

A comparative analysis of academic literacy specifications for a standardised test and academic literacy requirements for reading and writing in a range of disciplinary contexts

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ABSTRACT

Standardised testing gained prominence in the South African higher education sector in the last decade, largely as a means of providing information to identify students who might require additional academic support and for placements onto appropriate higher education programmes of study. This study explored academic literacy as a construct for standardised tests in comparison with the kinds of literacies required for reading and writing for various subjects across diploma programmes. The purpose of this study was to determine whether alignment between the academic literacy test specifications and reading and writing practices in and across diploma subjects would support the claim that generic standardised tests are appropriate for all subjects and fields of study. Theoretical approaches to standardised testing and academic literacies formed the backdrop to frame the study and analyse the findings. The multiple-case study approach was used to explore the reading and writing practices across various diploma subjects, using semi-structured interviews and document analysis for data generation. The test specifications of a standardised test served as the interview protocol, as well as the analytic codes for interview and document data that were analysed by means of thematic coding and content analysis. The findings revealed two distinct content representations in different subjects, that is text-dominant and visual literacy-dominant orientations that influenced the practice and application of different literacies, academic literacy being but one of an array of literacies. Conclusions based on the data and findings suggest that while academic literacy as a construct is integral to knowledge acquisition in academia, disciplinary literacies have a profound presence and should be accommodated in standardised testing to ensure that what is tested resonates with subject literacies. It is argued that alignment of test specifications and reading and writing practices in subjects would render tests and test results valid for appropriate use.

CHAPTER 1: INTRODUCTION

1.1 Introduction

This study explores the comparison of a generic standardised test of academic literacy with reading and writing practices in various subjects in different diploma programmes. The purpose of this comparison is to establish whether a generic standardised test of academic literacy is appropriate to assess the academic literacy proficiency of first-year students across different fields of study. Currently, generic standardised academic literacy proficiency tests are used for all disciplines and programmes of study to assist with placement of students onto either mainstream or extended programmes based on their academic literacy (and other) test scores. This research seeks to establish the extent to which the academic literacy specifications of a generic standardised test align with academic literacy requirements of various subjects to determine whether inferences made about students' academic literacy proficiency would be appropriate. Academic literacy proficiency relates to 'students' capacities to engage successfully with the demands of academic study in the medium of instruction of the particular study environment'. 'Success' in this sense relates to a student's capacity to use the language of instruction as a vehicle to engage with the academic demands of higher education (Cliff and Yeld 2006: 19).

Cliff and Yeld (2006: 19) note that a national benchmark test in academic literacy needs to address the central concerns of identifying:

the core academic literacy competencies that an entry-level student should demonstrate that will be sufficient indication that s/he will be able to cope with the typical demands of higher education in the medium-of-instruction of an institution, in a context of appropriate teaching, learning and curriculum support'.

'Academic literacy' as used in this study relates to engaging with reading and writing practices for academic purposes within academic teaching and learning subject contexts. The focus on academic literacy does not downplay the plurality of academic literacies that focus on the ways in which students learn to participate and make meaning within a range of academic contexts (Lea 2004). Academic literacy is viewed as one type of literacy within an array of different academic literacies applicable to the higher education context, such as disciplinary literacy, digital literacy and visual literacy. Academic literacies could be integrative, where one type of literacy may be applicable

alongside another, such as using texts in relation to graphics and numeracy given curriculum demands. According to Lea and Street (1998: 159) 'a dominant feature of academic literacy practices is the requirement to switch practices between one setting and another [and] to deploy a repertoire of linguistic practices appropriate to each setting'. By implication, although this study focuses on subject-specific academic literacy, other academic literacies will no doubt be incorporated into analysis and discussions given the disciplinary differences of the subjects selected as case studies. This study is located in the qualitative paradigm of how a standardised test of academic literacy contributes to an understanding of the subject-specific meanings and practices of academic literacy and does not factor in the quantitative inferences made from resultant test scores or benchmarks for placement purposes.

Higher education in South Africa in the last decade has seen an unprecedented increase in a range of initiatives to improve student learning. These initiatives could be viewed as acknowledgement by the Department of Higher Education and Training (DHET) and the Council on Higher Education (CHE) that strategic projects be implemented to correct the inequities of past political agendas and improve the number and quality of graduates 'to take forward all forms of social and economic development' (CHE 2013b: 15). A CHE draft document on proposing a flexible curriculum, (2013b: 15) presents the following comments and statistics:

The current higher education system is not producing sufficient graduates to meet national needs in respect of economic and social development, largely because much of the country's intellectual talent is not being developed. In the best-performing cohort analysed to date (the 2006 cohort), *only 35% graduated within five years, and it is estimated that 55% of the intake will never graduate* (my emphasis). This translates into a loss of some 70,000 students from the cohort.

These statistics sketch a dire picture for the social and economic future of South Africa as the majority of students entering higher education do not graduate within the minimum period of study, are more likely to drop out and will never pursue their courses of study again. Many students seem unable to cope with the academic demands of higher education and as a result either remain in the system longer than anticipated or drop out completely. According to CHE statistics (2013b: 15):

- Only about one in four students in contact institutions graduates in regulation time (for example, three years for a three-year degree).
- Only 35% of the total intake, and 48% of contact students, graduate within five years.

- Access, success and completion rates continue to be racially skewed, with white completion rates being on average 50% higher than African rates.
- The net result of the disparities in access and success is that under 5% of African and coloured youth succeed in any form of higher education.

In order to address these issues with their broad political, social and economic ramifications, the CHE and DHET mooted a range of initiatives:

- The Extended Curriculum Programme (ECP): an extension of the period of study by one year to incorporate additional academic support (DHET 2012).
- The Flexible Curriculum Proposal: an additional year of study for all students that might require additional time to augment the kinds of academic skills and practices to promote academic success (CHE 2013b).
- The Quality Enhancement Project (QEP): aims at improving teaching and learning to improve throughput rates (CHE 2013c).
- The Teaching Development Grant (TDG): provides generous funding for innovative teaching and learning, curriculum development and staff development that should, ideally, translate into improved graduate numbers (CHE 2013c).

Another such initiative, the National Benchmark Tests Project (NBTP), was conceived in 2005 and these tests were first written officially by first-year university entrants in 2009. The purpose of the NBTs is to provide higher education institutions in South Africa with a standardised instrument that would serve as indicators to guide the appropriate placement of students onto either the ECP or mainstream programmes of study. The test results would also identify those students who might be in need of support to cope with the academic demands of higher education. Although most universities use NBTs, there seems to be a paucity of research as to their efficacy in achieving their aims of guiding appropriate placements onto learning programmes. This research has as its focus whether a generic standardised test of academic literacy, such as, for example, the NBT, is appropriate to determine the academic proficiency of students across diverse subjects of study in various diploma programmes. It is believed that research of this nature could provide valuable empirical insight into using academic literacy tests for placement purposes and for curriculum design regarding academic support for diploma programmes.

Various academic literacy tests have been used in South African higher education institutions in the last decade, such as the Standardised Assessment Test for Access and Placement (SATAP),

the Test for Academic Literacy Levels (TALL) and the Placement Test in English for Educational Purposes (PTEEP). Currently the NBTs are used extensively by universities across South Africa. Although different tests were developed and administered by various institutions, there were distinct commonalities across the test spectrum. For example, the tests are based on similar theoretical approaches and have common test specifications; they include texts for reading or scenarios for analysis; they are not subject specific, and the focus is to test students' language ability to deal with the academic demands of first year university studies.

1.2 Aim of study

The aim of this study was to explore the appropriacy of using a standardised test of academic literacy for different subjects and fields of study for diploma programmes. The questions to be asked, therefore, are whether generic specifications of a standardised test:

- represent the kinds of academic literacy specifications that were typically applied at first-year level across different subjects of study?
- are appropriate to gauge students' academic literacy proficiency for suitable placements?
- should be used to test the academic proficiency of first-year students across different subjects of study in diploma programmes?

To arrive at responses to the questions above, the following objectives need to be achieved:

- To analyse the test specifications of an academic literacy test, to determine whether these specifications are grounded in academic literacy practices in reading and writing required for higher education.
- To analyse the reading and writing practices required for subjects in selected diploma programmes to establish the extent to which they align with test specifications.
- To compare the test specifications with the academic literacy requirements of the various subjects to ascertain whether a generic standardised test of academic literacy is appropriate to assess academic literacy proficiency across the selected subjects of study for diploma programmes.

Although various tests of academic literacy were administered at this university of technology (UoT), there is a dearth of research to determine whether the academic literacy test specifications reflect the academic literacy practices of the curriculum. In other words, if inferences are made about students' ability to deal with the academic demands of first-year studies based on a standardised test, it could be argued that there should be congruence between the specifications of such a test and the kinds of academic literacy requirements for diploma subjects at first-year

level. It would stand to reason that academic literacy requirements for a standardised test should be similar for learning subject content, as this would allow for a fair comparison of equivalence to infer whether students might be able to cope with the academic demands specific to their subjects of study. Based on the findings of this study, it could be argued that if there is dissonance between academic literacy test specifications and subject practices, that claims made about students' academic literacy proficiency might not be apposite and justified. These findings could, therefore, have far-reaching implications for the appropriacy of student placement using standardised tests.

Where the term 'curriculum' is used, it does not include the broad description of programme structure and learning outcomes, but is confined to reading and writing practices applied in teaching, learning and assessments.

1.3 Objective of study

The objective of this study was to explore the academic literacy practices required for reading and writing in selected subjects for diploma programmes and to compare these practices with the specifications of an academic literacy test. This comparison would provide insight into the level of alignment between academic literacy requirements for selected subjects and the test specifications of a standardised test to determine whether the latter would indeed be appropriate to deduce a student's level of proficiency for first-year university studies. Exploring reading and writing practices would focus on lecturers' interpretations of how students create understanding and gain 'epistemological access' to knowledge in their particular subjects by employing 'teaching and learning strategies [in reading and writing] that enable students ... to learn the kinds of things that universities teach [and] access to the knowledge that universities distribute' (Morrow 2007: 18).

Research on standardised testing in South Africa has mainly foregrounded findings regarding degree programmes at traditional universities (Cliff 2014; Wilson-Strydom 2012; Petersen-Waughtal and van Dyk 2011; Visser and Hanslo 2005; Weideman 2003; Koch, Foxcroft and Watson 2001; Yeld 2001; Yeld and Heack 1997). As such, there is a paucity of research on standardised testing and academic readiness of students for diploma programmes. Diplomas are different from degrees, given the different pathways of learning. The CHE (2013a: 16) describes diplomas as 'vocational qualifications that focus on occupations in which procedural and situational knowledge ... are at the core of the qualification', and degrees as general or academic qualifications 'in which curriculum and outcomes emphasize conceptual and strategic knowledge and relatively limited

reference is made to workplace competence'. The differences in qualifications imply that research findings on standardised testing for degrees are not necessarily generalisable to diplomas.

At this stage, it is necessary to clarify the use of the term 'subject' pertaining to an area of study. Subjects are designed around specific outcomes where achievement is measured in terms of whether designated skills, competencies and knowledge base were acquired. For example, a diploma programme consists of various subjects at different levels, each focusing on a content knowledge area that constitutes a composite, aligned qualification. A 'subject', therefore, refers to a particular area of study with its own knowledge boundaries based on the intended learning outcomes assigned to it.

Major subjects offered at first-year level were selected from four diploma programmes: Engineering, Health, Education, and Management. Diploma programmes consist of major subjects offered from the first to the third year of study and form the vertical spine of the qualification, or are fundamental to relational subjects. The rationale for selecting major subjects as case studies was that it might be argued that majors represent the kinds of academic literacy practices that are core to the first year of study and require incremental development to meet the increasing academic demands across the three-year diploma qualification. The rationale for the subject selection across eight different areas of study was to lend legitimacy to the aims of this study.

The range of subjects would facilitate the generalisability of the findings regarding the extent to which academic literacy specifications of a standardised test would be appropriate and applicable across these specific subjects and diploma programmes. Each of the diplomas selected as case studies used standardised tests for placement at one time or another.

The value of this study has a fourfold focus:

- Firstly, to determine whether a generic standardised test would be appropriate to assess the academic literacy levels of students across a range of subjects.
- Secondly, to explore the kinds of academic literacy requirements for reading and writing in first-year subjects of diploma studies.
- Thirdly, to determine the kinds of specifications that a test of academic literacy should possibly include, given the reading and writing practices applicable to a range of subjects.
- Fourthly, to determine whether student placements could be justified using generic standardised tests.

1.4 Conclusion

Testing is sometimes viewed as a political ‘tool’ for selecting only certain students for higher education, and is approached with suspicion by academics and society alike. However, testing could be used for positive purposes, such as for placements onto appropriate programmes of study, for diagnostic purposes to identify students’ learning needs and to develop appropriate curriculum interventions. The introduction of the NBTs for higher education in South Africa marked the beginning of a new era in academic literacy and numeracy testing. Where academic literacy tests were originally administered at institutional level, the NBTP is a national endeavour for the early identification of students deemed to be at risk of under-performing academically. Although this study focused on an example of a generic standardised academic literacy test, the findings could be relevant for the NBTs with reference to determining appropriate test content and its suitability across disciplines. It is believed that research of this nature would add value to the development of future tests and curriculum intervention support strategies, and could develop an improved understanding for academics of the kinds of reading and writing practices that lead to knowledge building and learning in their disciplines.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

With reference to the aims and objective of this study, this literature review focuses on the following aspects:

- Setting the context: The higher education landscape in South Africa.
- Widening access and participation in higher education.
- Academic (under)preparedness and throughput in higher education.
- National and international perspectives on placement testing.
- Theoretical approaches to the construct of academic literacy and language proficiency for higher education.

This review focuses on the above topics to contribute to insights of the areas of research pertinent to this study. The discussion and findings of empirical research formed the backdrop to academic literacy as an indicator of potential success in higher education. The format of the literature review presents a macro-, meso- and micro-perspective of higher education in South Africa. The macro-perspective presents the national higher education landscape and the changes brought about since 1994; the meso-perspective presents the impact that the macro changes had on higher education, and the micro-perspective presents the measures (i.e. academic literacy tests) that were introduced to assist with placement of students who were deemed to be under-prepared for higher education. [Figure 2.1 below illustrates the interrelatedness of these hierarchical levels.]

2.2 The higher education landscape in South Africa – post 1994

Before 1994, the institutional landscape in higher education was demarcated along racial, geographical and vocational orientation divides. Certain tertiary institutions were established for whites, coloureds and blacks respectively and a distinction was drawn between institutions that offered degrees ('traditional' universities) or diplomas (technikons). After 1994, major restructuring in higher education reduced the number of institutions from 36 to 23, with 11 'traditional' universities, six UoTs and six comprehensive universities offering degree and diploma qualifications. The profile of students at all institutions is now multi-racial, multi-cultural and multi-lingual in an attempt to build a student body of inclusivity that reflects the demographics of the country. With government funding available, for example, the National Students Financial Aid

Scheme, many more students from disadvantaged backgrounds have gained access to higher education.

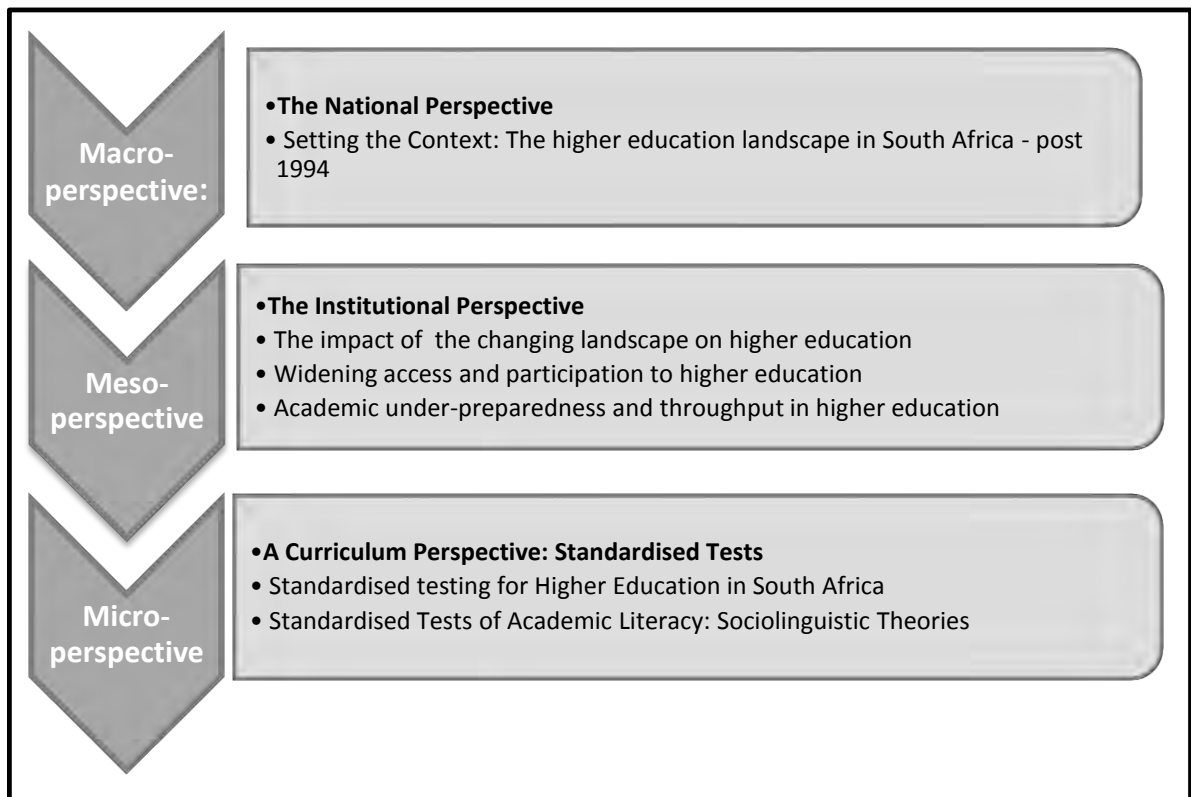


Figure 2.1: An outline of the literature review

Given the demands of the global economy and the fact that a school-leaving certificate is no longer adequate for economic advancement, participation in higher education has become a sought-after commodity (O’Hare and McGuinness 2015; Conley 2014; Edwards, Coates and Friedman 2012; Coates and Friedman 2010). Graduate qualifications equate with higher salaried professionals, who in turn contribute more significantly to innovation and challenges regarding the economic, civil and social development and advancement of businesses, communities and South Africa at large. The limited number of spaces at universities and the continuing inequity of the Basic Education system where not all learners are afforded the same educational opportunities and standards, further contribute to the challenges with which students and universities have to contend. The focus of English or any other language at high school is on grammar, poetry, literature, expository and narrative styles of writing. Depending on the field of study at tertiary level, it may be argued that the focus of literacy and language use at school might not align with higher education, where different kinds of literary and literacy(cies) engagement are required (Edwards,

Coates and Friedman 2012; Hyland 2011; Bloome 2008; Weideman 2003). However, the NSC curriculum in South Africa undoubtedly has value in preparing students for academic studies provided that students are taught about language in practice at school level. Failure to provide opportunities to develop particular language abilities for school purposes, it is argued, would disadvantage students who need to engage with a new literacy to which they were not privy at school, that is, academic literacy for higher education.

2.3 Widening access and participation to higher education in South Africa

Given the political landscape in South Africa prior to 1994, it has become imperative for higher education to advance the causes of social justice through widening access and increasing representativity across the racial and language divide. The Higher Education Act No. 101 of 1997 stipulates that 'the admissions policy of a public higher education institution must provide for the redress of past inequalities' (CHE 2004: 1). A constant theme of 'equity and redress', 'access and equity', 'equity of access and outcomes' and the distinct imperative to 'redress past inequalities to reflect the demographic composition of the South African society' was evident in national documents (CHE 2004: 5). Equity and redress were thus strategic objectives for transformation of the higher education sector in South Africa. The suggestion of widening access is about equity, while redress implies that a system of inequality and prejudice must have prevailed in a previous dispensation. This was indeed the case, with higher education being the preserve of the minority white population during the apartheid era. However, widening access and participation to particularly black and coloured students presented its own challenges, such as the largely inadequate schooling system that failed to provide the requisite educational background for higher education. Within the higher education context, Morrow (2007: 18) cautions that while 'formal' (i.e. institutional) access is laudable, it should be concomitant with 'epistemological access' (i.e. access to knowledge), without which 'formal access' might not hold much value.

2.4 Academic under-preparedness and throughput in higher education

In alignment with political aims and policies, post-apartheid South Africa saw a distinct move to widen access and participation to higher education for blacks who constitute the majority of the population. However, research has shown (CHE 2013b; Scott, Yeld and Hendry 2007) that increased access does not necessarily equate with academic success in the form of an increased number of graduates. Koch and Foxcroft (2003: 193) noted that although participation rates of previously disadvantaged groups had increased, 'the throughput and success rates of students from educationally disadvantaged backgrounds have not increased concomitantly'. The pass rates of

learners from previously disadvantaged groups were marginally lower when compared with the pass rates of white learners.

When one considers (1) that all university entrants meet the minimum NSC requirements, and (2) the high failure rate as indicated in the research statistics, it could imply that NSC results do not accurately reflect students' academic potential and that students fail because there is a chasm between secondary and tertiary education (Petersen-Waughtal and Van Dyk 2011; Ross 2010; Scott, Yeld and Hendry 2007; Griesel 2006; Weideman 2003; Yeld and Haeck 1997). According to Scott, Yeld and Hendry (2007: 31) there are many academics in the higher education sector that 'attribute the unsatisfactory performance of the sector to the shortcomings of the school system'. In a study conducted by Weideman (2003: 56), the findings indicated that students were not able to engage in academic discourse at tertiary level and that almost a third of first-year entering students over a four-year period had a language proficiency level of Grade 10 and below. The implication was that the school system had failed a sector of students by not providing them with literacy practices that would enable them to cope with the demands of higher education. Such students entered the higher education system at a major disadvantage. Literature on academic literacy support programmes showed that academic discourse was not acquired 'via immersion and interaction with experienced individuals' (Gourlay 2009: 181), nor by extra-curricular study skills support (Gee 2012; Gourlay 2009; Chanock 2007; Wingate 2006; Jacobs 2005; Curry 2004; Boughey 2002). Students who were deemed to be 'at risk' already entered the higher education sector at a major disadvantage. The real challenges of learning in a language other than a first language, in addition to inadequate preparation in academic literacy as research has indicated, formed the backdrop to language complexities that institutions faced in transforming access and success in higher education.

Bloome (2008: 251) offers an explanation for the differing 'official literacy practices' within school settings and how these literacy practices might not always resonate with academic literacy practices in higher education. (In contrast, 'unofficial literacy practices' are not sanctioned by the school and include 'passing notes, noninstructional game playing and graffiti writing among others' (Bloome, 2008: 251)). According to Bloome, 'official literacy practices' are 'promoted by the school and include learning to read and write literacy practices and academic literacies' (2008: 251). The reference to academic literacies 'derives from a conception of literacy as social practices ... as opposed to defining literacy as a set of decontextualized, autonomous, cognitive and linguistic processes' (Bloome, 2008: 251). As such, students access higher education with school-based

literacy practices that frame their understanding ‘for what constitutes appropriate and effective [language] use’ in an educational context (Bloome, 2008: 254). It could be argued that academic literacy in higher education derives from school practices and is ‘a conception of literacy as social practice’ involving reading and writing within an academic context (Bloome, 2008: 251). This notion of academic literacy as social practice aligns with the NLS perspective that it is more than an autonomous, decontextualised process of receptive or productive cognitive processes (Lea and Street 2006; Street 2003). Bloome’s (2008: 252) assertion that ‘literacy is inherently multiple’ and that there is ‘a broad range of differing literacy practices’ is particularly pertinent to the different school backgrounds and environments from which students access higher education. Literacy practices might differ from one classroom to another, ‘with variation(s) both within and across classrooms’:

within each classroom, teachers and students continuously negotiate a set of shared expectations and standards for the organization of ... how meaning and significance are assigned [to reading and writing for the subject of study] (Bloome 2008: 252).

This quotation suggests that at school learners become socialised into the ways of using literacy practices for reading and writing by being active participants in how meaning is assigned, as guided by the teacher. Students’ textual and other engagement using literacy practices could therefore, reflect the teacher’s perspective, the school culture, the national curriculum or a combination of all three. The views and practices of teachers, tutors and curriculum respectively, have a major influence in shaping how students acquire and engage with academic literacy (Jackson, Meyer and Parkinson 2006; Wingate 2006; Lea and Street 2000). Accordingly, within the same school, learners may be socialised into very different practices depending on the teacher’s conception of literacy and how literacy practices were mediated and contextualized. These school literacy practices, such as academic literacy, that frame students’ knowledge of literacies could become their de facto understanding of engaging with reading, writing and other communication modalities with which they enter higher education. Tait contends that students ‘come to the [tertiary] learning situation with previously constructed ideas, knowledge or beliefs that help them make sense of new information’ and that by the time students access higher education, ‘they more than likely have a consistent way of going about learning and studying’ (2009: 97). The point to be made here is that where educational opportunities for developing academic literacy engagement at school might have been missed, this could signal a gap between school literacies and meeting the literacies demands for higher education studies.

Given the stark disparities in basic education in South Africa, from urban to rural, or township to private schools, students in higher education would have acquired literacy practices very differently given their different cultural and social contexts. In addition, high school learners might have been schooled in any of the eleven official languages of South Africa, while the language of learning at the majority of higher education institutions, including the site of study, is English. In summary, the school type (formerly Model C or township school), school setting (urban or rural) and language of learning might have serious consequences for students entering tertiary education given the different learning environments and academic expectations. It should be noted that *all* students access higher education with sets of literacy practices. However, in certain instances their 'cultural and linguistic backgrounds make ... effective participation' difficult in changing learning environments (Bloome, 2008: 255). In South Africa, differing social backgrounds and the wide range of school literacy practices impact the extent of academic readiness for higher education. In response to this educational, social and cultural diversity, standardised tests in academic literacy such as the NBT and TALL, were developed to determine students' academic readiness for higher education in order to provide appropriate academic support where necessary.

Studies conducted in South African contexts that pertain to this study, that is, longitudinal studies of throughput rates (Scott, Yeld and Hendry 2007), 'academic language proficiency and academic performance' (Van Dyk and Weideman 2004; Weideman 2003), academic (under)preparedness for higher education (Petersen-Waughtal and Van Dyk, 2011; Ross 2010; Scott, Yeld and Hendry 2007; Griesel 2006; Weideman 2003; Yeld and Haeck 1997) and standardised testing (Koch and Dornbrack 2008; Cliff and Yeld 2006; Griesel 2006; Koch and Foxcroft 2003) foreground the gap that exists between literacy practices of high school and the expectations of higher education.

While the focus of this study relates to the use of standardised testing as a measure of academic readiness for higher education, the literature reminds us that cognisance should be taken of other factors that impact on academic success. Attrition, retention, and the success of students do not reside in the sole domain of academic under-preparedness (Cliff and Hanlso 2009). Although not the focus of this study, the social, economic and academic aspects that might contribute to academic under-performance are acknowledged. For example, the family background, the socio-economic environment and the educational level of the parents (Ross 2010) would have an impact on how pupils progress at school as well as their readiness for higher education.

There are myriad reasons for academic under-performance of students, which could relate to:

- material, affective financial or academic circumstances (Scott, Yeld and Hendry 2007: 29);
- ‘the legacy of the inequalities in South Africa [which] has had a profound effect on the quality and shape of output’ of secondary education learners (Scott, Yeld and Hendry 2007: 31);
- a lack of embedding skills of the discipline across a curriculum (Tariq, Scott, Cochrane, Lee and Ryles 2004);
- a lack of proficiency in academic discourse (Weideman 2003); and
- the challenges of adapting to the academic environment and detecting early warning systems (Beck and Davidson 2001).

The commonality that presents itself in both national and international research on standardised testing is the claim of under-preparedness to meet the academic demands of higher education. Extensive research on access to higher education nationally suggests that there is a need for standardised academic literacy test(s) to complement the NSC results (Cliff 2015; Cliff, 2014; Schaap and Luwes 2013; Scholtz 2012; Petersen-Waughtal and Van Dyk 2011; Cliff, Ramaboa and Pearce 2007; Scott, Yeld and Hendry 2007; Griesel 2006; Koch and Foxcroft 2003; Weideman 2003; Huysamen 1997; Yeld and Haeck 1997).

2.5 Standardised testing: the international scenario

Standardised testing presents an anomaly: in the midst of constant criticisms being levelled at the use of standardised tests, they are increasingly becoming international phenomena to access higher education. Standardised tests internationally are increasing in number, yet seem very different in purpose, status and test content. A survey of ‘international practice in university admissions testing’ commissioned by the Organisation for Economic Co-operation and Development (OECD), Edwards, Coates and Friedman (2012) presents standardised tests as mechanisms to provide additional information to school-leaving results to inform admission and appropriate placement. The rationales for using standardised tests based on international practice include: (1) ‘identifying greater numbers of candidates from under-represented groups’, such as students from low socio-economic backgrounds whose secondary school results may not be a fair predictor of academic proficiency; (2) acknowledging differences in school curricula and school teaching practices within the same country and the same educational system; (3) testing for diagnostic purposes and, (4) the need for additional ‘common and objective data [that] can enhance transparency’ (Edwards, Coates and Friedman 2012: 91). However, the use of standardised tests is viewed with suspicion as a gatekeeping mechanism for social engineering by

promoting advancement for privileged classes based on, for example, race, gender and social status, while keeping the under-privileged at bay using under-preparedness for higher education as leverage (Edwards, Coates and Friedman 2012). Criticisms levelled at standardised tests include: test content that might be biased towards more privileged cohorts of students; gatekeeping of disadvantaged or under-prepared students; promoting the selection of a privileged student cohort, 'the lack of available evidence of the effectiveness of such tests' (Edwards, Coates and Friedman 2012: 91), and the predictive validity of tests in comparison with academic performance (O'Hare and McGuinness 2015; Sawyer 2013; Stemler 2012; Coates and Friedman 2010). The different test content areas could be construed as contentious and brings into question the purpose of standardised tests. For example, a focus on particular subject content or general knowledge might advantage certain students over others and lead to the 'washback' effect where there is pressure on students to prepare for tests beforehand in the hope of university placement. In spite of this critique, Conley (2014), Weideman (2011; 2009; 2003) and Koch and Foxcroft (2003) consider standardised tests to be important mechanisms to support academic success given the additional information that standardised tests provide of, and to prospective university candidates. Conley argues that additional information serves as indicators that 'students need to be ready to succeed ... not just eligible to attend' university (Conley 2014: 13). He advocates for the use of more than one admissions instrument, i.e. a 'profile approach to admission' that incorporates standardised tests to help students 'be ready to succeed ... by collecting more information directly related to succeeding' in higher education (Conley 2014: 13).

