapter as covered and done. When I got to*

the theory I teach then carbon dioxide gets into the leaf. Water gets into the plant and all the other things. But then yesterday when I was teaching them then I saw learners are expected also to show the movement of the things also in the plant. So I realized I have not taught them everything and had to change the way in which I was teaching the topic.

R: Do you think that the utilization of the Examiners' reports for Biology by teachers and implementing the suggestions and recommendations given in it, it can lead to the improvement in learners' learning?

T2: *Yes, because learners will have the necessary knowledge, skills and techniques that are required for them to respond to questions better and to have better understanding of subject content, expressing themselves correctly and better thus reducing unnecessary errors.*

R: Do you think that the Examiners' reports can help teachers to support learning (mediate learning) in learners especially in the competencies they find difficult to master?

T2: *Yes. Teachers can expose learners to suggestions and recommendations given that will help them solve any incorrect understanding on concepts. Furthermore teachers can give learners enough practice with things such as graphs and drawings so sharpen those skills to prevent learners being penalized for skills that can easily be mastered through enough practice and thorough understanding from the learners' side.*

R: From your experience has your learners' performance improved as a result of you reading and implementing the Examiners' reports suggestions and recommendations?

T2: *Yes. There are two things. The first one is the fact that I completely change my teaching methods to one where learners should do the work instead of just listening to me. Whatever topic I teach I have to do research to get activities and small test that I can give to them and then when I give them the activity I go back to the reports to see what techniques are given in the reports on how to teach that particular topic well. I look for what are the techniques I have to bring in that is related to that specific topic. So these days I focus a lot on different activities and consult the reports frequently to draw on any relevant information related to any specific topic. I think the information and additional biology and subject content knowledge given in the reports are good for the development of teachers in the field and strengthening subject content at the same time. As mentioned in the example I gave I realized that the way I interpreted the syllabus on that specific topic was a short coming on my side which I could change now. I only blame myself for not using the reports more, but it is also the time factor as I don't have enough time to really read the reports carefully and well so that I can implement them fully. I am sure that if teachers are to read all the previous year's reports and start using them you can just become an expert on your own. Yes the fact that I used the reports resulted in my learners performance improving. When I started in 2007 it was a disaster. In 2008 I did not even get a C symbol. The highest I got was a D. In 2009 I got only one C. In 2012 I produced four B's, so you could see there is an improvement and learners*

are getting B's and moving in the right direction. I keep on motivating my learners telling them let's work together as one day they will get the results.

R: Do you think that all Biology teachers should be responsible and held accountable for the implementation or utilization of the Examiners' reports for Biology?

T2: Yes.

R: If teachers do not use the reports what do you think should be done?

T2: *I think that I do not know why should teachers not use it. I think we...teachers don't use it because of that awareness is not there. We have not realized the importance of this report that is why they just put it aside. Teachers get a lot of documents...circulars from the Ministry of Education, things from the principal. What we do best is to file it. Now even the Examiners' reports when it comes we also file it, but that should become part of your file for lesson preparations. Whenever you prepare a lesson you can go back to your Examiners reports and check what is in there that is relevant in the specific topic you are about to teach next. So I believe many teachers do not think it is important and therefore just file it just like they file all the other documents they get coming from the Ministry of Education.*

R: Do you think if copies of the Biology Examiners' reports are given to learners' they can use it and learn from it?

T2: Yes, but only if they get assistance from the teachers.

R: Why do you think learners' learning can improve if they use the Examiners' reports?

T2: *The thing is because the report is addressing mistakes that learners and teachers are making in classrooms and also in the examination. So if the learners have access to the reports and the reports are explained to them and they are guided and directed in using the reports in conjunctions with the past question papers questions, then the errors reported on in the reports can be minimized and it can mean learner will be able to excel in Biology. Learners always after examinations the paper was easy, they are often happy after they wrote the exams, but when the results come, we see a different story. So what then always struck me as the challenge and problem laying in the way the learners are answering the questions or the way we taught these kids. So if we were to give them these Examiners' reports and assisting them in using it under guidance it can minimize the mistakes that are recurring every year.*

THEME 4: Improvement in reports

R: Do you think that the Examiners' reports for Biology can be improved?

T2: *Yes, as I explained earlier, the multiple choice explanations can be more detailed. Include the actual graph and drawings and diagrams that learners had to label in the memo together with giving the correct answer and explanations as to what learners did wrong.*