Research on standardised testing conducted in First World countries such as Australia (Edwards, Coates and Friedman 2013), the United States of America (Conley 2014; Soares 2012; Linn 2009; Cohen 2008); the US and Canada (Davies and Hammack 2005); the United Kingdom (O'Hare and McGuinness 2015; Stowell 2004); Greece (Psacharopoulos and Tassoulas 2004); Spain (Amengual-Pizarro 2009); and Third World countries such as Iran (Kiany, Shayestefar, Samar and Akbari 2013; (Sakurai, 2004); as well as former Eastern Bloc countries like the Czech Republic (Konečný, Basl, Mysliveček and Simonová 2012) revealed the importance of standardised testing internationally. Some standardised tests focus on general knowledge-type questions (SAT/ACT in the US) or English language proficiency (Spain), while other tests focus on curriculum content as taught at secondary school (Greece, Iran and the Czech Republic). Based on the studies noted above, the following commonalities are foregrounded:

- Stratified secondary education systems entrench inequalities by limiting access to higher education.

- Commodification and massification of education emerged as current themes within the discourse of educational inequalities in both First and Third World countries.
- The incidence of 'washback' where standardised tests determine what is taught in the school curriculum to prepare students to achieve acceptable scores gained prominence over the years.
- All standardised tests are high stakes tests, that is, for selection and admission and are compulsory for university access.
- Standardised tests are managed and/or regulated by agencies of the state to a greater or lesser degree.

Some educational systems require a combination of admissions requirements (Sweden, Turkey United States of America), while others rely solely on standardised test scores for university entrance (China, Greece, Portugal and South Korea) (Edwards, Coates and Friedman 2012: 94-97). In Iran for example, standardised test results are used exclusively for university entrance as 'no school academic achievement records are obliged for ... final admission and placement' to university (Kiany, Shayestefar, Ghafar Samar and Akbari 2013: 328).

In contrast with the international trends noted above, standardised tests within the South African context purport to test those specifications with which a first-year student should be able to engage for learning and knowledge acquisition; the test content is not subject-specific or curriculum-bound; the test focus is on reasoning skills and academic literacy as a vehicle to access meaning; prior preparation, that is, 'washback' or 'teaching to the test' would not be applicable, and the purpose of testing is for guiding placements and academic support for those students who might be at risk of academic under-performance.

The international scenario presents standardised tests as the norm for entry to higher education. Research on the international higher education testing landscape as noted above, revealed the world-wide trend of competition for university spaces where 'the number of places exceeds the number of applicants', leading institutions to 'use some form of admission procedure' (O' Hare and McGuinness 2015: 162). [Refer also to Conley 2014; Edwards, Coates and Friedman 2013; Sawyer 2013; Edwards, Coates and Friedman 2012; Stemler 2012; Coates, Friedman 2010). Although competition for university entrance is equally great in SA, standardised tests are not compulsory, the focus is on academic literacy requirements for higher education, not NSC subject content or general knowledge, the test results assist with placement or are used for diagnostic purposes, and

the NSC results are factored into the equation for admission and placement in addition to other discipline-specific requirements such as portfolios or interviews.

2.6 Standardised testing in South Africa: rationale, purpose and considerations

2.6.1 Rationale for standardised tests

Within the South African context, entrance requirements differ widely across institutions. Given the disparities in the Basic Education sector, the use of the NSC or the National Certificate Vocational results alone could result in the marginalisation of previously disadvantaged students schooled in poorer township and rural areas. Yeld (2001: 93) notes that while school-leaving tests are important, 'the educational inequities that exist in the country are such that reliance only on achievement tests will severely disadvantage those who are not able to compete on an equal basis'. Twenty years into a post-apartheid South Africa there are still distinct disparities in provision and resources that impact on teaching and learning in rural schools, township schools (public schools located in the poorer socio-economic areas), Model C schools (the better-resourced public schools) and private schools. Research indicates that the NSC results are not necessarily reliable predictors of success at tertiary level (CHE 2013b; Scott, Yeld and Hendry 2007; McKay and Jürgens 2007; Griesel 2006; Weideman 2003) and it has, therefore, become necessary to establish additional measures for placement purposes. Griesel (2006: 5) is of the opinion that 'if the current Senior Certificate were a stable index of levels of achievement and proficiency, higher education may not have to develop "alternative" forms of assessment'. Furthermore, an alternative or additional assessment instrument is necessary because 'the predictive validity of the exit qualification (the NSC) remains a promise on paper and not an empirical reality' (Griesel 2006: 5). To this end the NBTs were developed as a standardised test for use at tertiary institutions in South Africa 'to assist the sector with decisions about the kinds of curriculum interventions that will be required ... to enable students to be successful in their chosen programmes of study' (Cliff 2015).

2.6.2 Standardised tests used in South Africa

Many tertiary institutions in South Africa used standardised proficiency tests in the past decade, with the most prominent tests being the PTEEP, SATAP, TALL, the Assessment Access Battery (AAB) and more recently, the NBTs (Cliff 2015; Cliff 2014; Cliff, Ramaboa and Pearce 2007; Cliff and Yeld 2006; Koch and Foxcroft 2003; Weideman 2011; Van Dyk and Weideman 2004; Weideman 2003). Although the institutionally developed tests were available to other universities, a need was identified to develop a test that would be available to all higher education institutions in South Africa. The poor throughput rates necessitated a test that would identify those students who might

be at risk of academic under-performance on entry to higher education. In response to this need, Higher Education South Africa (HESA) commissioned the NBTs. The import of the NBTs in use at 17 universities may be judged by the increase in the number of writers since 2010: an increase of 22 379 writers or 32%. For example, there were:

47 895 writers in 2011; 55 020 writers in 2012; 63 157 writers in 2013, and 70 274 writers in 2014 (Msusa 2014).

With the increasing number of institutions using the NBTs, the issue at stake is the extent to which the test specifications of large-scale testing relate to what is actually required in diploma programmes at first year level.

2.6.3 The purpose of standardised testing

The overall purpose of a test in academic literacy is to determine whether a student would be able to negotiate the demands of academic study in the language of teaching and learning. A pertinent point to note is that the focus of standardised tests is not 'language proficiency', i.e. 'a language user's control of the formal and functional properties of language such that they are able to express and understand meaning accurately, fluently, and appropriately according to context (Murray 2010: 58). The construct on which standardised tests such as the NBT is predicated is academic literacy (i.e. the ability of students to read with understanding, to access meaning, to reason and engage with texts and other modalities, where the academic demands would be representative of entry-level first year of study). The focus on 'academic literacy' is not intended to diminish the 'academic literacies' perspective but reinforces a particular type of literacy for a particular purpose, using particular test specifications developed from particular testing and academic literacy theories. The NBT for example, 'is designed to assess the ability of first-year students to cope with typical language-of-instruction, academic reading and reasoning demands they will face on entry to higher education' (Cliff 2015: 20). If academic literacy is considered a prerequisite for 'epistemological access' (Morrow 2007) as research suggests, then large-scale testing should include the core academic literacy competencies that would provide indicators in respect of which students might be at risk of under-performing. The challenge for large-scale testing, then, is to identify those core academic literacy competencies that a student would be required to engage with on entry to higher education. However, the need for developing tests for specific fields of study such as nursing given the different disciplinary literacies seem to be gaining ground (Patterson and Weideman 2013).

The purpose of standardised testing is to determine ‘the extent to which students have developed the kinds of cross-curriculum, core skills and abilities that are believed to be important in the majority of learning situations that will be encountered in higher education environments’ (Yeld 2001: 93). [Refer also to Cliff 2015; Cliff 2014; Cliff and Yeld 2006; Griesel 2006.] This study seeks to determine whether a standardised test does indeed incorporate the ‘kinds of cross-curriculum, core skills and abilities’ (Yeld 2001: 93) and the extent to which they are prevalent in reading and writing requirements of first-year diploma subjects. The test content is non-curriculum aligned to ensure that all test takers have an equal opportunity to demonstrate reading and reasoning abilities of unknown texts, not prior content knowledge of high school subjects. In addition, this study seeks to establish legitimacy and validity in making claims about whether a generic standardised test is appropriate, given that different disciplinary literacies are prevalent across subjects in different diploma programmes.

Although test validity is discussed in Chapter 3 of this thesis, the pertinent point is that this study is limited to construct validity (i.e. academic literacy) and content validity (i.e. whether there is alignment between the test tasks and specifications with that of subject tasks and specifications for inferential interpretations to be justified). Validity for this study resides in the ‘adequacy of the content sampled for the purpose of measuring a particular domain of knowledge and skills’ (Sebolai 2014: 134) and not in the inferential conclusions based on test scores. While the various facets of test validity are noted, this study does not include the validation and justification of inferential interpretations of resultant test scores or accompanying benchmarks. The validation criteria of this study refer to how academic literacy plays itself out in practice (construct validity) and the relationship between the test tasks and specifications to the target language use (content validity). In other words, should the findings of this study show that there is dissonance between academic literacy tasks of subjects of study and the academic literacy specifications of a standardised test such as the NBT, then a query emerges as to whether a generic standardised test would be valid to suggest fair claims about students’ readiness to deal with academic literacy demands across diplomas of study. Furthermore, evidence of dissonance might raise questions as to whether appropriate placement decisions may be inferred.

As is the focus of this study, Bachman and Palmer’s concern (1996: 680) ‘is the extent to which the specific test tasks elicit instances of language use ... [and] correspond to the features of the target language use context ... from which we can make inferences or predictions’. In other words, for inferences to be fair and justified, test tasks and specifications should mirror the target language

use context. Ferrer (1998: 457) claims that tests should match the kinds of academic demands that students would experience in their course of study. Bachman and Palmer's (1996) and Ferrer's (1998) concerns that standardised tests should match the target language use context are precisely the purpose of this study, that is, to determine whether there is alignment between the specifications of a standardised test and reading and writing practices of first-year subjects.

Standardised testing is complex – it incorporates, amongst others, a particular purpose, use, format, tasks, specifications, writer profile, inferential interpretations, validity and reliability. Given that standardised testing might have long-term implications for test takers, tests need to be robust in producing reliable test results to make the kinds of inferences required for placement and diagnostic purposes. Bachman's (1991: 680) suggestions for using standardised tests align with the purposes of test use in South Africa, namely, to make:

- inferences about students' language ability on entry to higher education;
- predictions about students' academic literacy proficiency to perform future tasks in contexts outside of the test itself;
- decisions on diagnosis and placement based on inferential interpretations of results; and
- decisions on the kinds of academic support and interventions that respective students might require.

By way of clarification: 'language ability' as used in the context above, refers to Bachman and Palmer's (1996) term used widely in the field of test development, that speaks to language knowledge and strategic competence [refer to sub-section 2.7.4 and Figure 2.4]; 'academic literacy proficiency' relates to the definition as provided by Cliff and Yeld (2006: 19). [Refer to the Chapter 1, sub-section 1.1.]

The use of standardised tests within the South African context has a three-fold purpose. Firstly, test results provide guidance to students identified as under-prepared for alternative options of study such as a Higher Certificate instead of a diploma or degree. Secondly, standardised tests assist with guiding placement onto appropriate programmes such as the Extended Curriculum Programme funded by CHE. Thirdly, an analysis of test results could assist with developing appropriate academic support interventions for students on mainstream programmes (Cliff 2014; Petersen-Waughtal and Van Dyk 2011; Ross 2010; Scholtz and Allen-Ile 2007; Weideman 2003).

The purpose and use of standardised testing ultimately guide the test development process. Currently, though, in South Africa research is sparse on whether standardised tests of academic literacy are fulfilling their proposed purposes as outlined above.

2.6.4 Overview and critique of testing

The rationales for testing as presented by Edwards, Coates and Friedman (2012: 91) align with the South African context of using testing as a means of widening access and participation in higher education. The NBT and TALL, for example, are both tests of academic literacy that are used in conjunction with school leaving results to identify students who might be at risk of academic under-performance, and assist with access and support to and for higher education. In contrast to the usefulness that testing purports to possess, various points of critique have been raised (Ross 2010; van der Slik and Weideman 2010; Stringer 2008; Koch and Dornbrack 2008; Koch 2007; Yeld 2007). In South Africa, the political agenda is a prominent factor in university admissions where participation and equity of historically disadvantaged students need to be addressed. Standardised tests are viewed by some as a gatekeeping measure rather than providing access to all students who meet university entrance criteria. A further critique of testing is that the tests are in English (and sometimes Afrikaans), both additional languages for the majority of students entering higher education. Van der Slik and Weideman's study on exploring language bias (2010: 116) reveal that

'in the case of TALL the results indicate that English speaking students perform better in terms of total test performance than do students whose first language is an African language [and that] the difference in performance can be attributed in part to the time restrictions imposed on testees and the rank order of test types'.

Further studies on language bias would be helpful to refute or confirm these claims. The rationale behind the medium of language used in tests is that it should reflect the language of instruction, i.e. the target language used, which is English at all the universities in South Africa, with Afrikaans being used in limited measure at certain institutions. In comparison to international educational contexts, South Africa presents a complex and diverse political, socio-economic, cultural, racial, linguistic educational landscape that may be demarcated into pre- and post-1994 eras which are not necessarily comparable elsewhere. It is for these reasons, it may be argued, that a comparative study of throughput rates on an international level might not factor in all the political, social and economic variables that are unique to South Africa. Education in South Africa is at the centre of the maelstrom of politics and its concomitant socio-economic factors, resulting in the stark realities of low participation and throughput rates of the majority of school leavers. Standardised testing is but one initiative that attempts to promote inclusivity, academic success and improved throughput

rates across the racial divide. As such, a comparative analysis of tests used in South Africa (the NBT in academic literacy or the TALL), with international standardised tests is not deemed feasible given the different test purposes, test content, test uses, different theories and approaches that inform test development, as well as the all-pervading, over-arching political and racial dynamics in South Africa. Tests such as the ACT or SAT (US) (Cohen 2014), the California Critical Thinking Skills Test used in the United Kingdom (UK) (O'Hare and McGuinness 2015), the College Entrance Examination used in China (Liu 2013) or the Special Tertiary Admissions Test (STAT) used in Australia (Coates and Friedman 2010) might serve similar purposes but the test content, test focus, test application and benchmarks used to assist with placement are distinctly different from the NBT in academic literacy and TALL used in South Africa.

A further critique of standardised tests is whether a test of reading has validity in testing academic literacy specifications. Academic learning and knowledge acquisition is largely dependent on the ability to read various modalities of literacy representations in an academic way. It could be argued that in academia, text is the predominant modality alongside, for example, numeracy, visual or digital literacies. However, it is the *kinds* of reading practices, i.e. textual and other engagement that is of consequence in an academic context. For academic 'success' (refer to the Chapter 1, subsection 1.1) 'on paper and screen, students must be able to go well beyond just getting meaning' (Horning 2007). In keeping with the underpinning theories of linguistics on which this thesis draws, Horning (2007) views reading as 'a psycholinguistic process, involving the interaction of readers' thinking with the language of the text'. While reading is essentially employed to access meaning, in an academic context 'it must also entail moving beyond meaning to analysis, synthesis and evaluation ... including summary of key points, main ideas and the point of view of a writer' (Horning 2007). These aspects of reading form the essential components on which a standardised test of academic literacy test is premised. It could be argued that the ability to read with meaning and 'beyond' (Horning 2007), to process text in conjunction with other modalities in a decontextualized way (i.e. without the support of paralinguistic cues that would accompany BICS, for example) using language ability (Bachman and Palmer 1996) as a vehicle to access knowledge are core skills for any academic context. Standardised tests for higher education across the national and international spectrum, therefore, include the ability to demonstrate reading skills for accessing meaning. Given the test specifications on which standardised tests in academic literacy are based (refer to Chapter 3, Table 3.1), reading requirements extend beyond accessing surface meanings to discourse analysis and the fine-grained textual components of genre and metaphor. Although writing is the dominant form of demonstrating academic performance and knowledge

acquisition, in academia all written tasks are preceded by reading, with written tasks being the products of reading engagement. Summary writing is a case in point. Hidi and Anderson (1986: 485) note the ‘sophisticated’ reading activities that precede summary writing, such as ‘selecting topic sentences’ and analyzing text structure. Furthermore, where texts are not structured in a linear way ‘the summarizer must process the propositions recursively at the whole-text level’... [consider] the main point of each segment, its importance to the overall picture’ and how one sentence links with preceding and succeeding ideas (Hidi and Anderson 1986: 485). Although summary writing was not included in the sample standardised test, these ‘sophisticated activities’ noted by Hidi and Anderson (1986: 485) mirror the kinds of textual engagement required by test writers. The assumption that reading is a tacit skill and that students should be able to cope with higher education academic reading demands might be considered optimistic. Hence the need to determine students’ capacities to engage with academic literacy within the context of reading.

This study does not present standardised tests as the panacea to improved access or improved academic performance and throughput rates. Rigorous and robust evaluation of tests, their purposes and impact on student cohorts should be the norm to improve on assessment principles of validity, reliability, fairness and transparency. Consistent research in the form of longitudinal studies as to the appropriacy of test content, test items, test specifications, cut-off scores and their impact on student placement are imperative to afford a testing a semblance of legitimacy in the higher education sector. Critique levelled at tests and testing is well justified until such time that empirical data can provide support for the efficacy of testing for its intended purpose(s). While several articles reveal the evolution of test specifications and validity of the TALL test (refer to the Institutional Centre for Language Development and Assessment (ICELDA)), the NBTs are in their infancy in terms of research on longitudinal studies. Most studies, however, nationally and internationally seem to focus on test validity and the predictive validity that have a quantitative research bias (O’Hare and McGuinness 2015; Sebolai 2014; Edwards, Coates and Friedman 2013; Sawyer 2013; Stemler 2012; Weideman 2011; Cimetta and D’Agostino 2010; Coates and Friedman 2010; Weideman 2009; van der Walt and Steyn 2008). Research on academic literacy test specifications and whether they align with subject specifications seem to be limited, hence the purpose of this study which might render further critique from a qualitative perspective.

2.6.5 The use of the multiple-choice type questions for proficiency tests

Williams (2006: 287) cites Berk’s maxim that ‘the efficacy of multiple-choice type questions as an assessment tool has attracted considerable debate’ as the ‘most popular, most unpopular, most

used, most unused' question-type format. Williams's (2006: 288) view is that MCQs are 'versatile' and constitute 'a format that can provide precision where other measurement options may be lacking', while the disadvantages of MCQs 'tend to centre upon unreliability due to random effects ... and the depth of learning that the format engenders (or lack thereof)'. Proponents of MCQs argue that the way the question is phrased could lead to the stem of each question's being 'more complex ... and subtly worded such that understanding is demonstrated' and would concede that MCQs can in fact measure complex cognitive outcomes (Williams 2006: 290). In other words, there is the acknowledgement that MCQs can be worded so that they test reasoning skills and procedural knowledge rather than mere recall or declarative knowledge.

A further concern with regard to MCQs is the extent to which the test scores correlate with productive assessment formats such as paragraph or essay writing and whether MCQ results would provide similar indicators of academic performance as written, productive essays would. In a study conducted with 533 students across three cohorts of students, Mujeeb, Pardeshi and Ghongane (2010: 121) found that 'there was a statistically significant overall correlation' between student performance on MCQs and short essay-type questions. The correlation between the two sets of scores indicated that 'in general, students who performed well in essays were also likely to do well in MCQs' (2010: 121). However, the study also showed that the MCQ scores were 'consistently higher' when compared with the scores of the essay-type questions. While this particular study focused on the assessment of content knowledge of a study programme as opposed to a proficiency test, the findings nevertheless provide insight as to the focus of using MCQs for large-scale proficiency testing. In their study, Mujeeb, Pardeshi and Ghongane (2010) attributed the higher scores for MCQs to the 'bias or more subjective marking schemes' for written components and the 'elimination of examiner's bias' when marking MCQ-type answers.

Agostino, Welsh, Cimetta, Falco, Smith, Van Winkle and Powers (2008) and Miller, Bradbury and Lemmon (2000) conducted separate studies that investigated the relationship between academic performance and different kinds of assessments: open-book assessments, MCQs and 'the more conventional essay'. The productive components tested 'students' conceptual understanding of the core concepts of the course ... as opposed to their ability to rote learn and retain factual information' (Agostino et al. 2008: 167). The assessments for the study of Agostino et al. (2008) consisted of assignments, essays, a tutorial open-book test and an examination of MCQs. The overall picture suggested that student performance tended to remain stable, irrespective of the 'kind of assessment', despite attempts to shift learning patterns by introducing the open-book test

to the assessment type complement (Agostino et al. 2008: 167; Miller, Bradbury and Lemmon 2000).

Research suggests that using MCQs only does not necessarily skew the results of test takers and could provide the kinds of data that would indicate a student's ability to contend with the academic demands of reading and writing at first-year level of higher education. This notion is borne out by Cliff, Ramaboa and Pearce (2007: 41) who found that with a representative academic literacy proficiency test:

the high correlations between various question types and the total score of writers on the test suggest that assessment using any one question type will suffice for determining the overall performance of writers. In particular, the multiple-choice questions on their own, or the short response questions on their own, are very strongly correlated with the total score.

The relevance of this discussion on the use of MCQs lies in their distinction to effectively assess academic literacy for higher education, i.e. what writers know and are able to do with language structures on entry to higher education. The main standardised tests currently used in South Africa, i.e. the NBT, TALL, AAB and the previously used SATAP and PTEEP tests, were developed and are currently researched by specialist teams of testing experts within testing units at the various institutions. These tests are developed, piloted and critiqued using item analysis and discrimination indices to determine their efficacy in achieving test objectives. Given the widespread use of MCQs in standardised tests in the face of robust and rigorous analysis from three different tests (NBT, TALL, AAB), developed and researched by three different testing teams over the past ten years, the test format would be unlikely to change in the imminent future unless research shows otherwise.

The previous sub-sections of this literature review (2.1-2.6.4) presented the context for the advent of testing South Africa, provided the rationale for the use of standardised tests on entry to higher education, and presented an overview of international perspectives and practices on the use of standardised tests.

The following sub-sections (2.7-2.9) provide the theoretical framework and focuses on theories and approaches of academic literacies for higher education, theories and approaches that inform test development, and how these theories and approaches relate to reading, writing and academic literacy test specifications. It should be noted that the theories and approaches of academic literacy

and test development have a dyadic relationship that is realised in the resultant test specifications on which the sample test (as well as the NBT) is based.

2.7 Theoretical framework: academic literacy in relation to academic literacies models, language ability and language use in higher education

2.7.1 Autonomous and ideological models of literacy

The term 'literacy' has become highly contested since it has been interpreted, theorised, taught and practised differently by educationists, linguists, anthropologists and psychologists. Given the various forms in which literacy presents itself, for example, disciplinary literacies, multi-modal literacy, digital literacy, semiotics and culture-specific practices, different perspectives on literacy acquisition and practices have emerged. The prevailing assumption was that there was a single literacy that could be imparted in a 'single predictable process' to transform passive 'illiterates' into literates (Street 1993: 25). This notion was challenged by theorists (Gee 2012; Street 2003, 1993; Fairclough 1992) who claimed that individuals were literate by virtue of developing literacies for particular social purposes. The autonomous model, that is, that literacy was transferable from one individual and one context to another and could be conceptualised independent of social contexts, was refuted in favour of the ideological model.

Within the New Literacies Studies framework (Gee 2012, 1996; Street 2003, 1993; Lea 2008, 2004), drawing on sociolinguistics and anthropology, literacy is a social practice where individuals actively develop literacy skills (for example, reading and writing or skills related to reading and writing). Street (1997: 48) notes that a learning environment, 'like other contexts, has its own social beliefs and behaviours into which its particular literacy practices are inserted'. In the context of this study, literacy practices relate to 'particular ways of thinking about and doing reading and writing' in educational contexts (Street 2003: 79). For example, literacy practices related to writing at school, according to Baynham (2000: 18), allow 'student writers to take up disciplinary positions in a discourse community'. An example of literacy processes could be the sequential (and sometimes iterative) literacy skills that produce meaning in reading and writing, such as discourse analysis or written composition. These understandings of practices and processes align with Hyland's (2011: 55) views that 'the process of writing involves creating a text that we assume the reader will recognise' and the process of reading involves textual [and other forms of] analysis and 'drawing on assumptions about what the writer is trying to do'. The boundaries between literacy skills, practices and processes are porous and fluid and are not viewed as entities in themselves. Skills,

for example, could be intrinsic to practices and processes. Furthermore literacy in higher education 'is not so much on the acquisition of skills ... but rather on what it means to think of literacy as social practice' (Street 2003: 77). Literacies therefore, are social activities, 'something people DO when they interact with one another' while 'practices' relate to language activities bound up with activities in the real world that provide ways of linking language and context (Hyland 2011: 59). The view that Hyland (2011) presents of literacy as social practice resonates with Street's (2003: 77-78) NLS ideological model of literacy, that

literacy is a social practice, not simply a technical and neutral skill; that it is always embedded in socially constructed epistemological principles. It is about knowledge: the ways in which people address reading and writing are themselves rooted in conceptions of knowledge, identity and being. It is always embedded in social practices, such as ... a particular educational context'.

Literacy is not the incremental acquisition of transferable skills, neither is it limited to an educational environment. Street (2003) suggests an inextricable connection between literacy and knowledge, with appropriate literacy practices being the vehicle to epistemological access. [Refer also to Morrow 2007.] In summary, all aspects of literacy acquisition and the social practices with which individuals are associated are meaningful to literacy acquisition. Street (1993: 25) differentiated between the traditional conventions of literacy being a 'single predictable process' where being literate was considered to be the ability to read and write, that is, the autonomous model, and the ideological model which included a more socio-cultural view of literacy that varied from one context and culture to another. The autonomous model portrays literacy as skills acquisition transferred from one context to another that enables individuals to read and write, devoid of any social context or interpersonal relationships. For language and literacy theorists and within the context of this study, the autonomous model is problematic for several reasons. Firstly, the technician approach to acquiring reading and writing skills ignores the social environment in which individuals function. Secondly, in any social environment inter-personal and power relations are prevalent. For example, within the classroom environment academic discourse is very different from the social discourse or the home language. There is thus a measure of hegemony, where the academic discourse is viewed as dominant and incontrovertible over and above any social discourse that students bring to the higher education context. Thirdly, if literacy is about the ability to read and write, the implication is that cognitive skills associated with reading and writing are innate skills that are learnt and transferred from one context to another. Gee (2012: 44-45) disputes this perceived innate ability by claiming that reading is more than 'simple decoding' and that one has to be 'apprenticed to social groups' that read in a particular way, for example, academia or

disciplinary discourse. Fourthly, reading and writing accrue meaning within situational and contextual thinking and reasoning practices. Literacy practices are inextricably linked to the ways of talking, doing, thinking, believing and the value systems of the various social institutions of which individuals form a part (Gee 2012). In other words, reading and writing accrue meaning and value given the particular context in which they occur or present themselves, such as learning within a higher education context. This notion of literacy is closely linked to Gee's (2012: 152) concept of Discourse as 'distinctive ways of acting, interacting, valuing, feeling, dressing, thinking, believing with other people and with various objects, tools and technologies' that projects membership of particular social groups. As such, individuals embody many Discourses or literacies, given the various social groups to which they belong, academic Discourse or academic literacy representing one kind of identity among many.

Given the limitations outlined above of the autonomous model, Street (1993) provided a rationale for the ideological model of literacy. Street (1993: 7) used the term 'ideological' to describe a socio-cultural approach to literacy where literacy practices were not only aspects of society and culture but also of power structures. The ideological model subsumes the autonomous model and premises literacy as:

- a socially developed, not a technical, neutral skill;
- developing an identity; and
- embedded in social practices such as educational contexts, community environments, and religious practices, amongst others, that constitute a particular world view.

Based on her research, Rockhill (1993: 171) found that 'the construction of literacy was embedded in the discursive practices and power relations of everyday life; it is socially constructed, morally regulated and carries a symbolic significance'. In summary, literacy is a lived experience that embeds the context, culture and power relations in which language use occurs. A highly contested space of literacy engagement is that of higher education, where academic literacy dominates in the face of struggles with its acquisition, its use and approaches to literacy practices.

The ideological academic literacies perspective that underpins this study relates to Coffin, Curry, Goodman, Hewings, Lillis and Swann's (2003: 10) description of higher education as social context. Although their description focuses on academic writing, reading would also be included here. The authors assert that:

- 'the conventions governing exactly what constitutes "appropriate academic writing" and reading are social to the extent that these have developed within specific academic and

disciplinary communities over time' (Coffin et al 2003: 10). In other words, certain academic literacy conventions have been entrenched as the norm for academia and emanated from academic contexts. The academic literacy test specifications could be considered examples of conventions for academia as decided by various panels of experts across the higher education sector in South Africa;

- reading and writing are social practices in that 'students are learning not only to communicate in particular ways' in academia, but also to acquire professional literacy conventions to engage with the professional discourse community (Coffin et al 2003: 10). For example, reading for test purposes and writing tasks for disciplinary subject purposes draw on educational and professional contexts that frame thought processes and the interpretation of textual and other modalities.

Literacy practices that define higher education are situated within particular environments, where different lecturers, students, the university culture, course structure, course content, disciplinary knowledge structures, and the chosen profession act as variables that influence how reading and writing occur at any given time. As such, literacy in higher education 'is always a social act' [given] the ways in which teachers ... and their students interact ... that affects the nature of the literacy being learned' (Street 2003: 78). [Refer also to Lea 2008; Jackson, Meyer and Parkinson 2006; Lea and Street 2006; Lea 1998) Academic literacies are therefore, meaning-making practices that are always contextualised within a framework of variables. As such, the sociocultural academic literacies dynamics of symbolism, 'identity ... community [and] religious practices' should not be ignored within the holistic purview of the ideological model (Street 1993: 7). These and other sociocultural perspectives draw attention to how cognition is shaped by culture, context, and social interaction. However, the sociocultural perspectives of academic literacies that employ ethnographic methods to explore how dimensions of symbolism, power relations, ethnicity, background, culture, identity and the contested nature of academia impact literacy practices (Archer 2008; Lillis 2008; Lillis and Scott 2007; Coffin et al 2003) are important but not salient to this study. Academic literacy for testing purposes resides in the kinds of textual, visual and numerical analysis that students know and can do on entry to higher education. The sociocultural perspective for testing therefore, is limited to the academic sphere of higher education as to how well a student might cope with academic demands based on academic literacy specifications. [Refer to Coffin et al (2003) in this sub-section]. While efforts are made to ensure that tests are fair, reliable and valid for all students, culture, ethnicity, identity or any form of hegemony are not factored into test development or into the test results equation. The political and social imperative

to widen access and participation to higher education in South Africa does not ignore diversity and the challenges it holds, but values inclusivity of all who qualify for tertiary studies. Research on student challenges and struggles with academic literacies that authors such as Archer (2008), Lillis (2008), Lillis and Scott (2007) conducted are about students who are already *in* the system whereas tests of academic literacy promote access *to* the system. Issues of student identity in higher education regarding hegemony, ethnicity and culture form part of test development in so far as bias in test content and test administration is minimal or preferably avoided.

2.7.2 Literacy as ‘Discourse’/‘discourse’

Although English as a school subject focuses on the communicative abilities of language and on the different genres of literature, poetry and expository essay writing, the common assumption is that students acquire academic literacy proficiency within the school-centric setting. Research on under-preparedness for higher education presents a different picture, as students need more than conversational English and literature analysis to engage in literacy practices for tertiary studies. According to Gee (2012, 1996), knowledge of grammar rules does not necessarily equate with using the Discourse of a language. It is important to know how to use a language within a given setting using the appropriate combinations of saying, writing, thinking and being. Gee (1996: 139) refers to these ‘ways of being in the world ... how to act, talk and write’ as Discourse, with a capital ‘D’, which is more than using language to make sense in conversation, essays or stories, that is, discourse with a small ‘d’. ‘Discourse’ relates to adopting a particular language use that others in the language community or society will recognise. Although there are as many Discourses embedded in social institutions, for example, in sport and business, as there are in academic institutions, the dominant Discourses are those that are valued by the societies and institutions of which they form a part. For example, at university the Discourse of academia or academic literacy would be dominant, which is very different from the Discourse that students encountered at high school or in their social environments. Academic literacy could well be a new Discourse, a new way of thinking and writing for many students who ‘arrive at university with a somewhat different socio-cultural experience of literacy and begin a journey of developing new literacy practices within the context of the disciplines they are entering’ (Devereux and Wilson 2008: 126; Lillis, 2003). Leibowitz takes this notion of dominant Discourses further by citing the disadvantages that academic literacy for higher education holds for students who might be unfamiliar with expectations their fields of study. Leibowitz (2001: 22-23) noted that

... the discourse of academia is considered to be a middle class discourse and those who are not familiar with the discourse are extremely disadvantaged: firstly, they have

to learn/acquire the conventions of academic discourse; secondly, they often need to survive academically in a second language setting; and, thirdly, they have to overcome the legacy of a poor schooling system.

Given the different 'discourses' and 'Discourses' prevalent in higher education, research suggests that the knowledge and practices of academic Discourse are the paragon for achieving academic success. Although different theorists such as Gee (2012, 1996), Cummins (1996), Bachman and Palmer (1996) and Lea and Street (2006; 1998) might have varying conceptions, terminology and models of academic literacy(ies), the commonality is that academic success equates with the ability to apply specific language skills and practices to access and produce information. The thrust of academic literacy theories and approaches resides in the ability to use language as the vehicle to demonstrate learning in and of subject content. In the discussion below, parallels were drawn between Gee's (2012, 1996) 'discourse' and 'Discourse', Cummins's (1996) conceptions of academic literacy and how these conceptions related to Bachman and Palmer's (1996) socio-linguistic framework of language ability used to frame the standardised tests that formed the basis of this research.

2.7.3 Literacy and language proficiency (BICS and CALP)

Gee's (2012, 1996) differentiation between 'Discourse' and 'discourse' resonates with Cummins' (1996: 21-34) two sets of language proficiencies, Basic Interpersonal Communicative Skills (BICS) and Cognitive Academic Language Proficiency (CALP). Cummins' language proficiencies differentiate based on the ability to use language to communicate efficiently (BICS) and the ability to demonstrate knowledge of language structures to engage with text for discourse analysis and textual development (CALP). BICS refers to the ability to use language for communicative purposes, where the act of communicating is more important than the message conveyed (refer to discourse – lower case 'd'). CALP, on the other hand, refers to engaging with language and meaning on a deeper level, for example, the ability to use language and appropriate reading skills to analyse, interpret and understand a complex text, that is, applying the kinds of academic literacy skills required to succeed in an academic environment (refer to Discourse). Cummins' (1996) assertion was that students needed to have developed CALP in order to cope with the demands of academic discourse. However, the progression from BICS to CALP was not necessarily a causal consequence of good communicative ability. Cummins (1984) was concerned with why those students with well-developed BICS could not translate their fluency in communicative ability to learning in that medium of instruction. Academic literacy for Cummins (1996) was more than communicating fluently in a language considered adequate for everyday social use, and he contended that it would

be inadequate for academic purposes. In BICS, particular cues provide a context and setting to interpret messages and respond appropriately. For example, in face-to-face communication, non-verbal cues provide the impetus for the rules of engagement of the communication situation. Within an academic setting, where texts (or artefacts) need to be analysed or composed, these kinds of cues are non-existent and other rules of engagement come into play. Students need specific language tools *of* and *for* language use to interpret and understand texts. Standardised tests that focus on BICS only would therefore be inappropriate for academic purposes, as academia requires more than fluency in communication. Academic literacy for higher education would require students to engage with particular cognitive processes and performances to access information from texts or other genres as suggested by CALP. To this end, Cummins (1996) presented his conceptions of language proficiency for academic purposes by means of illustrating variables on a Cartesian plane representing continua of (1) context-embedded/context-reduced contextual support, and (2) the levels of complexity in terms of cognitively demanding/cognitively undemanding tasks. The continua are presented as follows in Figure 2.2:

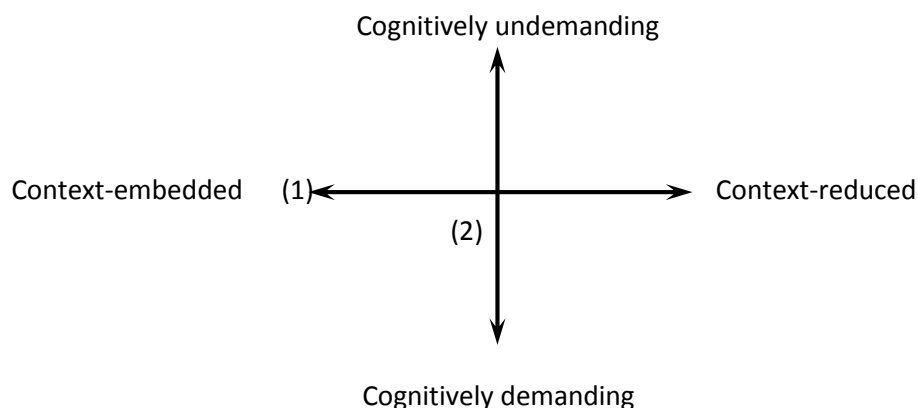


Figure 2.2 Context-embedded and context-reduced contextual support (Cummins 1996)

The context-embedded end of the continuum represents visible cues that facilitate communication in face-to-face settings, such as non-verbal communication (a smile, nod or frown) that contributes to understanding or further clarification of verbal communication. The context-reduced end refers to examples of textual analysis or summary writing, where no visible face-to-face cues aid understanding and the individual has to use the appropriate genre devices of style to convey an intended meaning. Written forms of communication for academic purposes would, for example, be context-reduced since no visible cues are available to guide the student in academic environments.

The cognitively (un)demanding continuum (2) represents the levels of cognition required to complete tasks, be they reading or writing. The cognitive level of tasks, for example, the level of difficulty in analysing or composing texts, will be largely dependent on an individual's level of academic literacy and linguistic knowledge to complete the task. It stands to reason that as a student repeatedly engages with similar tasks and/or the language ability increases, the tasks become progressively more cognitively undemanding. The principle of Cummins' (1996) continua is that, firstly, in the absence of communicative cues, scaffolds should be in place to guide the student in analysing or producing appropriate forms of communication. For example, standardised tests would be considered context-reduced tasks and as such, the types of reading texts and questions should be scaffolded in terms of developing understanding of textual content. In addition, questions should flow from the less cognitively demanding processes to find answers to the more cognitively demanding procedures and analysis for the more complex type questions. For the test taker, the more complex type questions would be more demanding in terms of knowing which linguistic/literacy skills would be required to access and produce information. The application of the more complex linguistic skills is what distinguishes BICS from CALP and represents the kinds of textual (and other genres) of engagement required to achieve academic success in higher education. Yet, as alluded to earlier in this chapter, research findings suggest that the majority of high schools do not infuse CALP practices into teaching and learning, hence the pervasive academic support structures at tertiary level.

Learning a language with its inherent grammar structures, its nuances, genres and myriad forms of meaning, is a protracted process. A student with limited language proficiency may require five to seven years to obtain sufficient CALP to perform well on academic tasks (Cummins 1996: 18-36). Given the levels of un/under-preparedness of students who might not have a well-developed CALP on entry to higher education or who may not have a well-developed primary Discourse, the time period in which to bring about significant changes for academic literacy improvement is rather limited and inadequate. A further very real complexity is if the language-of-instruction is a second or third language. These challenges could account for academic support interventions that infuse literacy skills in an autonomous way for immediate transfer to academic contexts.

2.7.4 Language ability and language knowledge

Repeated reference was made in this chapter to the language ability, language knowledge and academic literacy skills that students should demonstrate to access and produce information in academic contexts. Drawing on linguistics and sociolinguistics as disciplinary areas, Bachman (1991;

1990) and Bachman and Palmer (1996) presented a composite framework of characteristics of linguistic tools and knowledge types 'for guiding the definition of constructs for any language testing development situation' (1996: 67). 'Language ability' (refer Fig. 2.3 below) as conceived of by Bachman (1990) and Bachman and Palmer (1996) involves two components, language competence (also called language knowledge) and strategic competence. Bachman and Palmer (1996: 67) assert that 'it is this combination of language knowledge and strategic competence that provides language users with the ability to create and interpret discourse'.

Based on Bachman's (1990) and Bachman and Palmer's (1996) model, a standardised test of language proficiency would of necessity include aspects of the following:

- language knowledge – including grammatical, textual, functional and sociolinguistic knowledge;
- topical knowledge – knowledge about the topic at hand;
- strategic competence, or meta-cognitive strategies – the ability to plan, monitor and modify language required and used by the test task; and
- affective schemata – affect the way in which tasks are approached and undertaken (Yeld 2001: 158).

Bachman and Palmer (1996: 67) contend that the design of all language tests, such as a standardised test of academic literacy, 'should be informed by a broad view of language ability' In other words, specifications should not be tested in isolation of the broader components of language ability. For example, academic literacy can effectively only be tested by language use in context where all the elements for textual analysis, for example, genre, discourse structure, and vocabulary are included. As captured by Bachman (1990: 86), 'in language use, components all interact with each other and with features of the language use situation', hence the need to incorporate a 'broad view of language ability' in standardised language tests. In keeping with this notion, most standardised tests used for higher education in South Africa (PTEEP, SATAP, NBT, TALL), including the test analysed for this study, subscribe to Bachman's (1990) and Bachman and Palmer's (1996) research on language ability, with specific reference to language knowledge.

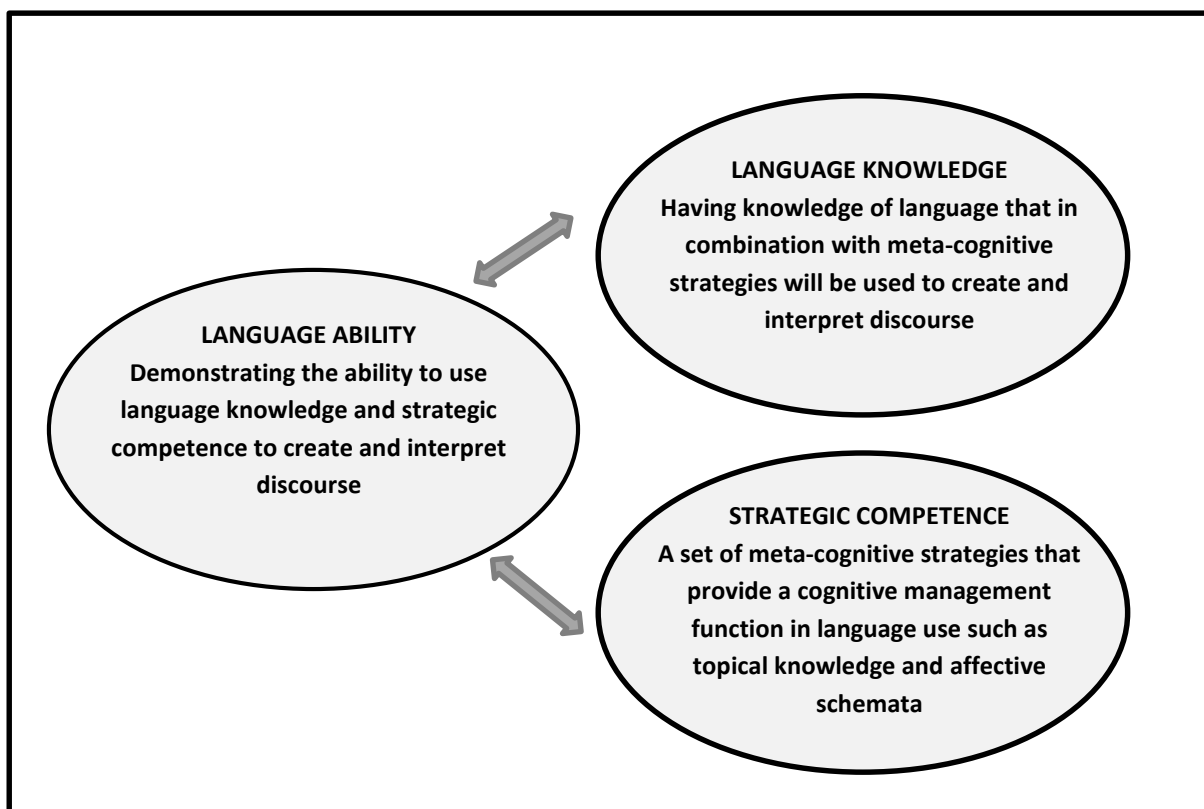


Figure 2.3: Representation of Bachman and Palmer's (1996) concept of language ability

Language knowledge has been conceptualised by Bachman and Palmer (1996: 67) as those metacognitive strategies required to produce and interpret discourse in language use. These strategies include knowing the rules of grammar, syntax and morphology to create or interpret sentences; knowledge of organisation of text such as identifying devices of cohesion and analysing textual coherence; knowledge of purpose and functions of texts from the language user's perspective; and knowledge of the purpose and functions of texts from the language use setting. The two categories of language knowledge that characterise the development of standardised tests are organisational knowledge (i.e. grammatical knowledge and textual knowledge) and pragmatic knowledge (i.e. functional knowledge and linguistic knowledge).

[Refer to Figure 2.4 below.]

Bachman and Palmer's (1996) conception of language ability, language knowledge and strategic competence, together with Cummins' (1996) BICS and CALP, and Gee's (2012) discourse/Discourse provided the underpinning theories and rationale on which the test specifications were developed by expert panelists drawn from across the higher education sector. [Refer to Chapter 3, Table 3.1 for the test specifications.]

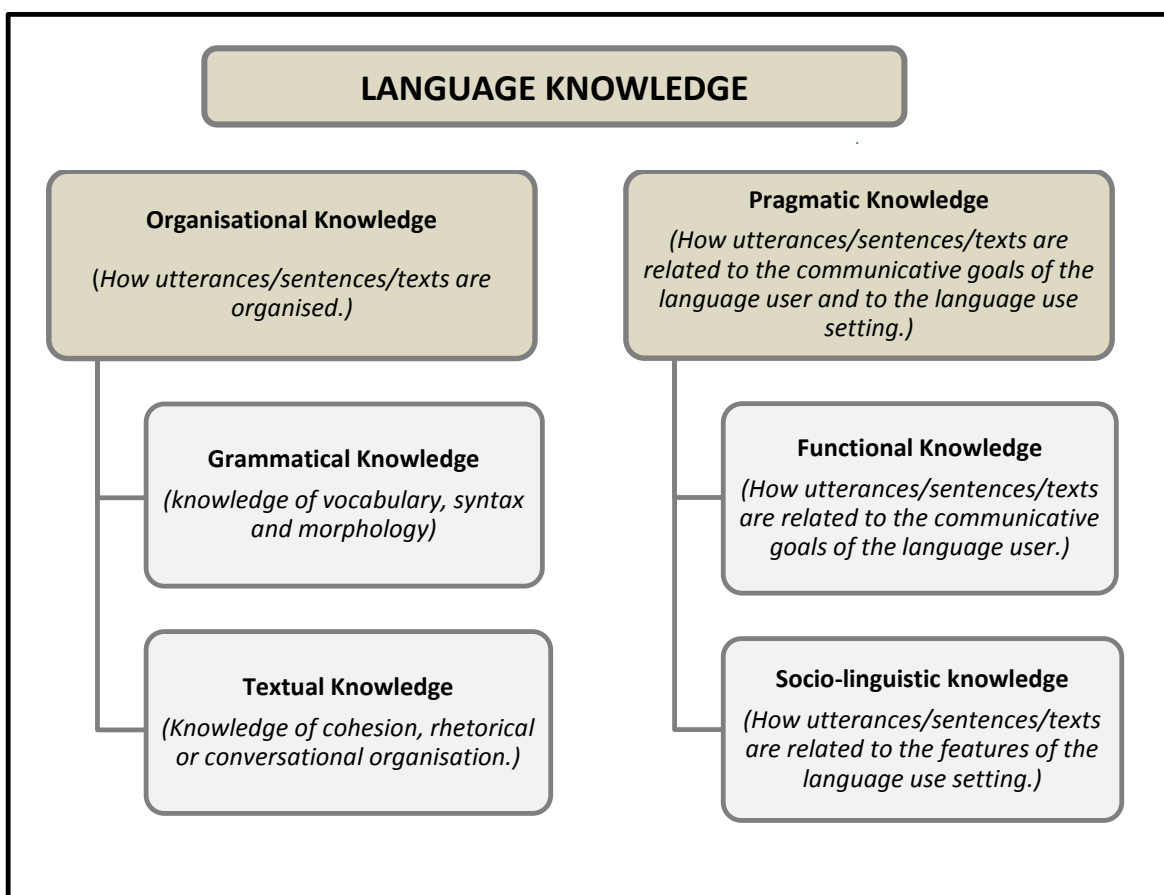


Figure 2.4: Categories of language knowledge (Bachman and Palmer 1996: 68)

Language knowledge as presented in Figure 2.4 would be the kinds of knowledge and linguistic devices that students would need to employ when engaging with Cummins' conception of CALP, Gee's notion of Discourse and Street's academic literacies model. In contrast, language knowledge represents a level of textual engagement beyond BICS (Cummins 1996), discourse (Gee 2012, 1996) and study skills (Lea and Street 2006; Street 2003, 1993). The application of language knowledge implies the ability to gauge the nuances of text (for example, genre modes, register, author/reader voice); recognise how discourse structure provides context by, for example, coherence and cohesion; and recognition that syntax is more than the correct use of concord. It is from these types of language use in context and linguistic devices that academic literacy for higher education draws. Rose (2007) provides insight into the various layers of textual engagement for academic texts that require the application of academic literacy skills to extract, extrapolate and infer meaning. The description provided by Rose (2007) departs from the premise that all texts are stratified from word and sentence to paragraph levels, are always embedded within a context, and therefore, cannot be neutral. Rose (2007: 51) depicts the stratification of texts from the perspectives of reading and

writing, where processing of all the strata from word to paragraph level happens simultaneously and includes recognition of patterns within words and sentences (i.e. grammar and syntax), and patterns within text (i.e. discourse structure). In other words, there is fluidity in textual engagement across the levels of how meaning is created. Beyond the text (i.e. words), is the context which is also stratified as settings, genre, reader/writer relationship and authorial position. An additional layer as explained by Rose (2007: 51) is that 'through all these layers of language in context are the ideological messages that the text encodes'. Integral to reading and writing is the ability to firstly, *recognise* the different layers that constitute texts (i.e. organisational knowledge), *identify* how the patterns in each layer communicate meaning given the goals of the language user and the language use setting (i.e. pragmatic knowledge) and *adopt* a position as reader or author based on the textual content and context. An exposition of these intensive reading and writing skills might not have been explicit without the language ability and language knowledge as espoused by Bachman (1990) and Bachman and Palmer (1996).

The widely held belief that language use, language ability (Bachman and Palmer, 1996) and academic literacy are directly related to academic success in higher education, renders it imperative that students should be able to engage with language beyond the BICS level (Cummins 1984), the discourse level (Gee 2012, 1996) and the study skills level (Lea and Street 1998) in order to deal with the academic demands of higher education. With regard to the power structures at play, the hegemony inherent in academic literacy practices at tertiary level cannot be ignored, where the ability to apply academic literacy skills and practices appropriately are non-negotiable for academic success. A criticism levelled at academic reading and writing is that students are required to use 'discipline-specific academic literacy norms' that function in hegemonic ways 'to maintain a social order' based on 'access to elevated secondary literacies' (McKenna 2004: 279). Irrespective of the various criticisms, it is almost irrefutable that CALP, Discourse and the range of multiple literacies are imperative to the academic literacy practices [refer to p27 for an explanation of 'academic literacy practices'] required for academic success. However, academic literacy practices are acquired neither by acculturation nor by default during tertiary studies. The myriad adjunct or compulsory academic literacy courses, individual or embedded academic literacy courses, short courses or year subjects offered across the higher education sector in South Africa bears testimony to this. Academic literacy skills and practices need to be incorporated across the curriculum for application in all subjects and academic contexts.

2.7.5 The relationship between academic literacy theories and an academic literacy test

Lea and Street's (2006: 368) approach to student writing in academic contexts should be conceptualised through overlapping academic literacies models, which are the study skills model, the academic socialisation model and the academic literacies model. The *study skills model* focuses on the surface features of language and the structure of text with the assumption that once these skills are mastered, they are transferable from one writing context to another. This notion of academic literacy as a unitary skill resonates with Street's (1993) autonomous model. The formal features of language that represent the study skills model include word usage, sentence structure, grammar and punctuation [refer to Bachman (1990) and Bachman and Palmer's (1996) 'grammatical knowledge'.

The *academic socialisation model* has as its premise that each discipline or subject has its distinctive features for written text and that once students are introduced to disciplinary writing conventions they should be able to reproduce them in their own writing. This model promotes acculturation into disciplinary, subject and vocational discourse, requiring knowledge of CALP (Cummins 2012, 1996) and language knowledge (Bachman and Palmer 1996; Bachman 1990).

The *academic literacies model* focuses on the more complex processes of acquisition and practices of academic literacy. This model transcends the skills-based application of the study skills method by focusing on interpreting and making meaning of texts. The academic literacies model represents the ideological aspects of NLS, where academic literacy is viewed as broader than how to use language to generate meaningful communication. This model operates on the level of Gee's Discourse and is associated with broader Discourses and genres. The academic literacies model 'requires of students to switch their writing styles and genres between one setting and another, to deploy a repertoire of literacy practices appropriate to each setting' (Lea and Street 2006: 368). The *academic literacies model* of NLS embodies Bachman (1990) and Bachman and Palmer's (1996) interpretation of 'strategic competence' and 'pragmatic knowledge'. Bachman and Palmer (1996) present a framework for language use where knowledge of language underpins the ability to engage in textual analysis.

By implication, in order 'to deploy a repertoire of literacy practices' (Lea and Street 2006: 368), it would be necessary to define the reading, writing, reasoning and language skills that students would need to apply to succeed in higher education. There is no simple response to the complex issue of defining the requisite academic literacy skills that would render a student fit for successfully

negotiating the thinking and reasoning demands of higher education. For example, Street (1999: 22) asserts that language in education should

... take on the task of helping new generations to learn how to not take things at face value, [i.e. to read between the lines]; to be aware of the figurative devices that lie at the very heart of discourse; to recognise the rich varieties of tropes, registers and language forms and to deploy the full metaphoric potential of language.

In reality, the thinking and reasoning skills that embody Bachman and Palmer's (1996) 'language ability' reflects the challenge of many students who first need to be enculturated into the literacy requirements of both higher education and subject-specific expectations. The challenge in setting a test of academic literacy would be to find a balance of incorporating a repertoire of specifications that would appropriately assess the ability to recognise how language structures constitute and create meaning, as well as to engage with the nuances and genres that language constructions reveal. The standardised tests that form the subject of this study assess academic literacy for higher education by drawing on research conducted by Bachman and Palmer (1996). Bachman (2002, 1991, 1990) and Bachman and Palmer's (1996) model of language testing is an attempt to assess academic literacy as more than superficial reading and writing practices (Cliff 2015, Cliff 2014; Patterson and Weideman 2013; Cliff and Yeld 2006; Weideman 2003; Yeld 2001). Language proficiency such as CALP, (Cummins 1996) is seen as multi-layered and multi-componential, consisting of language competence, that is, organisational competence and pragmatic competence and the interrelated cognitive processes required to apply language in use. The linguistic underpinning knowledge on which Bachman and Palmer's research on testing is based provides a particularly useful framework of language ability that suggests prospects for academic success. While Gee, Cummins, Lea and Street collectively espouse the virtues of academic literacy for higher education, standardised tests in South Africa mainly draw on Bachman (2002, 1991, 1990) and Bachman and Palmer's (1996) 'language ability' framework to support the test approach and purposes.

2.7.6 Academic literacy and the justification for standardised testing

There are two assumptions regarding English as a language of teaching and learning that are common among lecturers in higher education. The first assumption is that having English as a first language equates to being proficient in academic literacy practices for higher education. Research shows that this is in fact not the case (Curry 2004; McKenna 2004; Boughey 2002; Henning and Van Rensburg, 2002). The second assumption is that English second-language speakers will succeed academically if they improve their reading and writing skills, that is, that academic literacy practices

will improve with immersion into language programmes and short courses that focus on reading, writing and formal grammar (Chanock 2007; Curry 2004; McKenna 2004; Boughey 2002; Henning and Van Rensburg 2002). This assumption is fundamentally flawed since research findings indicate that academic literacy interventions are not effective as adjunct courses but that improvement occurs more readily within the subject of study (Chanock 2007; Jacobs 2005; Curry 2004; McKenna 2004; Boughey 2002; Henning and van Rensburg, 2002). Furthermore, these support courses more often than not represent the autonomous, skills-based model of literacy acquisition, which has raised critique with NLS theorists for not providing an adequate foundation to use language effectively as a vehicle to access and produce information.

It should be noted that most research on academic literacy conducted within the South African higher education context relates to students' (un)under-preparedness for higher education and attributes poor academic performance and throughput rates to the inability to read and write in the academy. There is widespread acknowledgement in higher education that although the NSC provides preparation for higher education, an articulation gap nevertheless exists between high school and higher education (CHE 2013b) and as such, institutions have support systems of various levels and intensities in place. The construction of knowledge, ways of thinking, forming an argument or presenting an opinion are very different from school to university (Chanock 2007: 275). The literacy and genre shifts that students are required to bridge from school to university cover new terrain that they have not traversed before.

The extensive body of research on reading and writing in the academy and the theories that emanated from this research focus (Writing Across the Curriculum; New Literacy Studies; Academic Literacies; Content-Based Language Teaching; and Content and Language Integration) all point to the prominence assigned to academic literacy as pivotal to gaining epistemological access to subject and disciplinary discourse. As such, it is argued that to determine students' readiness for studies in higher education it would be expedient to assess their 'language ability' (as used within the context of Bachman and Palmer 1996) as required at first-year university level. It is to this end that most standardised placement tests for higher education in South Africa (such as the PTEEP, SATAP, TALL and NBTs) have an academic literacy focus, to establish whether students are able to apply specific reading skills and practices to engage with texts and access information within a higher education context. The predominant focus on reading and writing in higher education and the claims made that academic literacy proficiency has a bearing on academic success (McCabe 2011; Van Schalkwyk, Bitzer and Van der Walt 2009; Van Dyk and Weideman 2004; McKenna 2004;

Weideman 2003) provide a plausible rationale for using academic literacy as a measure in large-scale standardised tests to determine the readiness of students to deal with the academic demands of first-year studies. Academic literacy competencies tested relate to negotiating meaning using the simultaneous application and scaffolding of language knowledge across different texts that relate to language knowledge as a process, not a product. The test specifications are based on Bachman (2002, 1991, 1990) and Bachman and Palmer's (1996) framework for literacy tests, where students should be able to use different types of language knowledge to demonstrate strategic competence, pragmatic competence and organisational competence (Cliff 2015, in press; Cliff 2014; Patterson and Weideman 2013; Van Dyk and Weideman 2004; Weideman 2003; Yeld 2001). The test specifications represent those generic specifications that would typically form part of first-year university studies, that is, to represent the target use specifications based on input from higher education academics, and constantly modified based on research and test item analysis.

The commonalities of the conceptions of academic literacy presented in this chapter (Gee 2012, 1996; Lea and Street 2006; Lea 2004; Street 1999; Bachman and Palmer 1996; Bachman 1991, 1990; Cummins 1984) suggest that a sound argument could be made in support of the validity of standardised tests currently in use that all subscribe to the following principles:

- 'Language knowledge' is a broad all-encompassing term that extends beyond grammar usage to text structure, employing cognitive processes and procedures to extract and produce information.
- 'Language knowledge' is a fundamental element for textual and other forms of language engagement.
- Academic literacy is not a discrete entity or 'a single global ability' (Bachman 1991: 673) but is embedded within contexts and social practices which need to be acquired using the dominant discourse required.
- The dominant Discourse is framed by the socio-linguistic demands within a given context.
- Academic literacy is 'multi-componential consisting of a number of interrelated specific abilities' (Bachman 1991: 673), such as the application of reading and writing skills and practices, the ability to engage in Discourse, the ability to use appropriate linguistic tools to negotiate context-reduced textual information and to apply the different language knowledges in their correct contexts.
- Communicative abilities in language use, such as BICS, do not equate with academic literacy expectations for academia, hence the focus on reading and writing for academic purposes.

- Access *to* and production *of* information is dependent on ‘language knowledge’ (refer to Bachman and Palmer 1996) and appropriate simultaneous interactive language strategies.

Drawing on research on standardised testing, (Sebolai 2014; Patterson and Weideman 2013; Van Dyk and Weideman 2004; Weideman 2003; Yeld 2001; Bachman 2002, 1991, 1990; Bachman and Palmer 1996), tests should subscribe to the following principles to claim validity as a demonstrable construct. To this end, the standardised test for analysis, as well as the large-scale test currently in use, subscribes to the following principles:

- The tests measure ‘language in use’ ability.
- A broad range of language abilities is included, such as knowledge of cohesion, functions and socio-linguistic appropriateness, in addition to formal aspects of language use.
- Performance measures are indicators of academic literacy proficiency and not absolute scores given the subjective nature of testing and higher education study contexts.
- The test specifications correspond with academic literacy required for higher education (and draw on input from academics to ensure that the tests subscribe to face validity).
- The texts used in standardised tests represent typical examples for analysis for higher education.
- The tests require the use of ‘language knowledge’ (Bachman and Palmer 1996) as well as the features of the language use context to create and interpret meaning.
- The test focus is not on communicative ability, that is, BICS and discourse, but assesses CALP, Discourse, study skills literacy, academic literacy and language knowledge.
- Test questions are scaffolded from the simpler elements of language to the more complex reasoning skills and procedures as suggested for content-reduced types of communication situations.
- Tests conform to a theoretical framework. ‘In order to validate uses of tests, there is a need to develop a theoretical framework within which we can describe language test performance as a specific instance of language use’ (Bachman 1991: 680).

In the absence of any other emerging theories and frameworks on standardised testing, the current empirical research and test validations will continue to inform practices and improvements as standardised testing in South Africa, it seems, will prevail for a long while yet.

Extracting meaning from reading and producing texts by writing are manifestations of academic literacy processes and procedures and demonstrate the knowing and being in the world. Academic

literacy is a composite construct that includes the application of language knowledge for textual and other engagement, provides access to discourse language and structures, frames the vocational discourse required for specific programmes, and as such, provides epistemological and ontological access by introducing students to the knowing, doing and being imperatives of academia and their chosen vocations. Figure 2.5 below provides a summary of academic literacy principles.

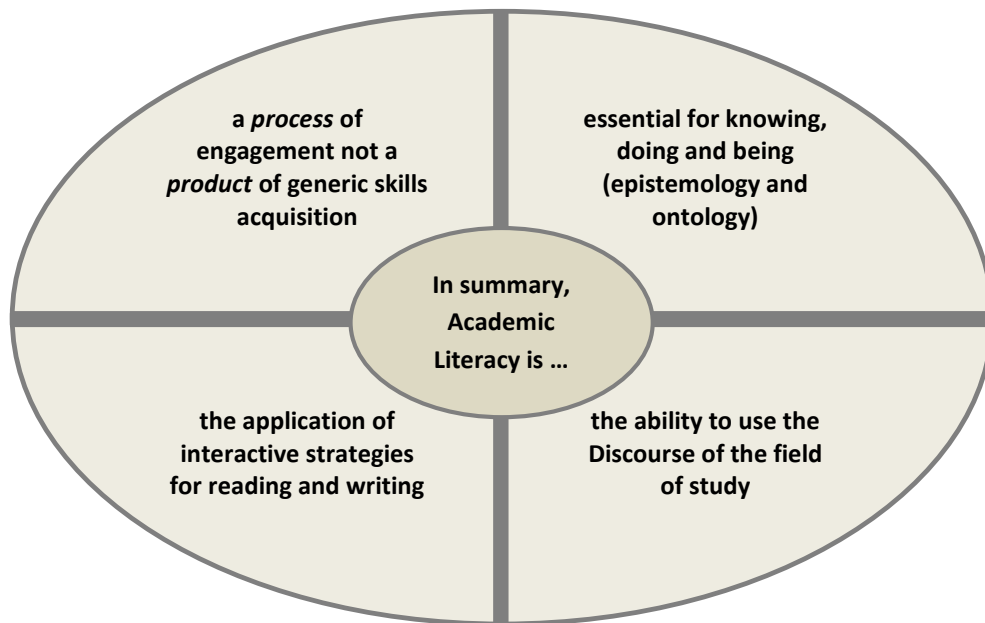


Figure 2.5: Academic Literacy principles

While tests of academic literacy are not located within any vocation, discipline, field or subject of study, they nevertheless provide the kinds of information about academic literacy proficiency that may be used to make inferences about appropriate placement decisions.

2.7.7 Academic literacy as situated social practice and a standardised test

The appropriate understanding of textual content is reliant on understanding the context in which the information is conveyed. Individual interpretations are content and context dependent, coupled with a particular frame of reference in terms of creating understanding. The application of academic literacy skills and practices to create understanding is influenced by several factors at play simultaneously: (1) the context in which the information is presented; (2) the genre used; (3) the modality used (e.g. textual or graphic representation); (4) the text structure, coherence and cohesion; and (5) textual content as it relates to the reader's frame of reference (i.e. topical knowledge), amongst others. The pertinent point here is that reading texts are context dependent and extracting meaning is dependent on the reader's ability to employ academic literacy skills and

practices to develop an understanding and interpretation of the overt and covert information contained in the text, that is, understanding content is contingent on the context.

With reference to this study, the textual (or other) information for analysis would be subject related and as such have intrinsic educational value. In other words, all literacy practices with which students would engage as part of their studies would be located within a particular subject, educational and vocational context.

However, a standardised test of academic literacy is unrelated to any discipline or field of study with the express purpose of testing students' ability to use linguistic tools for reading, analysis, interpretation and understanding of texts. The need for textual analysis, as required for a significant proportion of the test, provides a contextual backdrop for questions, with the necessary scaffolding of information and levels of difficulty to facilitate understanding. Standardised tests provide all test-takers with an equal opportunity to demonstrate language ability without any NSC subject-specific or socio-linguistic bias. The test format, that is, where all test tasks are situated within a reading passage or scenario, provides for situated language use where 'the metacognitive strategies and areas of language knowledge interact with each other simultaneously ... are integrated and interactive (Bachman 1991: 684). Since the overarching aim of standardised tests is to assess students' language ability for higher education, the focus is not on knowledge acquisition for a particular subject of study but on the ability to engage with particular cognitive processes, such as CALP (Cummins 1984) and language knowledge (Bachman and Palmer 1996) to understand textual content from any given text. The inferences made from test performance 'are about underlying "language ability", or "capacity for language use" or "ability for use" ... [by using] tasks that correspond to tasks outside the test itself and that engage test takers in authentic language use' (Bachman 2002: 454-455). Furthermore, the language cognition relates to the level of difficulty of typical first-year academic literacy specifications and is dependent on students' linguistic knowledge, reasoning abilities and procedural knowledge structures to complete the test tasks. The design of a standardised test is such that the outcome reveals the cognition, reasoning abilities and language abilities of students on entry to higher education rather than their ability to recall subject content. If students show proficiency in reasoning skills and language ability with context-reduced standardised tests, ideally, the effects of academic literacy in practice should be even more profound when dealing with subject-specific texts.

2.8 Reading and writing: manifestations of academic literacy

In terms of exploring the academic literacy practices for each subject, reading and writing requirements were analysed and compared with the specifications of a standardised test. The rationale for using reading and writing practices as themes for analysis relates to reading as the primary source of accessing information and writing as the demonstration of knowledge acquisition and understanding. Reading as a means of analysing discourse and accessing understanding is also the primary skill tested in tests of academic literacy. Academic literacy skills for speaking and listening were not included as part of this study as these domains did not form part of the sample standardised test nor the other tests in use. An analysis of speaking and listening were therefore, not relevant to the objectives of this study.

While reading practices for standardised tests require textual analysis, reading and writing practices for subjects are not limited to texts but draw on the plurality of the different ways that knowledge is presented in disciplinary literacies. Academic literacy is, in fact, about reading and writing in the academy as a form of knowledge acquisition as well as about learning from and engaging with the discourse community which resonates with Gee's 'ways of being in the world ... how to act, talk and write' like a professional in the subject of study (1996: 139). In other words, 'knowing' implies the ability to engage with the Discourse of the subject knowledge, by actively participating in the discourse community as a participant in constructing knowledge. Reading and writing provide access to the discourse community and the contexts in which information is made available or constructed. As such, students are enculturated into the ways of being, doing and thinking about knowledge, values and culture that exemplify the discourse community.

Students would be privy to privileged knowledge and dominant Discourses through reading and writing that are both complex processes requiring cognition, reasoning, analysis and synthesis to access or produce information.

Zamel (1992: 463) asserts that 'like writing, reading is characterized by active engagement through which meaning is created'. Zamel (1992) draws attention to the surface types of reading requiring limited textual engagement, for example, reading for comprehension, to extract the main ideas for summaries or paraphrases. Such understandings of reading, according to Zamel, deny readers 'their own transactions with a text and the critical understanding' of what reading practices actually involve (1992: 465). The interpretation of reading adopted for this study is that reading is more than textual analysis and 'has as much to do with what the reader brings to the text and how the reader interacts with the text itself' (Zamel 1992: 467). Demonstrating an understanding of how to

engage with text to access and extract meaning, that is, the application of interactive reading strategies for each subject, was explored to determine whether comparisons could be drawn between the kinds of reading practices required for the respective subjects and the specifications of a standardised test.

Zamel (1992: 468) clarifies the relationship between reading and writing as outlined below:

- Reading is the means of contributing and making connections with text, while writing provides 'a unique opportunity for discovering and exploring these contributions and connections'.
- Reading is engaging with discourse, and writing is the only way to demonstrate use of discourse.
- Readers become writers who articulate their understandings of and connections to the text in their responses.
- Reading for academic purposes is what makes academic writing possible.
- 'Reading continues to be viewed as necessarily preceding writing, to offer a paradigm to internalize, to act as a stimulant for writing or to provide subject matter to write about.'

Although reading usually precedes writing tasks, reading and writing in academia are mutually dependent, with writing the tangible demonstration of language in use for acquired knowledge. Hyland (2011: 55) claims that 'student writing is at the centre of teaching and learning in higher education'. Although emergent 'multimedia and electronic technologies are beginning to influence learning and how we assess' Hyland contends that 'writing currently remains the way in which students both consolidate and demonstrate their understanding of their subjects' (2011: 55). Writing, as a means of discovering meaning and understanding, is complex and involves much more than correct grammar, syntax and sentence structure. Academic literacy is intrinsically aligned with writing in the discipline which 'can be a highly productive process through which students can extend their understanding of the topic at hand and more generally develop their ability to conceptualise and critique' (Devereux and Wilson 2008: 124). In other words, writing may be the cornerstone of learning and development of disciplinary knowledge.

As with reading, writing is not an autonomous skill. It is contextually and conceptually situated within a particular knowledge base and requires knowledge of writing conventions of the discourse community. The above discussion on reading and writing for higher education provided the backdrop against which this study evolved in terms of exploring the specifications required for reading requirements of a standardised test and comparing those specifications with reading and

writing requirements for the subjects selected as case studies. Although standardised tests are reading intensive, the analysis and comparison of writing requirements should nevertheless shed light on the dominant academic literacy practices required for different subjects in different diploma courses.

2.9 Disciplinary literacies

University faculties and departments are demarcated along disciplinary divides, such as the Faculty of Engineering or the Retail Management Department. Knowledge areas in higher education are distinctive by virtue of their different fields and disciplines of study. The differences are characterised by 'the way that knowledge is created, communicated, and shared within a discipline' [such that] 'the discipline itself and the ways of thinking in that discipline determine the kinds of strategies to use in order to understand [and compose] texts' (Hynd-Shanahan 2013: 94). With reference to writing in the disciplines, the use of language and the distinctiveness of discursive practices, according to Baynham (2000) are distinguishing features of disciplinary literacy. He claims that 'language is after all a major means (if not necessarily the only means) by which disciplinary knowledge is constituted, reproduced, contested and added, and learned' (Baynham 2000: 19). The criticality of literacy engagement, therefore, lies in the ability to access and produce information within disciplinary norms. Academic literacy practices and pedagogy for subject-specific purposes should, therefore, 'make the concerns of disciplinarity and disciplinarization' overt in the disciplines that students are reading and 'writing themselves into' (Baynham 2000: 17-18). Research conducted on reading within the context of writing in different disciplines (such as engineering and technology, history, geography, chemistry, mathematics and nursing) shows that particular forms of literacy engagement are required to access knowledge and produce written or other artefacts (Loveland 2014; McWilliams and Allan 2014; Carney and Indrisano 2013; Hynd-Shanahan 2013; Shanahan and Shanahan 2012; 2008; Hull and Moje 2012; Hyland 2007; Zhu 2004; Hyland 2002; Baynham 2000). These authors conclude that reading and writing in the discipline requires far more specificity given the different cognitive processes required for analysis of multi-modal textual formats across different subject content. Horning (2007), for example, asserts that to acquire appropriate disciplinary reading strategies and to develop the expertise of reading in a particular subject area, students need to understand the genres and conventions of that discipline.

'Disciplinary literacy' has been articulated in different ways by different authors: disciplinary literacy emphasises the differences among disciplines (Hynd-Shanahan 2013); it refers to 'the use of discipline-specific practices to access, apply and communicate content knowledge' (Loveland

2014: 8); it requires particular literacy tools that would be appropriate for particular content areas (Johnson and Watson 2011), and Hyland (2011) asserts that disciplinary literacy is inextricably linked to the beliefs and practices of individual disciplines. Disciplinary literacy has particular reference to this study given the different subjects in different diploma programmes used as case studies. The Janus-faced context of vocational education adds a further dimension where both academic and professional disciplinary literacies are applicable. However, research on disciplinary literacy noted in this sub-section relate to teaching and learning in particular subject areas in particular university disciplines, mainly for academic support and intervention purposes (Loveland 2014; McWilliams and Allan 2014; Carney and Indrisano 2013; Hynd-Shanahan 2013; Shanahan and Shanahan 2012; 2008; Hull and Moje 2012; Hyland 2007; Zhu 2004; Hyland 2002; Baynham 2000). The importance attached to disciplinary literacy extends beyond the differences in reasoning for discourse analysis as required for text, digital or multi-modal literacies. The essence of disciplinary literacy resides in how particular literacy skills and practices are applied to particular knowledge structures to access meaning and construct knowledge. Becher's (1987: 262) study on 'relevant scholarly literature', i.e. journals on sociology, physics and history, revealed that knowing the 'structure of the body of knowledge which comprises that field ... are useful in enhancing our understanding of the process of intellectual enquiry, and of the way that process differs between different knowledge domains'. In other words, disciplinary literacy is more than an autonomous literacy skill set for specific disciplines. Knowledge of disciplinary structures and their accompanying discourse patterns as used by a community of practice, provide 'epistemological access' (Morrow 2007) to knowledge as well as participation within the discourse community. However, the permeable nature of disciplinary boundaries render disciplines open to change (for example, the nature of communication studies has shifted from hard copy, text-based to digital and technology-based such as communication within social media) or could be a combination of one or more disciplines within a particular field of study (for example, a qualification in Business Informatics draws on the fields of business studies as well as data processing and information systems).

Within the context of this study, the discussion and elucidation of disciplinary literacy(ies) are useful to foreground the need for specialised literacy practices for different disciplines. However, research on disciplinary literacy with reference to standardised tests is limited. The findings of this study could add to the literature on disciplinary literacies by providing insights into the kinds of disciplinary differences prevalent in diploma subjects and how these differences might be factored into standardised test development.

2.10 Conclusion

Standardised testing in South Africa is a recent phenomenon. The focus of standardised tests used in South Africa is on the ability to negotiate texts using academic literacy as a means of accessing and understanding information. The currency of academic success in higher education tends to be equated with students' levels of language ability (Bachman and Palmer 1996) and the application of academic literacy skills for higher education. When considering the increase in the use of standardised testing internationally, and especially nationally, the burning questions invariably gravitate toward the validity of large-scale tests in determining the academic literacy proficiency (as explained in Chapter 1, 1.1) of incoming university students. More often than not, detractors of standardised testing (with good reason) raise the contentious issue of validity from different perspectives such as the test language, the test format, test construct (academic literacy) and whether the test purports to test the same kinds of test tasks (i.e. target language use) as required for first-year subjects. Large-scale testing has accrued significant currency and these concerns are well justified.

A critique of standardised tests (Patterson and Weideman 2013; Baynham 2000) is that particular textual structures and idiosyncratic features of disciplinary language use are largely ignored. According to Baynham (2000: 18), 'rather than being neat homogeneous discourse communities, academic disciplines are radically heterogeneous and constituted in difference'. It could be argued that the homogeneous nature of generic standardised tests might not adequately relate to the target language use of the different disciplines and variable subject areas across higher education per se. Disciplinary differences extend across a range of variables: knowledge structure; presentation of content (textual, visual and/or numerical); and different ways of thinking, reasoning, critiquing, reading and writing. This notion of inherent disciplinary differences, as noted by Murray (2010: 59) are characterised by 'specialised vocabularies, concepts and knowledges, but also by ... patterns of meaning-making activity (genres, rhetorical structures, argument formulations, narrative devices etc.) and ways of contesting meaning'. Given the range of disciplinary characteristics, it could be argued that if inferences and resultant student placements are made based on generic standardised test results, there seems to be an anomaly with students taking a generic test while placement decisions are made for specific fields and subjects of study. The question to be asked is whether, or to what extent, generic standardised tests accommodate differences in disciplinary literacies and whether they foreground the differences in language ability and language knowledge (Bachman and Palmer 1996) requisite for different subjects of study. The findings of this study will contribute to the literature on testing in relation to subject-specific

academic literacy practices, and could challenge the homogeneous nature of generic standardised tests in favour a more heterogenous offering. The need for discipline-specific standardised tests would be based on the findings of studies such as this research, and might simultaneously inform the categories of test specifications that define particular subject areas. It should be noted that the limitations of discipline specific tests are acknowledged given the feasibility of setting different tests for the myriad disciplines. Entry into the field of disciplinary testing will no doubt present its own challenges. With reference to current standardised tests, due recognition should be given to the different purposes of academic literacy applications for standardised tests, (i.e. to test students' ability to deal with academic demands that represent typical higher education contexts). When compared with the purposes of using language knowledge (Bachman and Palmer 1996) for knowledge acquisition in a situated subject-related context, the application of academic literacies would be discipline and lecturer dependent. While academic literacy specifications for tests and subjects may prove to be similar, the purpose and application might be very different given the different subject and disciplinary contexts.

The aim of higher education is to offer all students the prospect of academic success, provided opportunities are created to develop adequate skills and practices to reason and read critically, and to write clearly, succinctly and coherently to access and demonstrate knowledge acquisition. The advent of standardised tests in South Africa has foregrounded academic literacy as one of the vehicles to achieving academic success in higher education.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This chapter provides a rationale for the research paradigm (interpretive qualitative research), research approach (multiple case studies), research methods (interviews and document analysis) and data analysis (coding and content analysis) that furnished the framework for this study. The academic literacy test specifications [refer to Table 3.1] provided the protocol for the data generation of interviews and the document analysis.

The research question and sub-questions of this study subscribe to the interpretive qualitative framework within which to respond to the research design and the conceptual framework. According to Denzin and Lincoln (2011: 3), 'qualitative research is a situated activity [and] consists of a set of interpretive, material practices that make the world visible'. These 'material practices' (Denzin and Lincoln 2011: 3) consisted of interviews and summative assessments that represented real world-perceptions and experiences of the research participants. Silverman (2006: 13) views this ability to 'access directly what happens in the world, i.e. to examine what people actually do in real life rather than asking them to comment upon it' as one of the strengths of qualitative research. In other words, the empirical data generated within the qualitative paradigm represented the perspectives of participants in everyday practices and involved identifying the participants' beliefs and values that underlie the phenomena to be researched (Denzin and Lincoln 2011; Boeije, 2010; Kvale 2007; Fouche and Delpont 2005).

One of the premises of qualitative research is the engagement with participants' worldviews and perceptions. However, this research process was defined by 'three interconnected generic activities' that primarily focused on the researcher as *bricoleur* who selected appropriate strategies and methods to piece together participant representations to respond to the research situation (Denzin and Lincoln 2011: 4,18). The interconnected activities were framed by the researcher who 'approaches the world with a set of ideas, a framework (theory, ontology) that specifies a set of questions (epistemology) that s/he then examines in specific ways (methodology, analysis)' (Denzin and Lincoln 2000: 18). The researcher was therefore guided by a set of beliefs about the world, which in turn shaped how the research process unfolded, that is, approaching the research imperatives from an interpretivist perspective. The interconnected activities are explicated in the section that follows.

In keeping with the explanation of the interpretivist paradigm using qualitative methods, this study required the research participants to provide information on academic literacy practices required for reading and writing for their particular subjects, namely to focus on those reading and writing practices that students would need to meet the academic demands at first-year level. These representations of individual views reflected the perceptions and interpretations of academic literacy within a particular context: reading and writing practices required for first-year subjects of particular diploma programmes. This attempt 'to make sense of, or to interpret, phenomena in terms of the meanings people bring to them' is, according to Denzin and Lincoln (2011: 3), one of the premises of qualitative research. As befits the practice of qualitative studies, the research design is interactive and 'assumes that knowledge is not objective truth but is produced intersubjectively' based on the perceptions of research participants and of the researcher (Marshall and Rossman 2006: 5). The research approach could be described as interpretivist, and grounded in how the research participants perceived and constructed their interpretation of academic literacy in teaching and learning practices, that is, meaning was constructed and emergent, not pre-determined. The epistemological paradigm was located within constructivism where 'truth and meaning do not exist in some external world' but that both the research participants and researcher construct their own meaning by interactions in different ways, even in relation to the same phenomenon (Gray 2009: 18).

Within the context of this study, the research participants presented their own interpretations of academic literacy as it pertained to reading and writing for their respective subjects. The research design aimed at eliciting data on how meanings of texts and interpretations of academic literacy were constructed in the course of reading and writing. In other words, the emphasis was on how specific specifications of academic literacy were employed to create, portray or interpret meanings from various text genres using different reading and writing modalities. The interpretivist perspective posits that reality is not 'out there ... but is internally experienced, is socially constructed through interaction and interpretation ... and is based on the definition that people attach to it' (Sarantakos 1998: 36). This study was based on the subjectivity of both the research participants (i.e. how each participant interpreted and constructed perceptions of academic literacy as applied in the discipline that framed reading and writing practices), as well as the researcher in terms of the research process and data interpretation.

3.2 Research design

The research design (Fig. 3.1) illustrates how the research process unfolded, from the sampling population to generating, interpreting and data analysis. The research design was conceived as the 'underlying structure and interconnection of the components of the study and the implications of

each component for the others' (Maxwell 1996: 4), or as constituting 'the blueprint for the collection, measurement and analysis of data' (Kothari 1990: 39). For this study, the relationship between academic literacy test specifications and reading and writing practices was explored within first-year subjects of different diplomas at a UoT. The multiple case study approach was used, with interviews and document analysis as the sources of data generation. The pre-set test specifications of an academic literacy test [refer to Table 3.1], formed the basis of the interview protocol. [Refer to Appendix A for the interview schedule.]The data were analysed by means of coding and thematic content analysis. The theoretical underpinnings for this study were drawn from literature on standardised testing and academic literacy as a construct for higher education. [Refer to Figure 3.1 below for the research design.]

3.3 The conceptual framework

The conceptual framework (refer to Figure. 3.2) outlines the concepts to be explored in this study. The key concept of academic literacy was firstly explored within the literature review to determine the theoretical underpinnings of academic literacy as a construct within higher education. Secondly, a sample test of academic literacy and the test specifications were reviewed in terms of their theoretical origins and justification for use in a standardised test of academic literacy. Thirdly, the academic literacy practices required for reading and writing in the various subjects, each representing a case study, were explored by means of interviews and document analysis to determine how academic literacy practices required for the selected subjects related to the academic literacy test specifications of a standardised test.

3.4 Research approach: the case study

To determine how the academic literacy test specifications related to academic literacy practices applied in reading and writing in various subjects, the multiple case study approach was used. The rationale for using the case study approach was that case studies:

- 'concentrate on one thing looking at it in detail' (Thomas 2011: 4);
- allow for in-depth exploration of particular phenomena (Simons 2009: 21; Punch 2005: 144; Henning, Van Rensburg and Smit 2004: 41; O' Leary 2004: 116; Kothari 1990: 140);
- reveal that 'interest is in the discovery rather than the confirmation' (Henning, Van Rensburg and Smit 2004: 41); and
- serve as 'both a process of inquiry about the case and the product of that inquiry' (Stake 2000: 435-436).

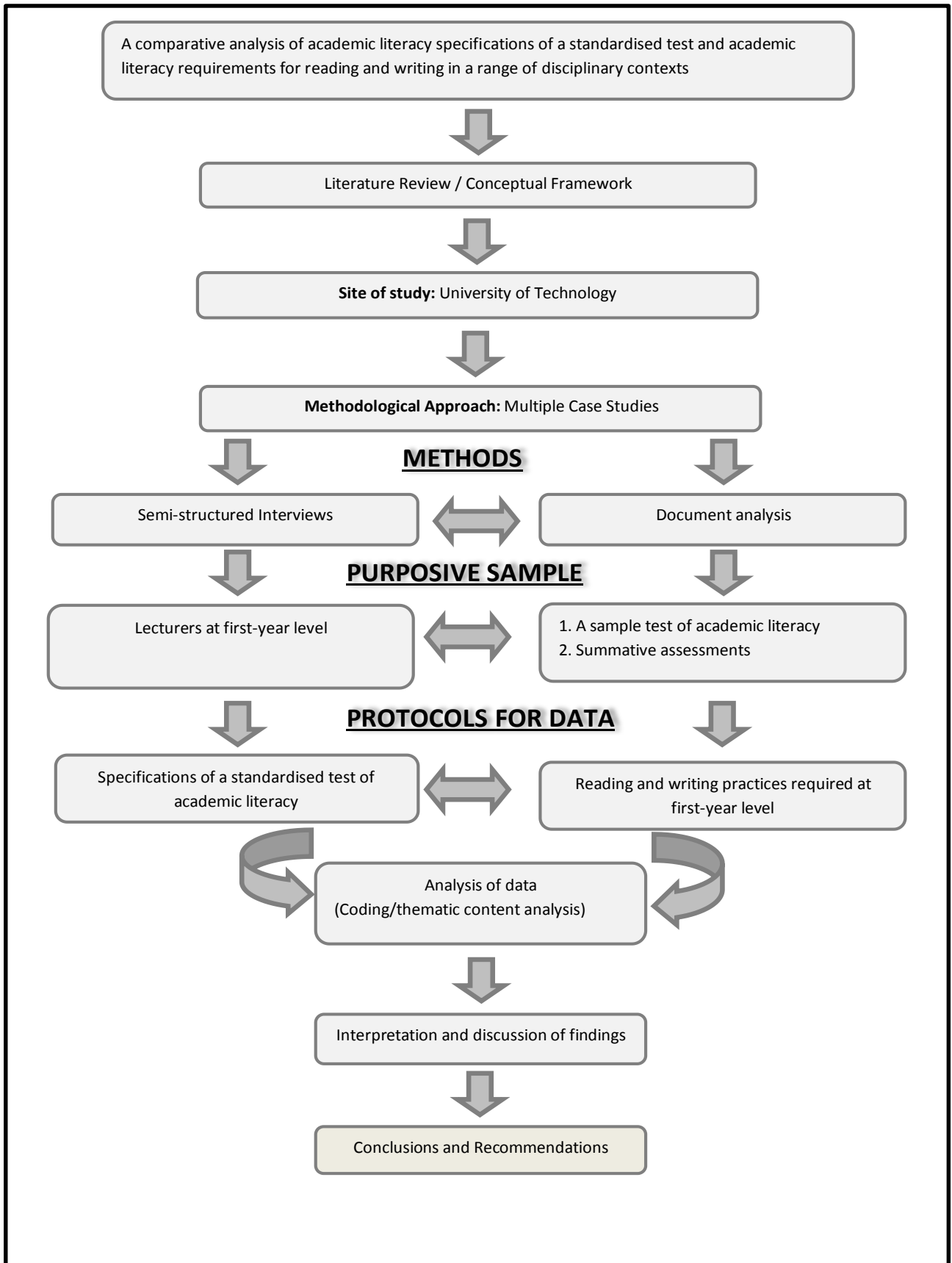


Figure 3.1: Research Design

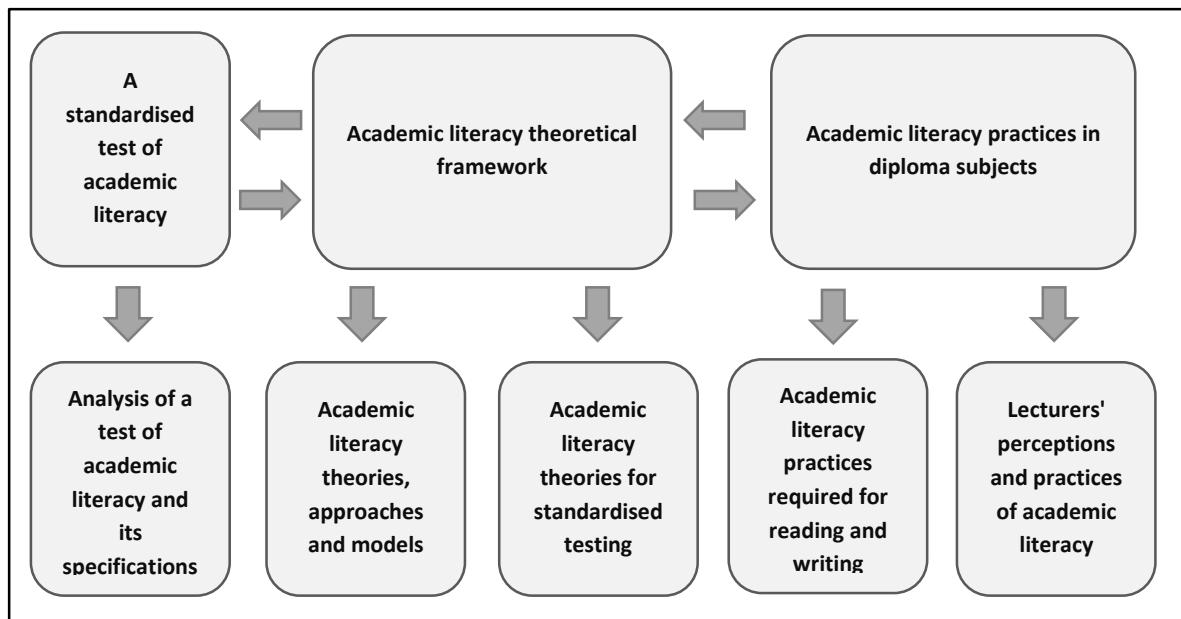


Figure 3.2: Conceptual framework

Within the context of this study, each case served as an exploration (inquiry) of the kinds of academic literacy practices required for subjects at diploma level to arrive at an understanding of how these practices relate to a standardised test (i.e. the product of the inquiry). Additional interpretations which are all applicable to this research, suggest that a case study is:

- ‘a systematic and in-depth investigation of a *particular instance in its context* in order to generate knowledge’ (Rule and John 2011: 4);
- ‘a phenomenon occurring within a bounded context’ (Punch 2005: 144); and
- ‘an approach to research that is predicated on in-depth case analysis’ (O’Leary 2004: 117).

In summary, the common elements of a case study are that each case allows for in-depth exploration and has identifiable boundaries and units of analysis (Rule and John 2011; Gray 2009; Silverman and Marvasti 2008; Punch 2005; Henning, Van Rensburg and Smit 2004; O’ Leary 2004; Stake 2000).

With reference to this study, (1) the boundaries were the institution where this research was conducted; (2) the focus was on diploma programmes; (3) the research participants were all first-year level lecturers; and (4) the subjects selected for this study were major subjects of diplomas offered at first-year level. These boundaries were confined to a university of technology where diploma programmes were most prevalent. The diploma programmes were selected based on the diversity of subject content and how reading and writing facilitated ‘epistemological access’ (Morrow 2007) to content of the subjects of study. For example, subjects were purposively selected

from Health and Wellness Sciences, Engineering, Education, and Business Studies, each with its particular modes of teaching and learning that ranged from dominant visual and practical applications to dominant text-based approaches to acquiring content knowledge. The rationale for this selection was twofold: firstly, to determine the extent to which the academic literacy test specifications related to the academic literacy practices in reading and writing at first-year level; and secondly, to ascertain whether a test of academic literacy would be appropriate for the respective subjects with their different content areas and information representations.

Each of the eight subject areas that formed part of this research was viewed as individual case studies. Two subjects selected from four diplomas were subjected to the same levels of scrutiny and analysis to determine the reading and writing practices that would be required at first-year level. In other words, a multiple case study approach was followed, 'where a number of cases [were] studied in order to investigate some general phenomenon' (Silverman and Marvasti 2008), that is, academic literacy practices in reading and writing at first-year level. This methodological approach allowed for each case study to be analysed independently as well as in relation to other cases that formed part of this research. The multiple case study approach provided the basis from which to argue the representativeness of academic literacy practices at first-year level and whether a test of academic literacy would indeed be appropriate within and across different subject areas. The motivation for the multiple case study approach aligns with Yin's (2003: 135) claim that multiple case studies 'improve the chances of producing robust results'. To engage in an in-depth study within and across diploma programmes, the data generated were firstly analysed within individual case studies. Each case study followed the same data generation methods and analysis and was regarded as a study in its own right where the 'findings of each needs to produce converging [or diverging] evidence' (Gray 2009: 252).

The purpose for using case studies resonates with Punch's claim that case studies have a three-fold contribution to make in the research domain: firstly, 'building an in-depth understanding is valuable'; secondly, 'discovering the important features, developing an understanding of them and conceptualizing them for further study are often best achieved through a case study'; and thirdly, a case study 'can make an important contribution in combination with other approaches' (Punch 2005: 147-148). For this research, the case study approach best provided an in-depth understanding of academic literacy practices in teaching and learning within each subject, how these academic literacy practices were interpreted and conceptualised by the research participants and to what extent this would relate to a test of academic literacy proficiency.

Common criticisms of the case study concern its generalisability that findings may not necessarily be attributable to other cases outside the boundaries of the case researched. While this proposition might be true given the different fields of study at a university of technology, Punch (2005: 147) alerts us to the corollary that 'properly conducted case studies, especially where our knowledge is shallow, fragmentary or incomplete, have a valuable contribution to make'. Punch (2005) asserts that we can build an in-depth understanding by learning from a particular case in its own right and by discovering important features for further conceptualisation and study. Although there is a paucity of research on academic literacy and curriculum at the research site and within testing at diploma level, this study does not purport to provide generalisable findings. This study seeks to provide insight into academic literacy practices for different subjects at diploma level and the extent to which a generic standardised test of academic literacy would be appropriate for these subjects. However, given that subjects in different fields of study might be similar, the probability of drawing parallels between the case studies and other subjects should not be ruled out. The multiple case study approach, which focuses both within and across cases, was deemed apposite in providing in-depth insight to achieve the objectives of this study.

3.5 Site of study

This research was conducted at a specific site, a UoT. This site was selected because of its relevance to the purpose of the study with its focus on diploma programmes. The researcher, as an academic at the institution, was able to engage with the research participants and access the required documents. As colleague, the researcher could liaise with participants and senior academic staff for approval to conduct this study and conform to ethical institutional considerations. The advantages of selecting this site could be attributed to: (1) the accessibility to diverse programmes across faculties; (2) the study could be conducted with credibility since the research site is a recognised public institution of higher learning; and (3) data quality may be reasonably assured given that academics were willing participants and the research design and processes followed were the same for each case. While the findings of this study may not be generalisable to programmes beyond the scope of the study, the site was regarded appropriate for its representativeness in providing a range of subject areas with an accessible sampling population for data collection.

3.6 The sampling population: subjects and lecturers

Universities generally are organised into faculties and departments by virtue of specific disciplines with each field of specialisation having its own department. In order to gain a broad perspective of whether a generic standardised test of academic literacy would be appropriate across different

subjects, a range of subjects in different diploma programmes was selected. In purposive sampling cases are chosen because they illustrate the features appropriate to the field of study. The parameters of the study and population were demarcated (as indicated above), with the cases selected accordingly (Strydom and Delport 2005b: 328-329). Purposive sampling of the selected subjects was deemed appropriate given the cross-disciplinary content, different mainstream major subjects and different quantitative and qualitative academic literacy demands that constituted the curriculum. Some subjects were perceived to be more quantitative, drawing on mathematics and physics, while other subjects were predominantly qualitative with the emphasis on negotiating meaning predominantly from texts. Given that subjects represent different points on a 'quantitative-qualitative continuum', the research sample represents the variance of subject areas and the relevance of academic literacy practices at first-year level.

The research participants were lecturers who taught a major subject at first-year level in the various diploma programmes. Diploma programmes generally have two major subjects that form the core of the programme and are taken from first to third year. The rationale for focusing on a major subject in each diploma programme was to determine the academic literacy practices in a core course component. The first year of a diploma consists of major subjects in addition to supporting or introductory (ancillary) subjects offered at first year only. Although different rules of combination exist for different diploma programmes, a typical first year of study in a business studies course, for example, would be two (or three) majors and a combination of business computer applications, communication, economics, applied accounting or law.

The lecturers were requested to participate in this study with informed consent from the deans and heads of department. An invitation to participate, explaining the purpose of the project, together with core interview questions, was sent to prospective participants. Participation was voluntary, with participants given the option of withdrawing at any time during the research process. All participants were informed that the interview transcripts were available and would be forwarded for verification and that the study and the findings would be available to the respective participants and their departments.

3.7 Framework for analysis

Lecturers who taught major subjects at first-year level were interviewed to establish their understanding of how academic literacy practices in reading and writing could serve as an intermediary for students to gain access to disciplinary knowledge. The interview data of the two subjects per diploma were compared to determine the extent to which there were similarities

and/or differences in academic literacy practices with reference to the test specifications. This format for discussion, (refer to Figure 3.3 below) was replicated for each subject that formed part of this study. Comparisons were drawn within and between diplomas with regard to the overlaps and/or differences of how academic literacy was conceived of and practised by the research participants.

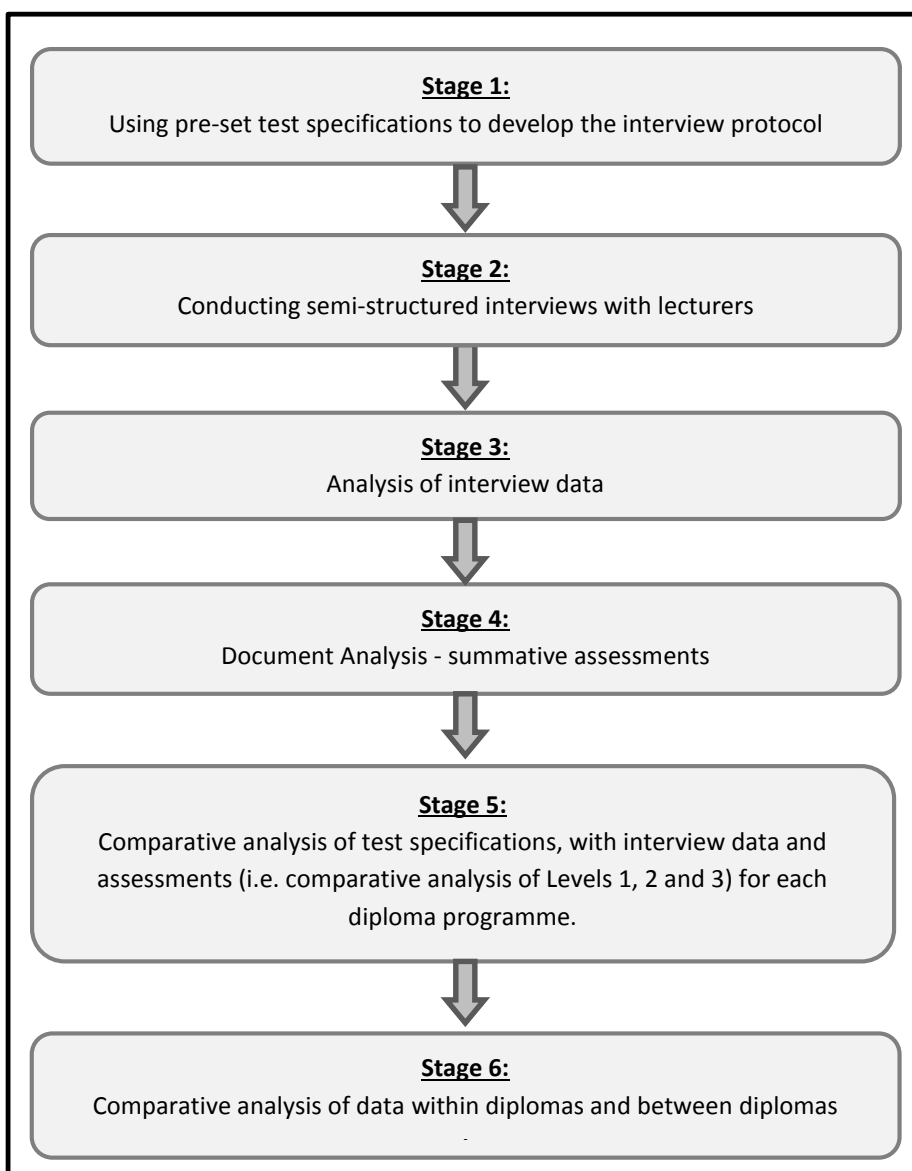


Figure 3.3: Framework for data analysis

The findings, analysis and discussion of this study focused on:

- the test specifications of a standardised test;
- interview data from lecturers who taught at first-year level to determine how they conceived of academic literacy practices in their specific subjects;

- assessments that were set or moderated by the interviewees to determine whether there was an overlap between the interview data and assessment analysis; and
- the relationship between the test specifications, the interview data, the assessment data and how all of these elements related to one another (or not), within and between diploma programmes.

3.8 Organisation of data for interviews

3.8.1 Approach to data analysis

A specific approach to data analysis was applied for each subject selected for this study. (Refer to Fig. 3.4 below.) The purpose of this approach was to gain an overview of the academic literacy practices required for particular subjects and how they aligned with the test specifications. The specific focus on reading and writing practices stemmed from the premise that students learn and acquire knowledge by means of applying academic literacy practices for reading and writing in the disciplines. The discussion per subject was followed by a summary comparing the practices within and across subjects in the various disciplines.

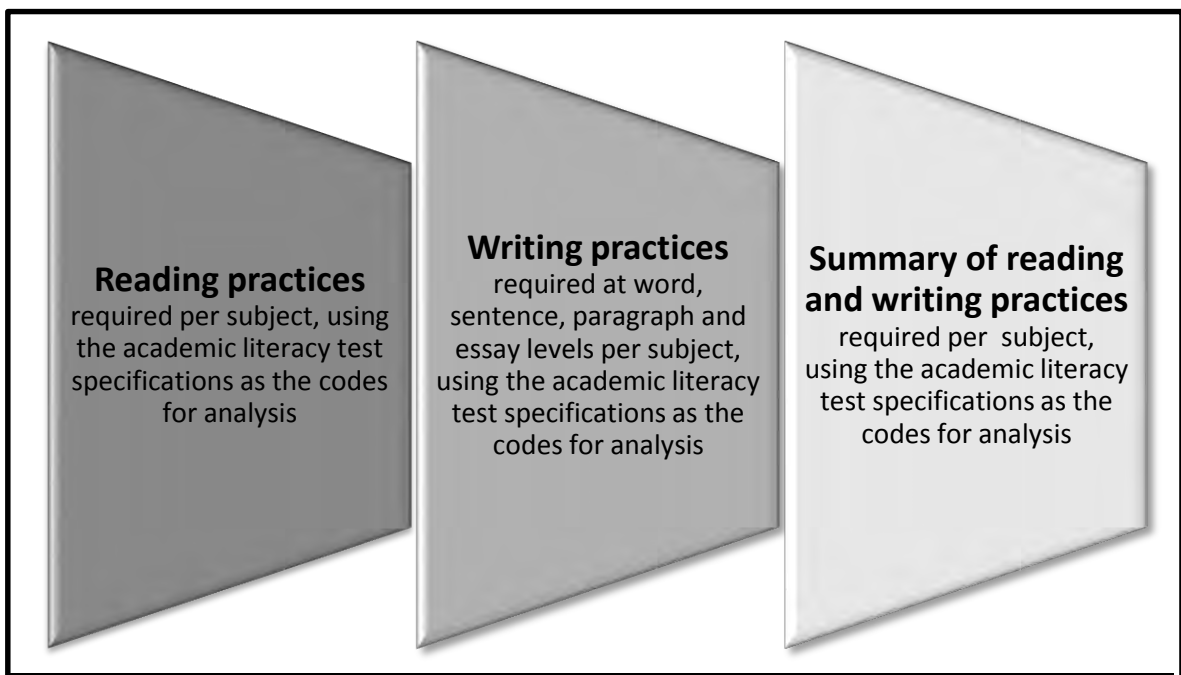


Figure 3.4: Organisation of data

3.8.2 Data analysis for assessments

The analysis of assessments followed the same levels of analysis as the interview data. Firstly, an overview of the assessments was conducted per subject to determine the types of questions,

that is, what type of test specification would be required to analyse the question and what the writing requirements were in terms of word, sentence or paragraph levels. Secondly, the assessments were analysed from an a priori frame derived from the prescribed test specifications for academic literacy, and thirdly, the reading and writing practices of the interview data were compared with those of the assessments. Refer to Figure 3.5 below.

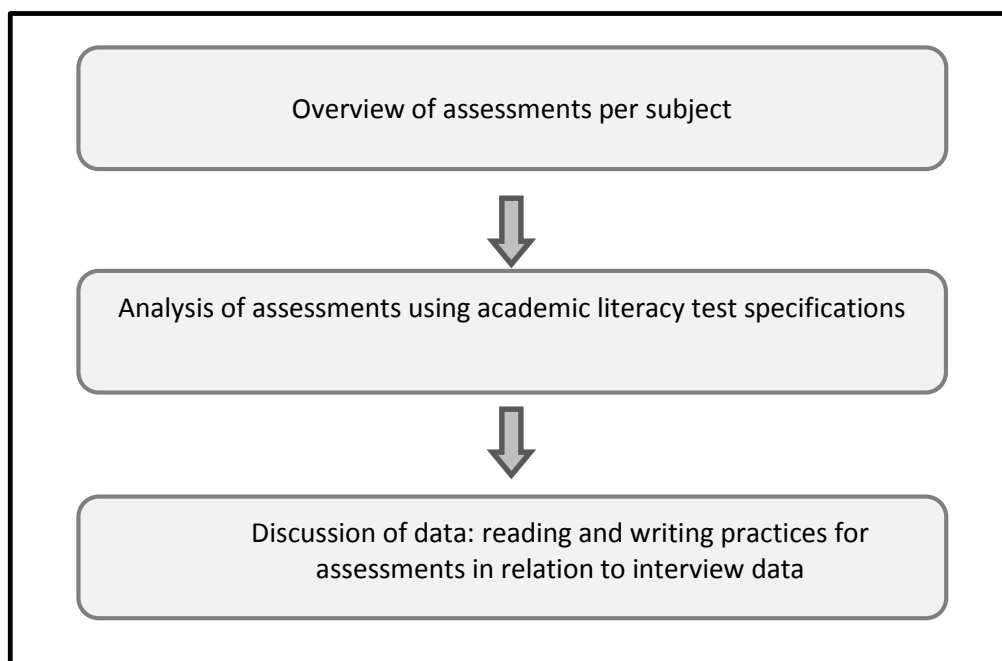


Figure 3.5: Data Analysis: framework for assessments

This analytical framework was used for consistency between the analysis of interview data and assessments using academic literacy test specifications as primary data analysis codes. The same processes for data analysis were followed for both the interviews and assessments, that is, using the test specifications as analytical codes for reading and writing practices required for each subject. The same levels of analysis allowed for an equitable comparison of interview data and assessment data given that the comparisons were based on the same codes and analytical features. The findings of the interviews and assessments were based on the same analytical codes and processes to validate the comparison and triangulation of data.

3.9 Ethical considerations for population sample

This study was based on the principles of ethically sound research that included, amongst others, acquiring informed consent, respect for privacy and confidentiality, accuracy of data and beneficence (Kumar 2011; Flick 2007; Kvale 2007, Silverman 2006; Strydom 2005, Christians 2000). All ethical protocols were followed as required of the institutional authorities and committees,

including the Deputy-Vice Chancellor: Academic, and each head of department. Signed consent was obtained from the participating lecturers. Before signed consent was granted, the purpose of the study was explained to all research participants in respect of their role and contribution, and their willingness to participate in the study was solicited. The anonymity of all participants and their respective departments was assured not only to protect their identities but also to gain rich, authentic data. The contention was that anonymity would encourage freer participation and sharing of information since no individual's identity or specific agency was attached to any data item. The over-arching disciplinary focus was made overt for comparative purposes, but no subject or research participant was identified at any stage in this thesis. Disciplinary abbreviations served as subject identifiers, for example, BUS1 and HWS2.

Participants were given the assurance that all data would be available to them. Transcripts were forwarded and available for verification. A written and oral explanation assured participants that data would be used for research purposes only and that the data could be made public by means of conference presentations, journal articles and in the research thesis. Anonymity would be secured for presentations and articles as well. Permission was sought to use an audio-recorder to ensure that the interviewer could follow up on key points and not be distracted by taking notes. Furthermore, a recording provided a more authentic, exact account of the interview proceedings and allowed the participant to have input as to what data might be sensitive or should not be used. Flick's (2007: 69) premise that 'accuracy of data and their interpretation should be the leading principle' was the guiding principle for both the data collection and data analysis. Authenticity of data is central to both the participant and researcher since it relates to validity, credibility and quality of the data to be analysed and interpreted as findings.

3.10 Data generation

3.10.1 The interview as research method

The use of interviews as a method for data generation was selected against the background of interviews being the active interactions between people (Fontana and Frey 2000: 646). Interviews incorporate the ontology of the life world of the participant, the factual and meaning levels expressed, the specificity of descriptions, as well as the interview's being 'a site for construction of knowledge' (Kvale 2007: 7). With reference to their life world, interviews allowed the participants to convey their ideas from their perspectives and in their own words (Kumar 2011; Kvale 2007; Greeff 2005) to share what they actually do in real life (Silverman 2006; Greeff 2005; Fontana and Frey 2000). The meanings expressed emanated from the participants' descriptions and knowledge of the topic and the 'precision in description and stringency in meaning interpretation' were central

to the qualitative nature of interviews and data analysis, that is, with the focus on subject-specific reading and writing practices (Kvale 2007: 11-12). The interview as data generation method allowed for construction of knowledge salient to the topic of research.

According to Kvale (2007: 7), research interviews extend beyond the inter-personal ‘spontaneous exchange of views’ – the qualitative research interview is a professional interaction between the interviewee and interviewer that serves as ‘a construction site for knowledge’. In this sense, ‘knowledge is constituted through linguistic interaction, where the participants’ discourse, its structures and effects is of interest in its own right’ (Kvale 2007: 21). To this end, the purpose of the interviews was to determine the kinds of academic literacy practices applied in reading and writing in order to understand, interpret and analyse sources of information.

Semi-structured interviews were conducted with lecturers on academic literacy processes and practices within their subject areas. The semi-structured or guided interview was favoured because respondents are ‘allowed a considerable degree of latitude’ to talk about the topic and give their views in their own time (Bell 2005: 161) and it allows for more flexibility to pursue issues that might emerge during the interview (Greeff 2005: 296). The conversational aspects of a semi-structured interview offered the possibility of extending and deepening engagement for more authentic respondent accounts. The value of semi-structured interviews for this study was that the respondents were able to give their perspectives of aspects of academic literacy based on their understanding and experience. The interview as a data generation method proved to be ‘insightful and provides original and illuminating data’ (Gray 2005: 259).

3.10.2 The interview process

Before the interview commenced, each participant was reminded of the purpose of the study, and informed of the process that the interview would follow, after which s/he was requested to sign the letter of consent in compliance with the ethical requirements of empirical research. The interview session was introduced by a briefing in which the purpose of the interview was defined, with a reminder that the interview would be recorded. The duration of the interviews were approximately 40 minutes to an hour long. In certain instances, research participants were requested to conduct follow-up interviews for the purposes of clarification and further explanations of information provided in previous interviews. The same processes were followed for the pilot study, which informed the research protocols for this thesis.

[Refer to 3.14 of this chapter, as well as Scholtz 2012).

An interview schedule [refer to Appendix A], based on the test specifications of an academic literacy test, was used to identify the key issues to be covered during the interview in order to guide the interview process (Hesse-Biber and Leavy 2006: 125-126). Kvale (2007: 56) advises that interview questions should contribute both thematically to knowledge production (i.e. how academic literacy is applied in reading and writing practices) and dynamically to promote a good interview interaction (i.e. introductory questions to establish rapport). Although certain pre-determined questions formed the basis of the interview, the respondents were prompted to provide insights into academic literacy processes and practices in reading and writing in their respective disciplines. In this study, the participants presented the insider's view of perceptions and understanding of the academic literacy practices applied within their subjects at first year level: that is, an emic perspective was favoured to generate the kinds of data that would respond to the objectives of this research. The insider perspective served to provide insights into particular practices within specific contexts from disciplinary experts. The academic literacy specifications of an academic literacy test were used as the unit of analysis for the interview protocol and for the document analysis. The unit of analysis was constant across the methods of data generation: interviews with lecturers and the primary documents generated by the lecturers.

The interview data on reading and writing practices at first-year level served as the primary research sources to answer the research question. However, as a means of triangulation, interviewees were requested to submit summative assessments with related rubrics (where applicable) to determine whether the findings from the interview data (i.e. perceived practices) were mirrored in assessments (i.e. actual practices). The analysis of summative assessments would augment the existing interview findings given that the interrogation of documents may well occur in conjunction with other forms of data collection as a means of cross-validation of data in a comparative way. Document analysis allowed for more than one perspective of how academic literacy was practised and demonstrated in different subjects. The purpose of document analysis was to compare the findings of the interview data with the assessment data to determine whether there were any commonalities or differences (1) within each subject, (2) across subjects, and (3) in comparison with a standardised test. The comparative perspective of interview data and assessment data would determine whether cross-validation (or invalidation) of data was evident.

3.10.3 Document analysis: summative assessments

The case study approach required different sources of evidence for data generation and for cross-validation of data, that is, interviews and document analysis. The use of assessments aligned with Bell's (2005: 123) view that document analysis could supplement information from interviews

when the reliability of evidence gathered needs to be verified. Document analysis was favoured not only for its richness as a resource (Silverman 2006: 157) but also that documents were stable in that the same document could be reviewed repeatedly, they were unobtrusive and they contained precise details for the topic of research (Gray 2005: 259). The documents for analysis included summative assessments that were set or moderated by each of the research participants. These documents were selected because they contained primary data generated by the research participants, they were developed first hand and they were the products of a research participant's practices or reflections (Grbich 2007; Bell 2005).

The choice of summative assessments for analysis was based on the reasoning that these are final assessments for promotion and should reflect the kinds of reading and writing skills and practices used in the course of teaching and learning as described by the lecturers. [Appendices B – I include exemplars of summative assessments used in this study.] Key to the continuum of teaching, learning and assessment activities is the constructive alignment approach (Biggs 1996) that has been adopted at this institution and is reflected in all the teaching, learning and assessment policies. The principal theory underpinning constructive alignment is constructivism, which focuses on 'the centrality of the learner's activities in creating meaning' (Biggs 1996: 347). Constructive alignment emphasises the systematic alignment of methods and approaches to teaching, learning and assessment, and focuses on activities and practices with which students engage to construct meaning. As such, the kinds of reading and writing practices described by the lecturers for teaching and learning should ideally be aligned with performances for assessment. Summative assessments were also formal assessments, whereas formative assessments were mainly informal, ad hoc and used differently by different lecturers. Some lecturers could provide formative worksheets, while others used formative exercises that were not necessarily documented. Summative assessments proved to be more reliable for data analysis than formative assessments, as they were formal institutional documents, whereas formative assessments were used more informally. Summative assessments followed institutional procedures for reliability and consistency: question papers and scripts were moderated with accompanying memoranda, which was not the case with formative assessments.

The summative assessments were used as resources for analysis for cross-validation of the interview data to determine whether the findings of the interview data were corroborated by the types of reading and writing required for assessments, that is, whether there was congruence in the academic literacy practices of reading and writing in learning and assessment. The use of different methods of data collection for triangulation resonated with Patton's idea that 'each data source has its own strengths and weaknesses and by using triangulation the strength of one

procedure can compensate for the weaknesses of another approach' (in Strydom and Delport 2005a: 314). Within the context of this research, 'the key to triangulation is to see the same thing from different perspectives and to be able to confirm or challenge the findings on one method with those of another' (Bell 2005: 116). The aim of using assessments as a means of triangulation extended beyond the assumption that validity had been established if the findings and the conclusions of the different methods corresponded (Silverman 2006: 291). The implication, therefore, that triangulation would result in a neat match of findings from different accounts was a narrow view of the purpose of triangulation in research. The caveat was to critically examine the meanings of any perceived mismatches and what they might mean (Bell 2005), and to use one source to make better sense of the other. Using different methods and sources reduce the risk that findings and conclusions 'will reflect only the systematic biases or limitations of a specific method' (Maxwell 1996: 75). In summary, triangulation was a strategy that added rigour, breadth, complexity, richness and depth to this enquiry (Denzin and Lincoln 2000: 5).

3.11 A review of a test of academic literacy

The purpose of analysing a test of academic literacy was to examine how the test was constituted in terms of test structure, types and levels of reading texts, types of question and whether the test questions aligned with the types of test specifications that purported to assess academic literacy skills and practices required at first-year level for higher education. The following discussion provides an overview of an actual large-scale test of academic literacy to determine the relationship between the specifications tested and how these specifications compare with reading and writing practices required for diploma studies at first-year level.

As noted previously, the objectives of this research were to determine:

- (1) the extent to which the specifications of an academic literacy test (such as the NBT), related to reading and writing practices for various first-year level subjects; and
- (2) whether a standardised test of academic literacy with generic specifications would be appropriate given the different subject content and disciplinary literacies for each case study.

3.11.1 An overview of a test of academic literacy

The academic literacy test that formed part of this analysis represented the large-scale standardised tests currently used at most higher education institutions in South Africa. Given the strict security measures around tests currently in use nationally and that these tests were not available for scrutiny, it was deemed appropriate to analyse a test used previously, which was equivalent to tests currently written by first-year entering students and project managed by the

same test developers as the current NBTs. The test format and test specifications of the sample test are similar to other tests in use nationally. Standardised tests generally have reading passages followed by multiple-choice questions, short response questions, visual and numerical items. Similar tables of specifications reveal whether students are proficient to deal with academic literacy demands at first-year level (refer to Cliff 2015, in press; Cliff 2014; Petersen-Waughtal and Van Dyk 2011; Weideman 2011; Cliff, Ramaboa and Pearce 2007; Cliff and Yeld 2006; Van der Slik and Weideman 2005; Van Dyk and Weideman 2004; Weideman 2003).

The commonalities of the various tests used in higher education in South Africa are that:

- the questions are all based on texts or scenarios;
- the questions are mainly in multiple-choice answer format;
- the test specifications are similar, though sometimes presented in different formats (for example, to test discourse structure at sentence and paragraph level, a test could have a cloze exercise, a 'scrambled text' or 'text editing' (Van der Slik and Weideman 2005: 25);
- each test is divided into sections with a reading passage or context-specific questions;
- the reading passages are based on a neutral theme to which most first-year students should be able to relate irrespective of diversity in demographics, geographical location, culture, race or gender; and
- texts are not discipline specific, for example, a text on plants might advantage students who had Life Sciences as a subject in Grade 12.)

3.11.2 Ensuring representativeness of the test used as part of this analysis

To ensure the suitability of the test being analysed was a representative sample, the 'principal features' (Cliff, Ramaboa and Pearce 2007: 38) had to be characterised in both the sample test as well as the NBT in Academic Literacy which is currently written by first-year entering students. Cliff, Ramaboa and Pearce (2007: 38) characterised the sample test as:

a generic test, designed to provide complementary information to traditional achievement tests (such as the school-leaving examination); developed by national inter-disciplinary teams of experts to increase both its face and content validity; relatively curriculum-independent, so as to downplay the role of prior exposure to knowledge; designed to assess language as a vehicle for academic study and reasoning rather than language per se; developed according to a theme and a set of specifications ... and be authentic to a Higher Education context.

Although validity in testing is usually multi-faceted, the focus of this study is on exploring construct validity (i.e. academic literacy being the construct) and content validity (i.e. whether test items focus on academic literacy specifications), not the predictive validity of test scores. Validity based

on inferencing and resultant test scores of standardised tests falls outside the scope of the study. The importance of content validity is affirmed by Bachman's (1991: 679) assertion that tests should provide information of the test takers'

capacity for using language to perform future tasks in non-test language use contexts ... that the language abilities measured by [the] tests correspond in specifiable ways to the language abilities involved in non-test language use [and] that the characteristics of the test tasks correspond to the features of a target language use context.

These considerations espoused by Bachman (2002, 1991) were important to determine the alignment or relationship between the test specifications and reading and writing practices in the various subjects and fields of study. Bachman (1991: 681) claims that in order to provide

some justification for interpreting test scores as evidence of ability in the different components tested ... we need to demonstrate that the content of the test is representative of the content of the course, [where] the components of language ability included in the test correspond to those covered in the course and that the characteristics of the test tasks correspond to the types of classroom activities included in the program.

These premises of the relation between test content and classroom practice provided by Bachman (1991: 681) present a succinct summation of the objectives of this research project, in order to determine whether a generic test of academic literacy would be an appropriate measure of language abilities within an academic context, in 'non-test language use contexts' (Bachman 1991: 679). 'Language ability' within an academic context refers to 'the capacity for using the knowledge of language in conjunction with the features of the language use context to create and interpret meaning ... [by] using (1) language knowledge or competence, and (2) cognitive processes or procedures that implement that knowledge in language use' (Bachman 1991: 682). For example, a student might be required to demonstrate language knowledge to extract a main idea from a paragraph using:

- cognitive processes and procedures of evaluating the language used in the paragraph (tense, register, tone);
- discourse analysis to determine how information is presented (i.e. the position of the topic sentence in relation to supporting ideas);
- discourse markers to navigate the text, noting the discourse structure at sentence and paragraph levels; and
- discourse structure to confirm a main idea or topic sentence in contrast to the supporting ideas of the paragraph.

The direct alignment of the principal characteristics of the sample test with the NBTs, the application of the same test specifications and the same test structure, would render the sample test equivalent to the NBTs and should provide the same kinds of data required for this study as the NBT would. Some tests in use include a productive component where students are required to write an essay or a paragraph, while other tests do not include the productive component. The subjectivity which is inherent in marking a paragraph or an essay, that is, marker reliability where different markers might not necessarily assign the same mark when marking the same script, has led to many tests being limited to multiple-choice type questions only. The question to be asked is whether MCQs are appropriate to adequately assess the construct of academic literacy that is generally demonstrated by productive responses for most summative assessments in higher education. However, research suggests that the use of MCQs presents a plausible argument for providing reliable data for standardised tests of academic literacy. [Refer to Ch 2, sub-section 2.6.5.]

3.12 Data analysis

3.12.1 Interviews, summative assessments, test of academic literacy

Data analysis is the process of bringing order, structure and meaning to the collected data. It is 'not in a fixed linear approach' but takes place in an iterative spiral process (De Vos 2005: 334), from coding the text, extrapolating themes, finding common threads and interpreting the themes based on the test specifications. Deductive reasoning framed the process of data analysis, where the academic literacy specifications and underpinning theories were set and not emergent. According to Delport and De Vos (2005: 47), the process of deductive reasoning moves from a pattern that might be logically or theoretically expected to investigations that test whether the expected pattern actually occurs. In the case of this research, the data and findings were analysed and interpreted to determine whether these expected pattern[s] of academic literacy practices as set out in the test specifications actually occur in the reading and writing practices of the various subjects that form part of this study.

3.12.2 Analysing the interview data

Data analysis focused on the interview transcripts (refer to Addendix N for an exemplar of an interview transcript), the summative assessments (refer to Appendices B to I) and the specifications of a test of academic literacy. The transcriptions were analysed by means of thematic content analysis for key concepts and categories. The verbatim interview transcripts allowed for fine-grained analysis where language in use was analysed to determine how academic literacy practices were applied in subject-specific reading and writing. The transcripts were analysed by means of coding, 'the process whereby raw data are transformed into standardised forms suitable for

processing and analysing' (Babbie 2004: 318). At the initial level of analysis, coding provides 'a preliminary set of ideas that we can explore ... and develop possible relationships between categories and themes (De Vos 2005: 341). The academic literacy test specifications served as the coding prompts to identify themes and meanings within the data being analysed. [Refer to Table 3.1 below for the test specifications].

The operational test specifications (in the left column) were used as analytic codes since each specification had observable boundaries and had different operational definitions from the other test specifications (Quartaroli 2009: 265). In other words, each test specification was specific to the kinds of skill(s) to be assessed, with an accompanying definition unique to each specification. Since the analytic categories were pre-set according to existing academic literacy proficiency tests, the deductive approach to data analysis was adopted, where the data were analysed and interpreted against the framework of the test specifications. The basis for establishing these test specifications as the de facto practices required for academic success in higher education is further elucidated in Chapter 2, the Literature Review.

As part of the initial coding process, a line-by-line analysis was applied to closely examine the data to identify the codes and categories as indicated in the test specifications. With reference to Table 3.1 below, the 'skill assessed' referred to the code that was used in the process, the examples given in the 'explanation of skill' referred to the categories of each code. For example, the code 'separating essential from non-essential information' has several categories such as, identifying main ideas from supporting detail; identifying statements from examples, facts from opinion and being able to classify and categorise information. The interview data were analysed according to both the 'skill assessed' and the 'explanation of skill' as described in Table 3.1. The initial coding process focused on the 'manifest content' of the transcript, that is, 'the visible surface content' to identify the test specifications within the interview data, while the deeper levels of meaning or the 'latent content' emerged by means of thematic content analysis (Babbie 2004: 318). In order to engage with the 'latent content' of the transcripts, the definition of content analysis as espoused by Grbich (2007) and Silverman (2006) served as a basis for this study. According to Grbich (2007: 112), content analysis is the 'systematic coding and categorising approach to explore textual information in order to ascertain the trends and patterns of words used ... and the structure and discourses of communication'.

Table 3.1: Specifications of a test of academic literacy
(Cliff and Yeld 2006; SATAP 2007; PTEEP 2003)

Skill Assessed	Explanation of Skill
Vocabulary	Ability to work out word meanings from their context.
Metaphorical expression	Ability to understand and work with metaphor in language, e.g. connotation, word play, ambiguity, idiomatic expressions, etc.
Extrapolation, application and inferencing	Capacity to draw conclusions and apply insights by what is stated in the text or by what is implied in the text.
Understanding the communicative function of sentences	Ability to see how parts of a sentence give meaning to, or define other parts of a sentence, or are examples of ideas, or are supports for arguments.
Understanding relations between parts of text	Capacity to identify the structure of discourse and argument, within and between paragraphs; logical development of text, i.e. introduction to conclusion.
Understanding the grammar/syntax basis of language	Ability to analyse the way in which sentence structure/word, phrase order affects the meaning and emphasis of language.
Understanding text genre	Ability to identify formal/informal texts, tone, purpose of a text, i.e. whether a text is persuasive or informative.
Separating essential from non-essential information	Identify main ideas from supporting detail; identify statements from examples, facts from opinion; being able to classify and categorise.
Understanding information presented visually	Students' abilities to understand graphs, tables, diagrams, pictures, maps, flowcharts, etc.
Understanding basic numerical concepts	Ability to make numerical estimations; comparisons; calculate percentages and fractions; sequence events or processes; and make basic computations.

To establish the 'latent content' of the transcripts the focus was on thematic content analysis to develop a framework of academic literacy practices applied in the discipline, as opposed to enumerative quantitative analysis where word frequency and rank ordering of words in context are used. The transcripts required a more in-depth interpretation than the positivistic enumerative quantitative analysis in order to develop themes of academic literacy practices in the discipline. To this end, the data were analysed for details pertaining to the content of the transcripts and their relationship to the test specifications with reference to subject-specific reading and writing requirements.

3.12.3 Analysing the summative assessments

The summative assessments were analysed using the same methods as the interview transcriptions: coding and thematic content analysis. It was considered expedient to use the same methods of data analysis since the documents were a primary source of information, and in terms of cross-validation, the same methods would account for validity and reliability of data analysis and findings. Within each subject, each summative assessment was analysed according to the cognitive levels of questions, the reading requirements for analysing the question, and the writing requirements in terms of what was required to answer each question according to the assessment memoranda. The findings of the analysis of the summative assessments were compared with the findings of the interview data as a means of ascertaining triangulation of data across the two data sets, that is, whether the findings of the interview data were mirrored in the test specifications for each subject within the specific diploma offerings. These findings were then compared *within* each diploma for similarities or differences of academic literacy skills and practices required for reading and writing purposes, as well as *across* subject offerings. These comparisons of data findings would provide insight into the kinds of academic literacy skills and practices required at first-year level and lead to answering the research question of whether a generic standardised test of academic literacy would be appropriate for use across subjects with different disciplinary literacies.

3.13 Reliability and validity

Kumar (2011: 182) claims that in social science it is impossible to have a research tool that is 100% accurate and that it is impossible to control the factors affecting reliability. Some reasons advanced for these claims are that slight ambiguities in wording of questions could account for different interpretations, the respondent or interviewer's mood at the time of the interview may affect reliability and the rapport or interaction between interviewer and interviewee may affect responses. In addition, the 'influence of the researcher as author' and the sometimes 'contradictory nature of data' could influence interpretation of data (Fontana and Frey 2000: 661). On the other

hand, although the social dynamic of the interview can shape the data generated, 'there is inherent faith that the results are trustworthy and accurate' (Fontana and Frey 2000: 646). It is noted, however, that reliability and validity are pervasive in all aspects of qualitative research: in data generation, interpretation, in determining the findings of the research, and which data and whose voices we include or exclude. Since social qualitative research is not an exact science where instruments and data may be quantified, it is against the background of Kumar's (2011) caveat that this study aimed to ensure that the research approach, methods, analysis and interpretation conformed to sound principles of qualitative research to generate credible, reliable and valid data and interpretations. To this end, the research design was exact for each case, the interview protocol had the same pre-determined questions, the data were recorded to ensure reliable data transcripts, and the data were subjected to the same levels of rigorous open and thematic coding and analysis.

Reliability is explained by various authors as follows:

- It is the extent to which, for example, an interview produces similar results under similar conditions on all occasions (Bell 2005: 117).
- When the research tool aims at consistency, stability and predictability (Kumar 2011: 181).
- Whether the research findings are consistent and trustworthy (Kvale 2007: 1220).
- 'Whether or not researchers could repeat the research project and come up with the same results, interpretations and claims' (Silverman 2006: 282).

Pilot interviews were conducted as a precursor to ensure that all the interviews for this study had the requisite commonalities and to ensure consistency in practice, process and sound measurement (Kothari 1990). For reliability, Silverman (2006: 121) refers to the 'need to follow a standardised interview protocol'. To this end, all the interviews subscribed to the following commonalities, (1) the mode and content of pre-interview communication, (2) the interview setting, i.e. the interviewee's office, (3) the time allowed for the interview as convenient and adequate for the interviewee, (4) the interview protocol, and (5) the use of a recorder. The data obtained from both the interviews and the documents were subjected to the same categories, and the same intense scrutiny and levels of analysis. As stated by Silverman (2006: 159), 'the crucial requirement is that the categories [and levels of analysis] are sufficiently precise to enable different coders to arrive at the same results when the same body of material is examined'. This precision of analysis would thus contribute to the reliability of measurement as well as the validity of data.

However, for sound qualitative research it would not be sufficient to ensure consistency in practices for reliability; it is also important to ensure that the instruments for data generation are valid and

that they measure or describe what [they are] supposed to measure or describe (Kumar 2011; Bell 2005; Kothari 1990). One aspect of validity for Kvale (2007: 122) 'pertains to the issue of whether a method investigates what it purports to investigate'. The research design should, therefore, provide credible conclusions based on the evidence obtained during analysis and interpretation. Kvale (2007: 123) asserts that validation is not limited to a certain stage of the research design, 'but permeates the entire research process'.

To conform to criteria of validity it would be necessary 'to generate data which are valid and reliable' by judicious sampling and the 'administration of standardised questions' (Silverman 2006: 118) and to ensure that 'research procedures are transparent and the results evident, and the conclusions of a study intrinsically convincing as true, beautiful and good' (Kvale 2007: 124). However Kvale's (2007) notion of validity might be considered idealistic given Kumar's notion of 'impossibility' and Lincoln and Guba's (2000: 178) notion that 'validity is a more irritating construct' since it is not only methods that are in question but also the processes and layers of interpretation that should be subjected to rigorous analysis and reflexivity. This confirms the value of conducting a pilot study in establishing the reliability, validity and feasibility of the methods, processes and interpretation of data.

3.14 The pilot study

A pilot study was conducted with a designated sample of the target population in an attempt to determine the strengths and weaknesses of the research design. Strydom (2005: 205-206) considers a pilot study to be a prerequisite and an integral part of a research process that exemplifies a 'miniaturised walk-through of the entire study'. The pilot study was designed to provide insight into the tentative planning and to obtain an overview of the literature review, explore the actual research area and test the interview protocol. To ensure that validity and reliability of the research process and research instruments were duly considered, the pilot study followed the same processes and procedures as envisaged for the main study. Prospective participants were informed beforehand what the study was about and were invited to participate. The pilot study focused on one diploma, with seven participants across three subjects offered at first-year level. Participants were interviewed and the interview protocol was designed as for the main study. The interviews had a duration of approximately 40 – 50 minutes each. The pilot study did not include document analysis, as data triangulation was not an objective of the pilot study.

Given that the pilot study mirrored the situations and processes of the actual study, it offered the opportunity to test the interview situations and the measuring instrument to determine the modifications to be made. The interview approach was deemed satisfactory, there was good rapport with participants and the responses were appropriate based on the line of questioning. The pilot study helped with rearranging the logical order of questions, and identified which questions needed further probing and which might require further clarification. For example, since academic literacy as a construct could be interpreted differently by each participant, it was important to note that a context had to be provided in which the interview questions would be framed. As a result of the pilot study, the questions for the main study were broadly classified into 'reading in the discipline', 'writing in the discipline', followed by other aspects of academic literacy such as text and numeracy and visual literacy.

The data were analysed, processed and interpreted according to the research design, that is, by means of coding according to the test specifications and according to themes, and a narrative was compiled of the findings. This process provided an indication of how well the research process was aligned: the conceptual framework, the research design, the approach, the method and whether the quality and relevance of the data were appropriate. Given the necessary changes advocated above there were indications that the study would subscribe to the aspects of reliability (i.e. that the research project would be repeated and that the same results, interpretations and claims would be achieved) and validity (i.e. that the instrument measured what it was meant to measure) required for a qualitative research study.

The pilot study resulted in a research publication that contributed to the literature on standardised testing for diplomas in engineering at a UoT. [Refer to Scholtz 2012].

3.15 Conclusion

This chapter explained the research approach, the data generation methods used for this study, the rationale for these methods and the procedures for data analysis in order to answer the research question and respond to the research objectives. An overview of a test of academic literacy was included in this chapter, given that the test was central to this study, and the test specifications formed the basis of the interview protocol. The appropriate methodology is integral to any empirical study since the processes in and of the methodological approach lend credence to, and justification for data analysis and the discovery of new information in the findings.

The following chapters present the analysis and discussion of data. Chapter 4 outlines a detailed analysis of data per subject based on interview and assessment data; Chapter 5 presents the discussion of data regarding emerging themes and the application of academic literacy skills for reading and writing and how they relate to academic literacy test specifications, and Chapter 6 presents the conclusions, limitations and recommendations as gleaned from data.

CHAPTER 4: ANALYSIS OF INTERVIEWS AND ASSESSMENTS

4.1 Introduction

This chapter focuses on the analysis of data generated from the semi-structured interviews with subject lecturers and the analysis of summative assessments for each subject. Each subject was viewed as an individual case study. The subject lecturers were interviewed to ascertain their perspectives of the kinds of academic literacy skills and practices required for reading and writing for their respective first-year subjects. This study focused on the kinds of academic literacy skills and practices for reading and writing in particular subjects to establish how students are required to firstly, read with the intention of accessing knowledge, and secondly, to articulate their thoughts and ideas in written format according to the conventions of the field and profession. The summative assessments were analysed to determine the extent to which the interview data (i.e. perceived academic literacy practices) compared with academic literacy practices required for assessments (i.e. actual practices). Summative assessments were considered appropriate, given that assessments should ideally mirror the kinds of practices applied in the teaching and learning process. The constructive alignment approach to teaching and learning (Biggs 1996) was adopted at this institution and by implication, the academic literacy requirements for summative assessments should be an extension of those required for classroom-based teaching and learning.

The data generated from the interviews and the summative assessments were used to conduct a comparative study on three levels. (Refer to Fig. 4.1.) On the first level, the data for each subject were compared with the test specifications of a standardised test to determine the extent of alignment (or not) between the academic literacy practices required. The purpose of this comparison was to determine whether a standardised test of academic literacy would be appropriate, given the specific reading and writing practices required for each subject. On the second level, the interview data were compared with the academic literacy skills and practices apparent in the summative assessments for each subject. The purpose of this analysis was to determine whether lecturers' perceived practices of academic literacy aligned with actual practices for their subjects. On the third level, a comparative analysis was drawn between the reading and writing practices across subjects to determine similarities and/or differences. The purpose of this level was to explore the extent to which the similarities and/or differences in academic literacy practices would render a generic standardised test appropriate for various subjects of study or not. [Refer to Appendices J-M for summaries of interview data and assessment data.]

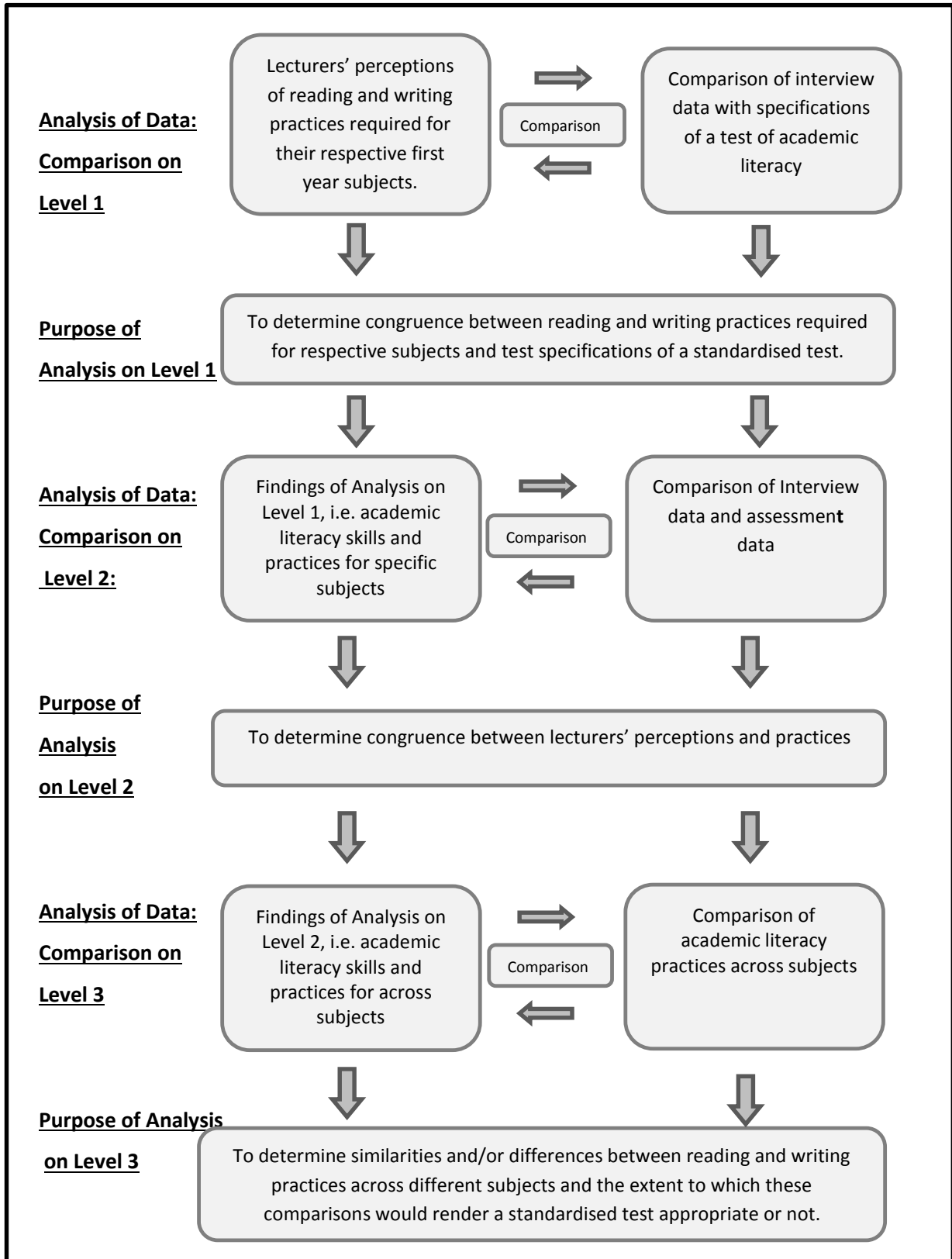


Figure 4.1: Framework for data analysis: interviews and assessments

The discussion below presents the analysis of the interview data, analysis of the summative assessments, followed by a comparison of how the academic literacy practices identified in the interview and the assessments compared with those of a standardised test of academic literacy.

The quotations selected for analysis present the comments made by subject lecturers that pertain to the reading and writing requirements for their respective subjects. The quotations are verbatim from the interview except for repetitive statements or paralinguistic utterances that do not have relevance or add value to explanations or points of discussion. Some lecturers were more forthcoming with explanations, indicating specifically what they expected of students, while other lecturers were more reticent and had to be probed for further information. This accounts for the difference in the number of interview excerpts selected for the various lecturers as well as the accompanying analysis.

The analysis of data focused, firstly, on the reading practices required for the acquisition and application of content knowledge as perceived by lecturers, together with the reading practices required for assessments; secondly, the analysis focused on the writing practices required for the subjects and the assessments respectively.

4.2 Business Studies: Subjects BUS1 and BUS2

4.2.1 An overview of BUS1 and BUS2

The two subjects selected for business studies, BUS1 and BUS2, focused on management and administration practices required for the corporate sector. The subject BUS1 consisted of units of learning that had as their focus introduction to management, entrepreneurship, marketing, human resource management, business calculations, and financial management. The subject BUS2 included units of learning on project selection, planning, execution and risk management. The conceptual knowledge fields for both subjects related to business management concepts and principles as required for vocational education to equip entry-level professionals and practitioners for the corporate and related environments. These two subjects were representative of typical management-related subjects that formed part of first-year business studies diplomas. The reading and writing practices related to lecturers' perceptions of how students were required to use academic literacy skills and practices as a means of accessing information and building a knowledge base for these subject areas.

4.2.2 How lecturers conceived of academic literacy for BUS1 and BUS2

Within the context of this study, it is considered important to establish how lecturers conceived of academic literacy, that is, how they interpreted academic literacy within their particular contexts of teaching and learning, and how their interpretations aligned with the kinds of academic literacy practices portrayed in the summative assessments. Lecturers' notions of what 'academic literacy' implied for their subjects, it could be argued, would frame their thinking about the structure of subject knowledge as well as how academic literacy as process and practice would play itself out within the context of their subjects.

The BUS1 lecturer viewed academic literacy, in terms of concepts and writing skills, as follows:

... when they're able to understand basic concepts ... vocabulary ... being able to communicate in the language of instruction ... the ability to understand a simple sentence. For BUS1 they would need summarising skills and critical thinking skills.

The excerpt above reflects academic literacy as a means to build a *good knowledge base*, by developing a conceptual understanding using terminology and discourse structure at sentence and paragraph levels to articulate understanding when producing written texts such as summaries. Academic literacy as viewed by the lecturer might be construed as the ability to know and use terms correctly to understand and construct sentences using English as the medium of communication. The reference to summarising and critical thinking suggests that students need to be able to engage with text to extract the salient points and provide an interpretation as a summary, while demonstrating the ability to interrogate the text in a critical way. The importance that the lecturer attached to concepts and terminology was evident in the discussion on reading practices below. According to the lecturer for BUS2, academic literacy included the ability to apply

... writing skills, communication, interpretation of questions, reading skills ... can [students] make sense of articles and address questions that come out of concepts from those articles ... can they comprehend subject matter in a lecture, through the internet or an assignment? ... They should be able to pinpoint what the whole article is about, the reasoning behind the work.

The excerpt implied that an increased understanding of content could be gained by interrogation and analysis of text in order to *address questions* from articles. An objective of academic literacy was to find *the reasoning behind the work* by interrogating texts and not only consider the surface features of meaning, but explore what the texts are about. *Reasoning* implies bringing an own understanding and engaging with new information in texts and developing summaries as a form of

meaning making. The reference to different sources of information (*lecture, internet, assignment*) suggested that students should be skilled in multi-modal literacies to analyse and comprehend content information from various sources even though the genre, presentation and structure might vary. Both lecturers seemed to limit academic literacy to reading and writing, probably because these are the dominant modalities of communication with which students need to engage, or they might not have viewed other subject-specific literacies as integral to academic literacies for higher education.

4.2.3 Analysis of interview data and assessments: subject BUS1

4.2.3.1 Reading practices for BUS1 as reflected in interview data

With reference to BUS1, the reading sources included core notes, newspaper articles, books and resources for research assignments. The lecturer considered reading for this subject as

... very important. They [students] should be able to analyse, summarise ... extract information, say these are the important points. We look at the newspaper article and ask, what should the heading tell you, what is the introductory paragraph about, what are the important facts in the article ... how would you summarise this article? You need to be able to tell someone else the story, but in your own words.

The reading practices described in this quotation imply the ability to access information and construct knowledge by means of analysing the discourse structure, extracting the main points and by retelling the story in summary format. This suggests a structured, skills-based approach as a first level to analyse a reading text. Analysing a text heading alluded to the ability to interpret genre and metaphors, as headings are not necessarily interpreted on the literal level of meaning. The scaffolded levels of interpretation from (1) analysing the heading, to (2) the introductory paragraph, followed by (3) finding important facts, represent routine procedures for reading for information to be applied in a variety of textual sources. The quotation alludes to extracting what the text is about and the ability to relay that information from a personal understanding using summaries as a vehicle to develop a sense of meaning.

In terms of engaging with text, this lecturer noted that:

If there's a certain concept in the article ... are there any definitions or explanations ... make notes as to how you will use this concept in your business ... Use the newspaper article as the actual comprehension base and get them to say if this is the problem, how would you provide a solution ... so it's a process ... like a chain reaction.

The ability to differentiate between definitions, explanations or statements suggested that a stepped approach of reasoning and an understanding of genre in context had to be followed to:

- differentiate *between* concept types, i.e. definitions, explanations or statements;
- identify *what* was being defined or explained;
- analyse *why* a specific sentence genre was used; and
- analyse *how* this influenced the purpose and meaning of the sentence.

The excerpts suggest that the lecturer viewed textual analysis as an initial phase of a scaffolded process followed by summary writing. Reading as the basis for writing could signal an interpretation by the lecturer that a structured analysis of text could develop an understanding of textual content for the student to present *their own understanding, in their own words*. This could imply that the lecturer expected students to bring their own voice and perspectives into textual engagement. While vocabulary was important to develop understanding, reading was viewed as more than a comprehension exercise. The excerpts above suggest that reading should include the analysis of text in addition to analysing key problems and finding solutions to those problems identified. This would require the application of several reading skills (i.e. standardised test specifications) embedded in *the process* of identifying problems, such as: analysing vocabulary; analysing discourse structure; extracting main ideas; separating fact from opinion; recognising the genre in which the text was presented, then identifying problems and key issues to be raised. As noted by the lecturer, reading encompasses many skills with some requiring simultaneous application.

The importance attached to defining vocabulary in context to create meaning was reflected in the following extract:

... when you're reading you actually need to sit with a dictionary and if there's any word that you don't know or don't understand the true meaning ... you actually need to look it up and see what are the synonyms to which they relate. Okay, do I now understand the sentence?

This extract suggests that knowing meanings of concepts and subject terminology, either through prior knowledge or by working out meanings from context, is integral to understanding texts. Understanding the content was therefore, according to the extract, dependent on understanding the *true meaning* of concepts and vocabulary in context together with their broader relational derivatives in terms of word groups. According to the data, the application of sequential skills to analyse discourse from word level (vocabulary), to sentence and paragraph levels, could be considered a reading strategy to extract meaning from text. The ability to extract meaning provided

the impetus for deeper level applications such as the ability to apply insights, draw conclusions and interrogate a text to the level of adding individual opinions and motivations.

The reading practices for BUS1 related to textual analysis that would be indicative of a theory-based subject, where the theoretical aspects formed the core knowledge base for conceptual and contextual understanding of content. The ability to extract meaning, acquire and apply knowledge, according to the lecturer, was derived from the ability to analyse the discourse structure of a text, apply the relevant elements of genre analysis, and extract the main ideas to apply insights, draw conclusions and provide a personal perspective. *Asking questions* suggests developing rapport with the text as well as the author to determine agreement (or not) with content or opinions. The data seemed to suggest that reading for BUS1 required textual analysis to extract deeper levels of meaning than surface reading for information only.

Interpreting information from visual representations was:

... very important ... pie charts and bar graphs, are they able to extract information from a pie chart, like 50% of the income for this company goes towards ... we teach them how to analyse a pie chart ... you cannot assume that everyone can analyse a chart or a graph.

The point to be made here, according to the lecturer, was not only about analysing graphic representations but also on the ability to extrapolate the correct bits of information for calculations and numerical manipulations. The ability to relate text to visual representations was an iterative procedure and would include several scaffolded steps such as: (1) reading and analysing the text; (2) reading and analysing the visual representations; (3) determining which figures to extrapolate to complete the calculations; and (4) defining the steps to be followed for the numerical equations. Based on the interview data, this subject required the ability to analyse texts and visual representations, align textual and visual representations, extrapolate relevant data, and complete calculations. Students were required to analyse tables and pie charts and calculate what the numbers and ratios meant in accordance with the text. The shifts from text to pie charts, to numbers reveal the importance of firstly, analysing genre modes on their own, and secondly, analysing genre modes in relation to one another.

4.2.3.2 Reading practices for BUS1 as reflected in assessments

Three term tests, i.e. summative assessments, were analysed to determine the kinds of reading practices required to answer the test questions. [Refer to Appendix B for an exemplar of a term test.] The selection of the three term tests was made based on their theoretical focus, as other assessments were practical and group projects such as organising a Market Day. The structure of the question papers and the types of questions were similar in format and structure and included:

- statements requiring one-word answers;
- short scenarios which became increasingly more complex from one term test to another;
- tables and graphs with data for analysis and manipulation;
- translating data from text to visual representations and vice versa;
- illustrations and diagrams that represented a concept;
- calculations requiring basic numeracy skills.

The questions required an understanding of terminology as well as sentence structure to understand the content and provide the correct answer. Consider the statement from the first formal term test, *There is a temporary down-swing in the economy and the overall demand for labour is low*. This statement required an understanding of subject terms, as either prior knowledge or the ability to establish their meanings from context. Within the context of the statement, terms such as *down-swing* and *overall demand* had specific reference to the *economy* and *labour*, while *temporary* and *overall* present certain dimensions which related to a specific answer to this question. The conjunction *and* is significant in that the answer should relate to the complete statement and not to specific clauses in the sentence. While the writing component of this question might be minimal, the reading and question analysis required specific skills such as establishing meanings from terms as used in context, analysing sentence construction and picking out words that might have particular significance such as *temporary* and *overall* and relating these words to their correct referents in the sentence. The importance attached to analysing vocabulary for assessments align with the lecturer's comments in the interview data. The following quotation extracted from an article in an assessment resembled a typical scenario for analysis:

Many companies last year went through as many as three rounds of retrenchments, they have slashed costs everywhere but now they can't cut anymore and still survive. Now they have to have staff that perform ... no one can afford down time, no mistakes', said Liza van Wyk, Chief Executive of AstroTech. Economists failed to project last year's global financial collapse and it seems that they are hailing a false dawn.

In order to understand the scenario, relational links would need to be drawn between the concepts mentioned, while the flow of information was scaffolded to present the occurrences in the scenario. The text genre provided a context, that is, that a particular viewpoint was presented in the form of a personal opinion. The reference to *last year*, in the first and last sentences set the scenario in a specific time frame that would relate to a specific *global collapse*. Vocabulary items required either prior knowledge or the ability to work out meanings from the context in which they were used. Terms such as *retrenchments* and *global financial collapse* had particular denotations within the context of the statement and had to be interpreted as such. Furthermore, a phrase such as *hailing a false dawn*, would require a metaphorical understanding of what the phrase implied. In order to understand the scenario, it would be necessary to focus on acquiring vocabulary of the field of study to gain insight into content and subject knowledge.

All the term tests were contextual, where the context was established by means of either a descriptive statement or a scenario requiring textual analysis for textual written responses, illustrations or calculations. An example of a question that required numerical manipulations is given below:

Eben, Herchelle and Unathi start a small business selling swimsuits ... Eben and Herchelle each owns 30% of the business and Unathi the remainder. The selling price of the swimsuits is cost plus 115%. You sold 512 units in February.

- Calculate the direct costs
- Calculate the total cost of production
- Calculate the total profit
- Calculate Herchelle's profit, and Unathi's profit
- If you had to decrease the selling price by 35%, what would the new selling price be?

Although this question required manipulation of numbers, the analysis was similar to that of a textual response. The question needed to be analysed in order to be understood, that is, establishing meanings of terms and vocabulary, relating numbers to words and analysing the discourse structure to determine the flow of information provided. The correct answer was dependent on the correct sequencing of calculations, similar to planning the flow and coherence of a textual response.

In addition to the calculations, a graph depicting the scenario was included. The visual interpretation and analysis of correct data extrapolated from the graph would ensure correct responses. These question types combined multi-literacies incorporating reading, writing,

numeracy and visual literacy to extrapolate meaning and provide appropriate responses. The interpretation of visual interpretations could be considered similar to textual analysis. As with text, data presentation is procedural (i.e. discourse analysis), terminology needs to be interpreted, questions need to be analysed and the visual representations should be read accurately to manipulate the data. As with textual representations such as paragraphs and summaries, the presentation of a graph or pie chart should represent a composite whole that is coherent and intelligible to a reader.

4.2.3.3 Writing practices for BUS1 as reflected in interview data

The interview data showed that in certain instances there was a direct link between reading and writing with the writing component pre-empted by a discussion on a reading article. The emphasis was on the ability to paraphrase and summarise the content using correct sentence structure. The lecturer's expectations of structure in writing, was that:

There should be a beginning to it, then there's the middle and then there's the ending of it. The first sentence should introduce what you are saying in a polite way, not bluntly ... Is there a logical progression? The content must be structured. For an essay on entrepreneurship, what is your introduction, i.e., what is an entrepreneur ... give a bit of history ... entrepreneurship comes from the French word, what are the qualities of an entrepreneur ... what are the important factors one has to consider if you want to open up your own business ... and end off ... in conclusion ...

The interview data reflected the need for a coherent structure for paragraphs and essay writing, with a clearly defined introduction, body and conclusion, and with clearly defined parameters of what needed to be included in each section. While the extract alludes to the skills approach to writing, the extract revealed the *logical progression* that defined a paragraph or essay where the conceptual understanding and related content were expounded on in a structured way.

Discourse structure relates to how sentences and paragraphs are formulated and strung together to create meaning. The data revealed the importance that the lecturer attached to vocabulary and sentence structure as the building elements of an academic essay by noting the following:

You can be using terms of the discipline but if the sentence does not make sense there's no way that the logical progression will captivate the reader ... instead of saying 'location' they use the word 'premises' and deviate from the sentence meaning.

The lecturer interpreted sentence structure in terms of how it made 'sense' and created meaning as the fundamental elements of textual interpretation. The extract foregrounds the correct use of

terminology in creating the intended meaning and emphasises how different words may create different nuances of meaning which could be interpreted differently by readers. The point that the lecturer alludes to here is that it is not only important to define terminology but also to know how to use and position subject-specific vocabulary in sentences to portray the intended meaning within subject conventions. Furthermore, the expectation was that students should *use proper English terminology*. The reference to *proper* signified the expectation that all language protocols, including the correct sentence structure, needed to be observed in written texts. This lecturer gave the impression that attention to detail in language use and coherence in composing texts were the norm for this subject.

For written texts, students were required to extrapolate subject knowledge from specific reading texts to inform an opinion, and articulate their perspectives in an affirming way using a personal style and tone. The lecturer required students to state:

‘In my opinion this is the case ... [or] I disagree with the statement because ...’.
Deducing their things and saying ‘from my knowledge base ... from what I know ... from what I have read ...’.

This quotation suggests that opinions should be premised on an informed knowledge base from acquired knowledge and from various reading sources. By implication, students should be able to assimilate new and existing knowledge, evaluate contexts and statements and provide opinions from an informed personal perspective.

With reference to assessments, the lecturer’s view was that students should *think critically, to be able to understand what it means to ‘discuss’ and ‘analyse’ ... ‘in your opinion’, do they actually understand that they need to give their own opinion?* Assessment-related terminology was afforded prominence in the interview data. The lecturer drew attention to commonly used assessment terms and how they impacted on the interpretation of the question and the answer provided within the context of acquired subject knowledge.

4.2.3.4 Writing practices for BUS1 as reflected in assessments

The gamut of writing requirements for the summative assessments ranged from one-word answers, to full sentences in the form of explanations, completing tables, calculations and presenting visual representations of cycles or procedures. For the three term tests, at least 50% of the test included calculations and completing tables. While textual composition was limited to sentences and paragraphs, the focus was nevertheless on using full sentences (not key words), with

correct syntax and grammar a requisite component of correct sentence structure. When analysing the processes to be followed in arriving at an answer, the scaffolding sequence should have included:

- analysing the scenario;
- analysing questions in relation to scenarios; and
- formulating a response to the question, i.e. applying the conventions of written text such as correct syntax and grammar, using correct terminology in context, using the appropriate genre and ensuring coherence within the sentence or paragraph.

The tables and graphs, for example, completing a time sheet using data from a scenario, included entering data in appropriate columns based on the analysis of the question with no textual explanations required. Reading focused more on deciphering meaning from scenarios and their related questions, while writing requirements were limited to sentence responses, explanatory paragraphs, numeracy and visual representations. Although presenting an own opinion was foregrounded in the interview, this was not replicated in all assessments which were of a more factual nature. Students had to analyse information and draw conclusions based on contextual information provided, without necessarily providing personal opinions.

4.2.3.5 BUS1: In summary

When comparing the interview data with the summative assessments, there seemed to be congruence between the two data sets in relation to the reading skills and practices. For example, the reading skills requiring students to extract meaning and create understanding as described in the interview data aligned with how the test questions were set. The scenario-based test questions encouraged students to scaffold their reading as explained in the interview, read with insight and extrapolate only particular bits of information relevant to the question and answer. Similarly, explanations for sentence construction and paragraphing in the interview were reflected in the answers for the three term tests, as was the case for visual representations and numeracy. Based on the excerpts from the interview and summative assessments, there seemed to be alignment between the academic literacy skills and practices of interview data and the actual academic literacy skills and practices applied in assessments. One difference was the factual content of assessments with limited opportunities to reflect an own opinion. The data suggest that for the main, academic literacy used for knowledge acquisition in classroom practice aligned with academic literacy requirements for assessments for BUS1. This alignment could be attributed to

the many years (10+ years) that this lecturer has been teaching this subject, and that academic literacy has become ingrained in subject practice.

4.2.4 Analysis of interview data and assessments: subject BUS2

4.2.4.1 Reading practices for BUS2 as reflected in interview data

The interview data showed that the BUS2 lecturer viewed reading as the ability to interpret texts with the emphasis on analysing subject-specific terms to create understanding and build a knowledge base. The summation of reading requirements was revealed in the excerpt below:

When students read through a text they should be able to pinpoint what the whole article is about, the reasoning behind the work ... understanding and interpreting the subject ... how the text is constructed ... what is critical, key terms ... unpacking the jargon.

The ability to extract the main ideas from supporting ideas, formulate a summary and develop a succinct understanding of a text seemed to be essential reading skills in creating meaning. Reading for understanding was not limited to the literal, surface meanings at word and sentence levels. The interviewee alluded to the ability of students to use reasoning skills and textual analysis to facilitate understanding and interpret text, requiring students to engage with text on a deeper level than textual content. The lecturer drew attention to the importance of analysing discourse structure in relation to how the sentence construction and arrangement of ideas influenced meaning. These comments alluded to textual analysis based on *how the text was constructed* and included the ability to select *essential components* of an article from peripheral points as an important reading skill to gain an overview of text.

Repeated reference to the importance of knowing and analysing terminology in context was made by the lecturer during the interview. Vocabulary items, for example, 'risk' had different senses within the context of this subject. It was, therefore:

... critical that some terminology is explained in the context of the subject matter. The student should be able to differentiate between everyday use of the vocabulary and the use of the terms with respect to that particular field ... it might have different implications.

Decoding the appropriate meanings of terms depended on analysing terms in context as opposed to colloquial meanings. Students were required to have knowledge of vocabulary in-general and subject-specific contexts, or be able to derive meanings of words from the context in which they were used. The different nuances and connotations of vocabulary were more pronounced in this

subject where subject vocabulary was subject and context-specific. The lecturer noted that the ability to interpret vocabulary was not limited to subject-specific terms but included discourse markers within text. For example, *those pointers like 'nevertheless', 'therefore', can become key pointers to key aspects we want them to uncover*. Knowledge of discourse markers and their ability to change the nuances of a text suggested a deeper level of understanding of how text structure influenced meaning.

4.2.4.2 Writing practices for BUS2 as reflected in interview data

The kinds of writing abilities expected by the lecturer were representative of those required for essays and assignment writing where students needed to plan and develop essays using appropriate discourse structure, syntax, grammar, argumentation and genre. The reference to *short, summarised way* in the excerpt below alludes to the ability to capture ideas succinctly so that an *independent reader* will be able to understand. Note the excerpt below draws on the ability of students to apply the surface features and organisational knowledge of language in written composition:

The basic sentence construction, the way they put across their responses, write in a clear concise manner, can they pick the crucial points and put them down in a short, summarised way. I'm looking at the language use, sentence construction, using the right terminology ... can the students put their ideas and thoughts across to me in a way that can be understood by me or even an independent reader ... can they draw a conclusion which is relevant for that particular situation.

The ability to articulate thoughts into text for BUS2 was characterised by writing succinctly, coherently and developing an argument using subject-specific terms and appropriate language structures. Clarity rather than verbosity and circumlocution, and the correct use of grammar and syntax were deemed requisites for this subject. Developing an argument and drawing conclusions would require a particular genre of discourse development applicable to the subject and the profession. How the argument and conclusion, were communicated in written format would require a convincing, persuasive tone supported by either knowledge of the field or building an own coherent argument. The ability to draw conclusions and develop an argument are skills that require deeper levels of cognitive engagement and academic literacy socialisation to conform to professional writing conventions.

In posing the question as to what was meant by *writing techniques* for BUS2, the lecturer explained that the concept referred to *structuring their response* and using *basic sentence construction*. The challenge as explained by the lecturer was that students struggled to articulate their thoughts

accurately and correctly because of not knowing *the basic principles of sentence construction*. This would require an understanding of language knowledge, i.e. of grammar, syntax and sentence structure including genre features of register, style and tone. These *principles of sentence construction* are equally apparent and applicable to analysing reading texts. Furthermore, the lecturer was of the opinion that *it's very critical that the language of a discipline be understood*. The academic demands of higher education did not only reside in the ability to use the language of teaching and learning to access and express meaning, but included a secondary language ability: using *the language of the discipline* as a means of building an identity as a professional in the field. This speaks to the sociocultural aspect of academic literacy, i.e. using the discourse of the community of professional practice, which is the nature of vocational education.

Since diplomas are vocationally oriented qualifications, the writing requirements for BUS2 were contingent on the kinds of written tasks required for academic purposes as well as those related to the profession. For example, assignment writing focused on academic conventions of genre, structure and referencing, while professional documents included report writing or *requests for finance* with different sets of writing conventions. The lecturer noted that:

Different writing skills are required, for example, report writing ... which will be very different from writing a request for finance or for additions to a budget for your project. The way you approach that will be very different to a progress report ... in terms of motivational ... persuasive. This will be relevant from first year

The writing skills referred to in the quotation alluded to several genre features applicable to professional reports such as purpose, style, tone and register. Although written documents for BUS2 might be different in terms of purpose, layout and genre, structuring the information was nevertheless important to establish coherence and select the salient points to be included. Coherence and structure were considered to be *basic writing skills*, implying that text structure was fundamental to developing meaning in composition. The importance of text structure and discourse development were noted as follows:

Structure is a basic writing skill ... how you introduce, build the body and conclude ... structure in terms of paragraph construction, in terms of essay writing is key as well.

In writing as with reading, structuring content and ideas of the author appropriately is like presenting a sketch of the message to be portrayed. However, not all ideas and content can be included. The author needs to separate the important points from the supporting points and decide what will form part of the final written product. This ability to separate the key points from

supporting points, which was equally important for textual, visual and numerical representations, was indicated as follows:

They need to understand and separate the essential from non-essential because not everything is important ... be able to pinpoint what is relevant, what is not so important.

Basic calculations and visual representations of graphs and tables were core to this subject with numeracy being:

... quite critical ... they would need to do calculations ... draw a simple graph and then explain the trend in the graph. They first need to calculate and make sense of the numbers and then explain in their own terms using proper construction of sentences. For them to be able to explain the trend, there's a link between academic literacy and numeracy.

What was important to note from this excerpt was the interdependence of multi-literacies: numerical, visual and textual components in creating meaning and understanding constructs for BUS2. Transposing numbers and visual representations to text and vice versa was noted as common practice in both the interview data and the kinds of questions in assessments. The reference to *proper construction of sentences* suggests the importance of being able to provide detailed textual explanations that support quantitative analysis of graphs, for example. The lecturer asserted that while quantitative literacy was a core knowledge base for BUS2, the ability to interpret and compose texts according to academic and professional conventions was equally important.

4.2.4.3 Reading and writing practices for BUS2 as reflected in assessments

The lecturer held the view that assessments were integral to teaching and learning, and so also academic literacy development. Although assessments were content driven, the ability to analyse test questions and scenarios correctly formed part of the pedagogy of testing.

The purpose of test questions according to the BUS2 lecturer was whether students could

... interpret, read a question, comprehend it and then put down what the question asks in a logical manner, in a sequential way that can be understood.

The summative assessments, which consisted of two assignments and a final test, and were both reading and writing intensive, were predicated on the lecturer's premise as indicated in the

quotation above. [Refer to Appendix C for an exemplar of an assessment for BUS2.] The summative assessments for BUS2 were fewer than for BUS1 as this was a semester subject and included two assignments and the final term test. The assessments included multi-modal literacies analysis and several test specifications, such as: explaining concepts within context (analysing vocabulary); analysing scenarios and a case study (textual discourse analysis); essay writing (textual discourse synthesis); drawing visual representations, explaining a network diagram and a data table (analysing and producing visual representations in relation to text). The assessments were all themed with each question based on a contextual understanding of content knowledge. The reading required for the assignments included analysing a case study in the form of a dialogue while the final term test focused more on numeracy and visual literacy. The dialogue genre of the case study was different from the kinds of academic texts found in articles and textbooks (refer to Appendix C). The dialogue between family members was characterised by colloquial language, conversational style and an informal tone, while the cohesion of ideas did not always follow a logical sequence. No reason was advanced for the use of a dialogue, except that it depicted the information required to answer the accompanying questions. Most test questions were based on brief scenarios and short questions such as, *differentiate between quality control and quality assurance* that were content intensive and required limited analysis of textual or other data. Academic literacy relating to assessments focused on surface reading skills. The sum total of reading for assessments did not require intensive reading skills or discourse analysis to understand what was required in the assessment. The case study was written in a colloquial, conversational style and the questions related to content knowledge of the subject accessible from a textbook. Students' understanding of the test questions was largely dependent on knowing subject-specific terms, either from memory or from context.

The writing requirements for BUS2 were varied, requiring a range of textual, visual numeracy-related and academic literacy skills. Essay writing, illustrations with their accompanying explanations, and calculations dominated the writing requirements. The visual representation in the form of a network diagram could be construed as an essay depicted in another genre, which would also have required analysis of the reading text, but for a different purpose. As was the case with the standardised test of academic literacy, the questions for these assessments were either scenario or text based. Responses, therefore, had to be formulated within the context of the text content. The numerical data for the calculations had to be selected from a table, which required analysis and interpretation to extract the correct data as required by the question. When considering the reading and writing requirements for assessments, there seemed to be alignment

between the lecturer's expectations of what students should be able to know and do regarding reading and writing, and the kinds of skills and practices required for assessments. Assessments were, however, more writing than reading intensive.

Analysing vocabulary in context beyond the 'layman's' understanding was common in questions requiring of students to differentiate between two concepts within the context of the question. Writing skills and practices for this lecturer comprised the ability to write coherently and formulate sentences and paragraphs correctly. One-word answers were not included. Each question required an explanation where the use of correct sentence construction was paramount in articulating the correct answer. The lecturer alluded to the notion that academic literacy and numeracy were interrelated – that the same skills and practices were applied in both, with one using words as the unit of meaning and the other using numbers. As noted in the interview, the ability to extrapolate the correct numbers from several others within a table or graphic representation was common practice for this subject. Lastly, what was foregrounded in the assessments was the ability to develop illustrations that depicted a story in a particular way where the illustration could be explained in text and vice versa.

4.2.4.4 BUS2: In summary

The lecturer's conception of how academic literacy played itself out in teaching and learning was mirrored in the summative assessments. The academic literacy skills and practices identified by the lecturer in the interview were apparent in the assessments as well as congruence being evident in reading and writing. This observation could lead one to suggest an overlap between the academic literacy practices that the lecturer considered important and the academic literacy practices required for assessments. The interview data and assessments, however, focus mainly on reinforcing the surface features of language use, such as grammar and syntax within the context of professional discourse. While academic and professional socialisation were evident, students were not challenged to interact with text or other modalities to evaluate, engage with the author or substantiate arguments, conclusions or inferences albeit at a basic level of engagement.

4.2.5 Comparison of reading and writing practices: BUS1 and BUS2

This comparison commences with a brief overview of a standardised test of academic literacy to set a backdrop for the similarities between the reading requirements of the test and subjects BUS1 and BUS2. Although the interview and assessment data included both reading and writing, this comparison focuses mainly on reading practices, as the writing composition for the standardised

test was minimal, given the MCQ format. A more detailed analysis of a typical standardised test is included in Chapter 3.

The standardised test questions emanated from a reading passage, a description or a scenario that required textual and discourse analysis. In other words, the questions had to be analysed in relation to text or visual representations to arrive at a plausible answer. The reading requirements were based on an understanding of the passage, while an analysis of each of the four distractors in each question resembled a plausible answer to the question.

When comparing the standardised test with BUS1 and BUS2, all the assessments required the application of reading skills to analyse context-dependent texts or visual representations. Although the assessments for BUS1 and BUS2 essentially tested content knowledge acquisition (the standardised test does not), the application of reading skills and practices were the same for the subject and standardised tests.

Subject assessments required:

- textual and discourse analysis;
- extracting the main ideas from supporting ideas;
- analysing vocabulary and subject terminology as used in context;
- analysing coherence and flow of information;
- identifying metaphorical language where applicable (such as *hailing a false dawn*);
- analysing visual representations and artefacts;
- transforming text to visual forms and vice versa; and
- the ability to manipulate numbers.

The types of questions in the standardised test analysed for this study required students to use language knowledge (Bachman and Palmer 1996) to engage in intensive reading skills to extract meaning from reading passages, questions and possible responses. Vocabulary was indicated by both lecturers as key to facilitating understanding of text and acquiring content knowledge. For BUS2 it was important for students to be able to differentiate between the 'everyday use' of terms and how their meanings change when used in the context of subject content. The majority of questions (18 questions) of the standardised test required students to separate essential from non-essential information in its various guises. This was also noted in the interview and subject assessment data, where students were required to extract the main ideas and classify genre types of statements, definitions or explanations. Separating a proposition from an argument was not

noted in the subject data, although the ability to build an argument was a requirement for BUS2, according to the lecturer.

Both lecturers alluded to the importance of being able to compose texts using coherent discourse structure, where the specifics of a clear introduction, body and conclusion were mentioned in addition to the ability to write and interpret a simple sentence. While discourse structure related to textual coherence in the interview data of both lecturers, no specific mention was made of the ability to write using particular devices of cohesion within sentence structure other than the ability to construct simple sentences.

A significant component of assessments for both subjects included graphs, illustrations and tables, signalling the importance of interpreting text in relation to visual representations and vice versa. Visual literacy was considered to be 'very important' by both lecturers, as was the ability to conduct basic calculations in relation to textual interpretation. Visual representations also reflect reasoning and thinking and can, for example, reflect the hierarchical (or other) nature in which knowledge is presented and conceived. The standardised test items for visual literacy and numeracy were minimal, 2 and 1 item(s) respectively. Specifications that seemed to be important for subject-specific purposes were tested minimally in the sample standardised test.

The data revealed that while there was no perfect match with regard to how the test items related to the interview data, there were noteworthy overlaps with what was required for interactive reading to extract meaning. The alignment resided in the following specifications:

- Analysing vocabulary in context.
- Separating essential from non-essential information.
- Identifying the communicative function of sentences, i.e. a definition from a statement.
- Identifying discourse structure to follow an argument or flow of information.
- Understanding metaphorical expression.
- Relating visual literacy and numeracy to text (which was a more noteworthy requirement for the subjects than in the standardised test).

The overlaps in the subject data as reflected in the types of test specifications suggested that an adequate argument could be made that a standardised test could well be appropriate to determine academic literacy proficiency for these two subjects in Business Studies.

4.3 EDUCATION: Subjects ED1 and ED2

4.3.1 An overview of ED1 and ED2

The qualifications in the field of education included three streams of study: Foundation Phase, Intermediate Phase and Further Education and Training (FET) Phase. Two subjects were selected as case studies from this humanities discipline, subject ED1 and subject ED2. Subject ED1 was compulsory for all students across all three streams, and subject ED2 was compulsory for FET specialisation students. Both these core subjects were considered major subjects, as they were compulsory across all four years of study. Given that the focus of this study was to determine the reading and writing practices required at first-year level in order to draw comparisons with a standardised test of academic literacy, subject ED1 would provide an indication of academic literacy for a major subject for all students studying the various streams of education. The selection of subject ED2 as part of this study was to include a life sciences subject to establish the kinds of reading and writing practices across a range of subject areas. ED1 and ED2 are case studies as part of a multiple case study approach adopted for this research study.

4.3.2 An analysis of interview data and assessments: subject ED1

4.3.2.1 Reading practices for ED1 as reflected in interview data

The discussion below provides details of the kinds of reading and writing practices for subject ED1 as described by the subject lecturer during an interview and proceeds to compare the interview data with the reading and writing practices required for assessments. The comparison seeks to establish whether parallels may be drawn between the interview data and the assessment data. The purpose of comparing the two data sets was to explore the extent to which these data sets of subject ED1 compare with the reading practices required for a standardised test of academic literacy. The same discussion process was followed for subject ED2. In this way, it is believed, an argument could be made of whether a standardised test would be appropriate to measure students' readiness to deal with reading and writing practices for these two major subjects at first-year level.

According to the lecturer for ED1, students had to read *newspaper articles educational issues that form part of their reading materials ... library books and course readers that we compile for them*. The library textbooks were described as primary texts required for assignments such as research essays. Reading, for the lecturer, was a vehicle to access knowledge of the subject that was *theory based and there's no easy way of knowing and understanding theory if you don't read about it*.

The lecturer maintained that reading was a process of progressive levels of engaging with text. These levels were explicated as follows:

... the first level would be simple understanding. They have to understand the words ... the meaning of what they are reading and then be able to analyse it ... by placing themselves within the text and interpreting it from their own perspective ... their own world views ... and relate it to other readings, being able to synthesise what one text is saying with another ... and tell one story out of the readings.

Students had to engage with specific reading practices to access knowledge, firstly by defining the meanings of words as used in context and a surface level of textual analysis. The next level of understanding would be that of analysing the text from a personal perspective, followed by relating the text to other texts by drawing parallels or foregrounding distinguishing features of related texts that had a bearing on a particular topic. These levels of reading, from developing a personal perspective and an inward gaze, to comparing related texts signalled several levels of complexity in the application of academic literacy skills that included intensive textual analysis. The ability to synthesise what one text was saying with another represented higher order cognitive skills, such as extracting the main ideas, drawing comparisons, drawing inferences and conclusions from different texts, and from that extrapolating the crux of each text in order to *tell one story out of the readings*.

Interrogating text using an inward gaze was explained further in the interview excerpt below:

They need to be able to add their own voice to what the author is saying ... to be able to debate and dialogue with the author and say what it is that they agree with out of the reading, from their own experience and their own positioning, what they do not necessarily agree with and why.

The references to *add their own voice* and *debate and dialogue* suggested that reading was viewed as interactive, engaging with the author via the text as intermediary. For students this required a different genre of analysing text beyond the surface level of meaning: taking a position, providing a personal perspective and developing an argument and substantiating that argument. The lecturer favoured a critical approach where students would not necessarily accept what they read, but would question the validity and authenticity of the arguments presented.

The extract below alludes to going beyond reading for understanding by questioning, evaluating and critiquing texts, that is, not viewing texts as truth and trustworthy, but interrogating a text according to its purpose.

The lecturer noted that:

They need those basic skills of critical reading, not just reading to understand but going beyond comprehension to critique what they are reading and to evaluate its worth for a given purpose ...

Analysing texts in relation to their purpose speaks to the ability to distinguish between motivational, persuasive or informative text amongst others, each genre having its own discourse structure, tone, style and register. While the deeper levels of reading and analysis were expected of students at first- year level, this lecturer underscored the importance of being able to master the basics in reading with comprehension, in order to progress to the more advanced levels of reading.

The lecturer was of the opinion that:

They need skills of being able to use what they are reading as a tool for their purpose but they can't do that without basic comprehension skills and basic interpretation skills.

The lecturer outlined the basic comprehension skills by means of asking pertinent questions to interrogate texts. The questions pertained to the persona of the author, the gist of the text, genre of statements and asking questions to critique the text. The questions which the lecturer suggested for textual analysis and how they relate to the specifications of a standardised test are noted in Table 4.1 below.

Summarising texts required the ability to identify the important elements ... ability to paraphrase using their own words. Identifying 'the important elements' related more to aspects of textual coherence such as having an underpinning knowledge of how texts were constructed, differentiating between fact and opinion, and understanding the communicative functions of sentences, than knowing the textual content. In most instances, reading texts contained primarily new bits of information and the focus was therefore not on knowing the textual content but on how texts were interrogated in order to derive meaning and develop an understanding.

Only then would students provide 'their interpretation' based on what was extrapolated and understood from the text for reading.

Table 4.1:
Textual analysis for ED1 in relation to the specifications of a standardised test

Questions for textual analysis as advised by the lecturer for ED1	Specifications of a standardised test
<ul style="list-style-type: none"> • Who is the author? • From what position in society is the author writing? • Who is the intended audience for this writing? • Is the language usage alarmist, persuasive, controversial? 	Understanding text genre
<ul style="list-style-type: none"> • What is the central argument being presented? 	Separating the main idea from supporting ideas
<ul style="list-style-type: none"> • Is there logic or common sense? • Are there sweeping statements? • Are there conflicting or contradictory statements 	Classifying and categorising statements
Think about the text critically by way of saying to what extent is this meaningful to me, from my standpoint in society ... or from what I've heard in previous lectures?	Using own voice Transacting with text Drawing inferences Drawing conclusions

The kinds of questions noted in Table 4.1 above, required students to read beyond the superficial level of meaning.

The advantages of being able to identify main ideas within and across texts would facilitate critical appraisal of texts, that is, *'to choose a text with insight'*. The extract below explained the processes of analysis and synthesis in reading and writing respectively, with texts being sifted through to select main ideas from different authors and ideas being rearranged to develop an argument.

They will be able to read selectively ... to pick out the main ideas from different authors ... then sift through them to rearrange them, put them together to form their own argument. It is important for them to decide for themselves what is useful ... to choose a text with insight ... [by] being able to look for the main ideas that are presented in them.

The ability to form *their own argument* implied that students would need to read for meaning and understand the content and context of texts. This understanding would be generated by the correct interpretation of vocabulary, understanding the message conveyed by each sentence and analysing the paragraph *to decide for themselves what is useful*. In other words, building an argument emanated from intensive reading strategies and engaging with text, particularly if an argument had to be formed using different texts from different authors. The interview extracts revealed a consistent approach towards the expectations and processes for reading required for ED1. Students were meant to engage in intensive reading strategies to extract meaning, critically analyse the content, form an opinion and adopt a position to present an argument. The illustration on analysing a text in Table 4.1 above presents clear guidelines with regard to the in-depth engagement and questioning that should accompany reading. This analysis suggested that the lecturer was clear and pedantic that reading was about the reader's interactive engagement with the text *and* [my emphasis] the author by asking and answering the types of questions in Table 4.1 above. The approach and practices for ED1 resonate with elements of all three Academic Literacies approaches (Lea and Street 2006) where language knowledge (Bachman and Palmer 1996) is applied to access meaning as well as for critical textual engagement.

4.3.2.2 Reading practices for ED1 as reflected in assessments

Six summative assessments were completed for this subject. They were varied in their genres and were not all equally reading and writing intensive. Three assessments were graphic intensive: designing a model which *could be in the form of a flowchart or any other design of choice*, preparing a PowerPoint presentation, and designing a group poster, which were all accompanied by group presentations. Although all six assessments will be discussed given their multi-modal slants, this analysis will focus mainly on the three summative assessments that were reading and writing intensive, since they align more closely with a test of academic literacy. They included: (1) a portfolio of selected articles for reading with accompanying summaries as writing tasks; (2) a research assignment, and (3) the year-end written test. Since the reading and writing practices for the portfolio, assignment and test were similar, the reading and writing skills and practices for all these assessments will be discussed in tandem. [Refer to Appendix D for an exemplar of an assessment for ED1.]

The portfolio required students to *collect 10 educational newspaper articles ... write a brief summary of what the article is about ... and in a separate paragraph what your personal opinions*

are regarding the story. For the assignment, students were presented with two learning theories and asked to explain why one of these theories gained prominence in the South African school curriculum. The final summative assessment centred on testing students' conceptual understanding of a particular area of study and the application of theories within a South African school system.

All the assessments, both visually and textually intensive, required the application of interactive reading strategies to access the pertinent bits of information relevant to the questions. Irrespective of the assessment modality, i.e. poster, flowchart, PowerPoint presentation or written assignment, the preliminary reading requirements to access information would be the same. The kinds of reading practices would include, amongst others:

- scanning and skimming for critical appraisal to *choose a text with insight*;
- surface reading for content and context;
- intensive reading strategies such as engaging with the text and the author;
- analysing the textual structure to determine how the information was presented;
- forming opinions on the content;
- analysing the text genre;
- classifying and categorising statements and opinions; and
- drawing appropriate conclusions based on the content of each reading source.

The ability to separate essential from non-essential information was particularly salient for developing summaries (flowcharts, posters and PowerPoint presentations), paraphrasing and developing an own argument. The reading practices for assessments seemed to align with the lecturer's explanation of how students should engage with texts for this subject.

4.3.2.3 Writing practices for ED1 as reflected in interview data

The writing genre required for formal academic writing was described as follows:

We do try to insist on them writing formally because it's academic work and they have to learn to write like academics. When they try to use informal language, slangy phrases, I try to correct that and show them how they should be writing. Academic writing [is about] how you do an introduction, how you develop an argument, how you use analytical terms, how you synthesise ideas in presenting an argument ... how you take a position in an academic argument....

The comment about students having *to learn to write like academics* suggested that students did not necessarily access higher education with these writing practices and that academic literacy for high school purposes were not the same as for tertiary contexts. Academic writing was explicated in terms of the ability to use terminology in context, and apply discourse structure appropriately to develop an argument in such a way that the writer's point of view in presenting the argument was foregrounded. The references to argumentation, analysis and synthesis suggested that writing was more than the skills-based approach and leaned towards academic socialisation. The shifts away from informal language and slang suggested that a particular genre of writing was favoured with which students, as aspirant academics, had to conform. By implication, academic literacy was different from other social literacies that students might have acquired. The extract suggests that students had to be socialised to think and write like academics in order to develop the competencies to present an argument or synthesise information in such a way that it reflected academic writing. This notion of being socialised into academic writing was reinforced with the lecturer's comparison between exploratory, narrative-style essay writing (which was common at school) and an academic essay at tertiary level:

If you are writing a story you are building onto your experiences ... using your imagination ... whereas [in an] academic paper you are using ideas that you are reading from, sources, and imposing your own voice on that ... you make your own argument and present your own opinions.

According to the lecturer, academic writing is composed of reading texts from which information is solicited to develop an argument that portrays the writer's point of view. Academic writing by its very nature implies drawing on what has been written on a topic before and deriving conclusions based on existing and acquired knowledge in order to develop an argument or justify a claim. Narratives and expository essays on the other hand, allow writers to articulate original ideas as formed during cognition. Academic reading, as portrayed by the lecturer involves an interpretation of texts, a comparison of textual content, linking similar or contentious ideas, drawing conclusions in order to *impose your own voice ... own argument ... own opinions*. The repetitious reference to 'own', reinforces the need to present a personal perspective against the background of selected textual content.

The interviewee noted in the excerpt below that the importance of educational jargon for first-year students resided in the ability to use terms correctly in context, in creating ideas and in conveying meaning. Academic writing for subject ED1 was about using vocabulary circumspectly to articulate thoughts and clarifying interpretations to ensure that a reader could understand the content and

context. The focus was not only on selecting appropriate terms, but also on using them in appropriate sentence construction, tense and syntax in order to *bring out the meaning and interpretation*. Vocabulary, in the context of the excerpt below, only seemed to have currency when used in context to create meaning, as follows:

I don't think that there's a particular vocabulary that I would associate with [subject ED1]. There are technical terms, technical jargon [that] they have to use and show understanding of them in their writing. It is how vocabulary comes in, how they express themselves, how they are able to bring out the meaning or the interpretation that they are making to the reader....

Vocabulary, like syntax for example, was considered an important feature of writing to articulate meaning more eloquently. With reference to writing practices, summary writing, paraphrasing and essay writing were noted as key for subject ED1. The lecturer's expectations were clear as explained below:

I require them to summarise an article so that I know they have a basic understanding of what it is all about. I ask them to give their opinions on these educational articles ... summarise ... interpret and ... [provide] their own perspective.

This extract suggested that one of the functions of academic writing was to demonstrate understanding of academic texts: what was learned from the readings, what was relevant to the task and analysing how the text content related to individual knowledge structures. The language of academic writing was usually mirrored in the reading text, especially with regard to summaries and paraphrasing which should ideally be a condensed image of the original text. In addition to using summaries as a means of showing understanding for ED1, students were required to provide *their own perspectives* on the topic. An 'own perspective', as derived from reading texts, emphasised the need to engage in interactive reading rituals to ensure an in-depth understanding of content. Summaries as explained by the interviewee were complex representations of understanding where new knowledge was enmeshed with existing knowledge, and included several layers of reading analysis and writing composition respectively: *summarise, interpret and provide an own perspective*. Academic reading skills implied the ability to interpret vocabulary in context, analyse discourse structure to extrapolate the main ideas, interpret discourse markers to establish coherence and development of content, extrapolate meaning and establish the gist of the text, while summary writing related to the elements of planning, writing thesis statements and coherence.

In keeping with the theme on writing based on reading texts, the interviewee noted that students could be asked to write a

... short essay to compare ... two different theories. I require them to do more than summarising ... to use their own voice ... their own identity ... synthesise information from different readings, put it together and take a position ... more analysis and synthesis.

The interviewee's reference to *more analysis and synthesis* suggests that a more advanced level of reading and writing was expected where *different readings* provided the backdrop to analysis, synthesis, summary writing and presenting an own perspective. There was repetitive reference by the interviewee to *own voice ... own identity* and the ability to demonstrate taking *a position* related to reading beyond surface meaning and writing beyond summarised narratives. The challenge in analysing different readings was to understand the position taken by different authors, summarise the gist of their arguments, understand the context to which each text related, evaluate the texts within the context presented, then draw conclusions as to which text was more relevant by providing justification of a rationale for the choice of text. These reading and writing skills were reminiscent of academic assignment writing where an argument needed to be based on knowledge acquired from texts. While *structure is important* in developing an argument or stating a position, grammar and spelling were considered less important, although students were alerted to errors in writing as mentioned below:

I indicate their grammatical errors or their spelling mistakes ... when I give them feedback. For assessment purposes, we don't over-emphasise the language issues although they are very important.

The point made here seemed to indicate that the key ideas and content of responses were foregrounded where language and spelling did not detract from the intended meaning projected. As long as the meaning was intelligible, the lecturer did not seem to be pedantic about language and spelling errors.

On enquiring about figurative language use and knowing the idiom of English, the interviewee claimed that *I don't think it's important ... I haven't seen the space for it in here per se*. This comment elucidates the lecturer's opinion that interpreting and understanding metaphorical language use was not important and did not seem to feature readily in text or written composition. The

impression created was that texts mainly had literal interpretations and that there was no 'space' or need to incorporate metaphorical language as part of ED1. However, given the different modalities of assessments, for example, designing posters and PowerPoint presentations, these were in fact based on metaphorical representations and language use. The lecturer seemed to think that subject content did not necessarily include idiomatic or figurative interpretations, as ED1 was perceived to be *plain, straightforward language*.

Numeracy and the analysis of visual representations within text were not common features of ED1. This observation was pointed out in the following quotation:

You do come across the occasional picture, diagram or photograph but most of the educational material is in text form. There are times when I ask them to do posters on a given theme.

In addition to posters,

They do PowerPoint presentations ... they have to arrange their ideas onto slides and add the graphics ... shorten the text and just pick out the salient points in point form and present it in conjunction with pictorial and graphical media.

The references to *shorten the text* and *pick out the salient points* alluded to extracting the main ideas and summarising them in point form in conjunction with pictures or illustrations. These aspects are discussed further in writing practices for assessments below. The visual illustrations referred to here were productive pieces developed by students, an example of multi-literacies for content representation.

4.3.2.4 Writing practices for ED1 as reflected in assessments

Since the writing practices were similar for all assessments, this discussion focuses on all three assessments simultaneously. Summaries, paraphrases and essays formed the core writing products for subject ED1. For the portfolio, ten summaries of ten articles were required and in a separate paragraph, students were required to present their own opinion on the content of each article. The interview data revealed that the lecturer considered summary writing as a means of ensuring that students had an understanding of the text. The quotation above on academic writing was evident in the assessments – for all assessments students were required to use the academic conventions of writing, such as using formal language style and appropriate referencing conventions.

The assignment and the term test were both research assignments, with essays being the assessment product. The writing requirements would include all aspects that pertained to reading in the discipline, starting at word, sentence and paragraph levels. Writing skills would include:

- using appropriate terminology and field-specific vocabulary to explain concepts to demonstrate understanding;
- using the correct language, grammar and syntax;
- applying appropriate structure at paragraph level, including a thesis statement, main ideas and supporting ideas arranged in a coherent, logical order;
- using cohesive devices within and between paragraphs to form a coherent essay;
- using appropriate genre to conform with academic conventions; and
- developing an argument or an own opinion was a common feature for assessments.

The common academic literacy focus for visual assessments was to formulate key points and phrases to portray a particular message. It should be noted that each of these visual representations required the use of appropriate terminology, using only main ideas, summarising content succinctly and using particular forms of developing coherence of information. For example, the arrangement and presentation of information for a flowchart would be different from that of a poster for the message to be meaningful. The point to be made here is that visual literacy has its own dimensions of how information should be analysed, compiled, portrayed and presented. It uses similar academic literacy practices as for textual development but in another genre mode.

4.3.2.5 Summary: ED1

The academic literacy practices required for ED1 were reminiscent of reading and writing in academia characterised by research, analysis and synthesis of articles, drawing comparisons between articles, developing arguments and presenting an own perspective based on critical reading skills. The lecturer required students to engage with interactive reading strategies that appeared to be procedural and process driven, that is, skills-based, but that required deeper engagement than a skills-based model would require. This subject was reading and writing intensive with texts being prominent, although visual literacy was apparent in certain kinds of assessments. Given the focus on textual analysis and discourse structure, several commonalities could be drawn between academic literacy practices required for ED1 and the test specifications of a standardised test, suggesting that the sample test would be appropriate to gauge academic literacy proficiency of incoming students for this subject.

4.3.3 An analysis of interview data and assessments: subject ED2

4.3.3.1 Reading practices for ED2 as reflected in interview data

The ED2 lecturer reported that the texts for reading were limited to the prescribed textbook, newspaper articles on current issues, and searches on the internet for assignments. The lecturer viewed reading as *very important* and was a means of augmenting existing knowledge. The lecturer's interpretation of how students *read with meaning* is expounded on in the discussion below. Reading was considered important both as a student, that is, for learning, as well as for professional practice, and was contingent on understanding the terminology of the field of study. This was foregrounded in the excerpt below:

Terminology does impact on the meaning. For instance, if they have to describe a process ... They have to use the correct terminology ... when it comes to writing about the hierarchical organisation of the levels of life, then they have to know, 'atom', 'molecule', 'organ' ... and I would instruct them to define each one of those levels; then they must know the meaning.

This excerpt emphasised the importance of knowing subject and disciplinary terms, knowing their meanings and their hierarchical contexts, as at face value the terms do not provide an indication of hierarchical organisation. The use of the correct and appropriate terms seemed to be non-negotiable and specific to the field of study. The lecturer claimed that meanings could not always be extracted from context given that:

... Many words are very new to them ... and this is huge ... because they struggle ... with the terminology because it's [sic] words that they hear for the first time. Many terms in [ED2] has [sic] either a Latin or some other base. So they cannot really sort of work out the meaning in context.

Part of the challenge of being a first-year student was engaging with subject-specific terms which they encountered for the first time and which might influence the conceptual and contextual understanding and application of subject content. The Latin base, according to the lecturer, seemed to be an added constraint to accessing meaning. The lecturer was cognisant of the fact that for many students the language of teaching and learning was not their first language and that:

[ED2] has a language of its own and if you don't know the language ... you don't know the content ...

Here the lecturer alluded to the 'language' of ED2, implying that the genre, textual discourse and the presentation of content were particular to this subject. The notion of multiple literacies was more prominent in ED2 than in ED1, for example. While the ED2 lecturer reinforced the importance of knowing vocabulary and specific terminology, there seemed to be empathy for the different layers of difficulty to attain intended meanings. Acknowledgement was given to the struggles evident in learning where the home language was different to the language of learning, in addition to subject terminology being another layer of language challenge. By implication, analysis of textual and other forms of literacies might be limited by the language medium being used. The impression created by the lecturer's comments was that the smallest unit of meaning at word level, a complete word or a Latin syllable, could enhance or impede access to knowledge. For ED2 terms could have meaning independent of context (such as *atom* and *molecule*), which students had to know, as well as within context. Not all vocabulary for ED2 was context-dependent as was the case with BUS2 above, but for both subjects vocabulary presented the basic tenets of meaning that needed to be negotiated to access meaning.

With reference to reading with meaning at sentence and paragraph levels, students were required to *summarise and pick out the main ideas*. In some cases, extracting essential from non-essential points had an additional purpose, that is, *to compare ... structures in terms of their functions and characteristics ... look at similarities and help them to engage meaningfully with the text*. The ability to *pick out the main ideas*, for example, to draw comparisons between structures, was viewed by the lecturer as an attempt to *engage meaningfully with text*. By implication, students would need to read closely to understand the text, separate key points from supporting ideas and identify 'functions' from 'characteristics'. The lecturer claimed that the genre for ED2 was *mostly factual because of the Science in the subject*. The factual nature referred mainly to experiments and observations prevalent in the subject.

Students were *encouraged to read general metaphorical reading texts, to engage with them in order to develop their critical thinking skills*. One example explained by the lecturer was using *cartoons in their tutorials and even in their tests. They have to interpret the cartoon ... that's not always literal*. Cartoons by their very nature are open to interpretation, do not necessarily rely on literal interpretations and require a particular context and knowledge base from which to interpret and understand the message. The lecturer tended to use cartoons to reinforce a principle or topical issues related to ED2 that were thought provoking and linked content, topical issues and a powerful

genre that was *funny* ... [but] *addresses a serious issue*. Cartoons would require specific literacy skills for analysis, such as:

- reading and interpreting the cartoon text which in most cases would be succinctly captured;
- establishing the intended metaphorical or literal interpretation;
- interpreting the tone, style and register of the text and graphics;
- analysing and interpreting the graphics in relation to the text, and
- relating the text and graphics to subject content and real life issues being depicted.

Another genre that required drawing conclusions, forming an opinion and presenting a motivation was that of engaging in hypothesis statements. As explained by the lecturer:

... with hypothesis writing we have to look at results and the conclusions ... and then they have to motivate. Do they agree with that? They have to look at the hypothesis ... look at the results ... look at the conclusion ... do they match ... does the conclusion answer the hypothesis?

Reading and analysis of a hypothesis required several sequential steps to be followed. The sequence to be followed would be to interpret the hypothesis within the context of the content knowledge in which it is embedded; interpret and analyse the method of investigation, the results and the conclusions reached, and verify whether the conclusions were in fact appropriate and correct. Analysing a hypothesis statement and the concomitant conclusions are all relative to the content, context and scientific processes followed. The relativity of components would be central to the analysis, extrapolation of data and connecting the various components of a hypothesis statement.

When asked about the processes that students should engage with in order to *read with meaning*, the lecturer explained:

First read through it and make sure that all the instructions is [sic] clear ... Then I would expect them to single out the words that they find difficult ... the terminology is strange to them. Now you look at paragraphs, what is the main idea in this paragraph ... would that be the correct conclusion that was made? So I even draw on inferences ... but just very superficially.

This excerpt reiterated a previous comment that terminology was foreign to first-year students, given its specificity to this field of study. The excerpt alluded to hierarchical analysis structure from word and sentence to paragraph levels, starting with understanding the instructions to be followed.

Interpreting meanings of terms in context was central to accessing meaning and understanding textual content. Interpretation of text was viewed holistically, that is, at paragraph level, and was dependent on understanding terminology, finding the main ideas and drawing conclusions.

4.3.3.2 Reading practices for ED2 as reflected in assessments

In terms of reading for assessments, the lecturer explained that students had to: *read instructions ... follow the instructions, read and draw and in that way a whole couple of things are assessed ... their reading skills, can they follow instructions....* Assessments were viewed as part of assessing the ability to read with meaning and insight to establish whether students could interpret and follow instructions correctly. The reference to *read and draw* indicated the link between textual analysis and transposing text to a visual representation. The quotation seemed to suggest that the lecturer considered assessments as the integration of the various academic and visual literacy skills and practices to demonstrate understanding of knowledge.

The summative assessments to be analysed for ED2 consisted of three term tests and two practicals that formed the major components for promotion from the first to second year of study in this subject. [Refer to Appendix E for an exemplar of a test for ED2.] The similarities across all three tests were:

- Each question had illustrations.
- The questions were statements or propositions to be interpreted in relation to illustrations.
- The illustrations were linked to questions of 'identify', 'interpret', and 'analyse' cycles and processes.
- Subject-specific terminology was evident in every question.

Students were not required to read case studies or scenarios to provide answers within a specific context. The questions were straightforward and could be interpreted literally. Examples of questions include:

- Define the law of thermodynamics that is illustrated by the example above.
- What happens in process 1 and how does it change molecule X.
- List two differences between ... and
- What phenomenon is illustrated in the above diagram?

The test questions above illustrate how closely the questions were linked to visual representations. Reading requirements focused more on the analysis of visual literacy representations than on case studies or scenarios. Only the final test included a reading article as a context for questions. The

way that the questions were set did not necessarily require an understanding of context or an analysis of what was required. Assessments were content intensive, reinforcing terminology and factual subject knowledge. Without knowledge of subject terminology students would not be able to comprehend the questions or articulate responses. The factual nature of the subject presented limited reading opportunities to engage with an author or present an opinion of text or other representations.

For practical tasks and experiments, students were required to read and understand questions to follow protocols and procedures. Instructions for practical tasks were factual, procedural and usually not open to interpretation. This factual, procedural format of questions and instructions was very different from the language knowledge required for the textual analysis of a standardised test that was more exploratory and interpretive.

4.3.3.3 Writing practices for ED2 as reflected in interview data

The ED2 lecturer presented the relationship between reading and writing as having value if reading had a purpose and translated into creating text: *I don't like give them something to read just to keep them occupied ... they have to write*. Written tasks included tutorials, assignments, tests and practical activities where students *have to write up* and report on what they observed in experiments and under the microscope. Scientific Literacy was introduced to support students with reading and writing. The lecturer explained the purpose of Scientific Literacy as trying to:

... address as many issues as we can but not too much on language and grammar ... or syntax. Scientific Literacy ... it's probably what one would also call academic literacy. Scientific writing ... like using the scientific method, hypothesis writing ... how does science speak to us? It's either in the form of text or drawings, diagrams, flowcharts, graphs and tables ... that's all part of Scientific Literacy.

This excerpt foregrounds the multiplicity of literacies in ED2. The lecturer's comment that scientific literacy could also be called academic literacy did not necessarily imply that scientific literacy was equated with, or was the same as academic literacy. The interpretation could be that scientific literacy was a type of literacy required for ED2 given that the lecturer alluded to scientific literacy as *hypothesis writing* and a means of how *science speaks to us* through the various forms of visual communication. Scientific literacy, according to the lecturer, was about interpreting a hypothesis, understanding the context and processes to prove or disprove the hypothesis, analysing the results of the findings and drawing conclusions based on the findings. While scientific literacy might have all the elements of academic literacy, the approach and focus was of a different genre (factual) and

nature (scientific principles). Any written component would require language usage, vocabulary and terminology, attention to textual coherence and cohesion, visual representations of text and explanations of visual representations as outlined by the lecturer. While there was acknowledgement that correct language use and syntax were important, in reality, it did not matter whether students used correct sentence structure, only that the content was intelligible. The lecturer's opinion was that:

Syntax is not a focus area. I do think that it is important but I cannot pay too much attention. I would address it when ... I cannot make meaning or understand what it is that they're trying to say ... it's the grammar ... the sentence structure. I will address it at that point.

The message seemed more important than the medium, as long as the intended message was comprehensible to the lecturer. The lecturer expected students to write correctly, but noted that ... *I strongly feel that this is for the Communication lecturer's class [that] they should focus on it.* This suggested that the focus was on content delivery and ensuring conceptual understanding as language development happened outside of ED2. This inference was supported by the following extract:

I realise it's important. They're second- and sometimes third-language speakers ... the language is not a big thing for me ... it's more the facts ... it always bothers me that I can't spend as much time on language ... grammar ... structure of paragraphs ... it's needed for my subject.

A further inference was that the lecturer focused on key-word reading by looking for facts rather than the appropriate language use as a vehicle to relay the facts correctly. While *language is a big thing* on the one hand, on the other it seemed to be overlooked and neglected in favour of information. When asked whether the incorrect use of syntax and grammar impacted meaning, the reply was, *Yes, of course ... if they do write in a way that I cannot comprehend what they're trying to say, then of course, they will be penalised.* This comment presented a contradiction in terms when compared with the earlier extract on language use.

Although essay-writing was noted as a requirement for ED2, the data showed that essay planning and structure were largely formatted by the lecturer who gave *sub-headings ... it's very factual, [there are] facts here. It's a structured essay ... the structure is given ... it should be in that structure ... more descriptive writing.* By implication, students did not have to plan an essay that conformed

to developing discourse, coherence and cohesion. The headings were specified and students filled in the details according to the facts and descriptions of the content being studied. The lecturer stated that an element of research was required, but this did not translate into an academic research assignment where students had to draw on and evaluate sources to present an argument or a particular point of view. The impression created was that 'factual' and 'structure' implied that an essay consisted of facts presented within a particular set structure. This essay type aligned with what the lecturer considered the scientific method, which suggested that rote learning and re-presenting facts were common practice without students having to apply any reasoning or critical thinking skills. Summary writing was reported as being:

... actually quite big from the *second year* [my emphasis] onwards. At first year level I will provide them with prepared notes ... that I have prepared myself. It's a very sort of, nurtured approach ... and really just building their confidence in their first-year reading skills ... and their writing skills.

This excerpt created the impression that at first-year level the academic demands for reading and writing were at an elementary level with the lecturer providing most of the resources, notes and sub-headings for essays. By implication, students were not encouraged to write summaries, paragraphs and essays where they were required to plan the thesis statements and decide on the appropriate structure for supporting ideas. The information required for essays was descriptive and factual and seemed to be contrived, controlled and planned by the lecturer with limited opportunities for students to practise academic writing that included aspects of planning the structure, coherence, using hedging devices and argumentation.

When prompted to explain what was meant by 'formal writing' the lecturer seemed to equate it with academic writing as follows:

Formal writing to me ... I will think of academic writing ... where you follow the scientific method but also keeping in mind what is required in academic writing ... how to use abbreviations, referencing, tenses and so on. That is more or less the formal writing for me.

The lecturer understood academic writing in terms of referencing and sentence structure, with no mention made of discourse development or the ability to write clearly, logically or coherently. Essays could be described as a skills-based exercise where students filled in designated sub-headings and where prompts were given with regard to expected responses where students had to *fill in the details*.

'Scientific writing' was structured with headings, sub-headings and factual details as instructed by the lecturer. A consequence of using set structures for writing limited the application of academic literacy specifications. For example, when asked whether students needed to extract main ideas, this was noted as *rare instances where they have to make their own notes ... they need to be able to distinguish between essential and non-essential*. While academic literacy writing conventions may have been limited, visual literacy was a prominent feature as elements of ED2 were *all around you so you cannot not use the visual as stimulation*. The significance of visual literacy was noted as:

... very, very big. If you teach [ED2] simply by means of text it becomes monotonous. It's difficult for the students to make meaning. You do practicals, they use the microscope to look at life-size specimens.

The literacy demands for practicals were to understand text in relation to the observations made as neither textual literacy nor visual literacy was meant to be interpreted in isolation of the other. The plurality of literacies (scientific literacy, academic literacy, visual literacy, numeracy) and their different requirements for analysis and synthesis necessitated constant genre shifts from one modality to another.

In certain instances, visual communication has a greater impact on creating meaning and understanding than analysis of a text. The lecturer explained that:

... for one type of phenomenon or event or process it's better to look at the diagram or the flowchart ... will explain it better than the description because you can easily see how this step 1, step 2 ... how they follow on each other.

They need to draw what they see under the microscope, what they see in front of them. They need to make certain deductions ... their observation skills are tested ... graphs and flowcharts ... They need to be able to read the graph ... understand the variables with the independent and dependent ... they need to be able to understand a table ... how to read a table and fill in missing information.

This interview extract captured how similar the analysis of visual literacy presentations were in relation to the analysis of textual literacy. For example, as with text, the specimen, graph or flowchart had to be read in a particular way in terms of how the flow of information was structured; particular bits of information had to be selected (such as the main ideas of text) to make deductions and draw conclusions, while the identification of patterns and trends based on the conclusions needed to be determined. Terminology was contextualised, with meanings either known or to be

determined within the context in which it was used. The data suggest that visual literacy was prominent in ED2 and that students needed to analyse and understand different visual representations on their own and in relation to text. In terms of numeracy, ED2 required students to be able to be familiar with numeracy skills to manipulate numbers,

... to work out percentages, maybe ratios ... fractions ... they must be able to at least do simple mathematics.

Like using academic literacy skills to analyse texts and identify key words and phrases, numeracy literacy required of students to select particular formulae to arrive at particular answers. However, where visual and textual literacy were analysed, ratios, fractions and formulae needed to be known as part of prior knowledge. This was not the case with standardised tests where basic numeracy was tested within context without the necessity of prior relating to particular mathematical formulae.

4.3.3.4 Writing practices for ED2 as reflected in assessments

The writing requirements for the term tests included mainly definitions and explanations of terms and identifying phenomena in illustrations. [Refer to Appendix E for an exemplar of a term test.] Given the noteworthy emphasis on visual literacy, the questions related to diagrams and illustrations. The questions required reasoning skills but were more about reinforcing content, requiring one sentence or phrase to capture the answer. The writing requirements did not include summaries, paragraphs or the ability to develop an argument. As such, the academic literacy focus for ED2 was more reading intensive across different literacies and genre modes than writing intensive, which was limited to filling in details for reports, defining terms and identifying labels for diagrams.

4.3.3.5 Summary: ED2

The elements of reading foregrounded during the interview were the importance of knowing and understanding terminology, the ability to make comparisons, interpreting cartoons, reading to extract the main ideas and interpreting visual representations of this subject. These elements were all included in the term tests as well as in the practical tasks. Knowing the terminology of the field was core to accessing meaning and creating understanding. Many of the meanings of terms used in the assessments could not necessarily be worked out from the context. One assessment included a cartoon and all assessments included diagrams and illustrations for every question. While the lecturer alluded to the need for textual analysis, this was not evident in any of the assessments.

With the focus seemingly being on knowledge building and reinforcing terminology, there was no need for students to negotiate case studies or reading passages in any of the assessments that formed part of this study.

The data on writing for the interview and assessments suggested the following similarities:

- Paragraphs, summaries and essays were not included in assessments (summaries were written from second year onwards).
- Assignments were structured with headings, sub-headings and instructions for completion.
- Questions were simply stated to reinforce content (no textual engagement was required).
- Students were not prompted to use full sentences in any of the assessments (language use was of secondary importance to content).

While the lecturer indicated that writing for ED2 was mostly formal, this was not evident in the assessments with their one-word/one-sentence responses. The lecturer also commented on scientific writing that included hypothesis formulation and drawing conclusions based on the findings but this was not evident in any of the assessments included in this study. Visual literacy and numeracy were prominent in all assessments. All the questions were based on visual representations, either directly, or by means of explaining steps to be followed from the image in the diagram.

In summary, writing requirements at first-year level were about demonstrating subject-specific knowledge in a comprehensible way that would be acceptable to accrue marks. The finer elements of academic literacy that demonstrate eloquence such as correct grammar, syntax, sentence construction and discourse development were not part of writing requirements for ED2. The forms, levels and manner in which academic literacy(ies) was/were employed for ED2 were direct reflections of the lecturer's expectations and subject-specific literacies required. For example, scientific literacy, in this case, did not require elements of textual composition and neither did the lecturer expect this of students. Attention to detail regarding grammar, syntax and correct sentence construction were important, but not essential. Demonstration of correct content knowledge was presented as pivotal for ED2. This is in stark contrast to BUS1, BUS2 and ED1 that were textual oriented and where lecturers were more pedantic about how content was presented using correct literacy conventions.

4.3.4 Comparison of reading and writing practices: ED1 and ED2

Given the kinds of reading and writing required for subject ED1, a conclusion may be drawn that there was congruence between these requirements and most of the specifications for a standardised test of academic literacy. The focus on reading for writing, as with the research assignments, would, by implication, incorporate all the specifications for a standardised test of academic literacy, except for numeracy. The lecturer's assertion that there was no need to engage with metaphorical language use for subject ED1 could be disputed, given that, for example, newspaper articles use figurative language and such articles seldom use *straightforward language*. In addition, the poster, models, flowcharts and PowerPoint presentations use graphics and visual messages that are metaphorical representations of textual content.

For subject ED2, the assessments showed that while students needed to apply reading strategies to access information and analyse questions, writing requirements were limited. Notes were summarised for the students by the lecturer, assignments were structured with headings and sub-headings, and content was on instruction. The conventions for academic writing were considered important, but not required. For example, correct language use and syntax were overlooked in favour of 'facts'; correct sentence structure was acceptable in so far as an answer was intelligible; summaries and essays were not included and devices of cohesion were not important as answers were short or contrived by the lecturer.

Given the emphasis on visual literacy, numeracy and the minimal opportunities for discourse analysis and writing tasks, alignment with test specifications was limited. An important point to note was that certain specifications were applicable, but to different literacies and genre modalities. A case in point would be the ability to extrapolate information and draw conclusions from observations and experiments, not necessarily from texts.

The point to be made here is that a test of academic literacy has as its aim to determine the academic literacy proficiency of students who enter higher education for a particular programme, not particular subjects offered. Hence the need to consider the academic literacy practices of more than one subject at first-year level. As noted in this discussion on ED1 and ED2, subjects in the same programme of study might have very different reading and writing requirements. Although neither subject ED1 nor subject ED2 as a case study subscribes to all the test specifications of a standardised test, this discussion reveals that there is a wide range of literacies, genres and modalities in which content is presented in any given first year programme of study. It could be argued that to satisfy

the criterion of validity in making inferences about students' language proficiency, it might be necessary to determine the extent to which the specifications of a test of academic literacy align with the majority of first-year subjects of a programme of study.

4.4 ENGINEERING: Subjects ENG1 and ENG2

4.4.1 An overview of ENG1 and ENG2

Two first-year subjects from one diploma in the Engineering Faculty were selected as case studies. One of the selected subjects was unique to this diploma programme, which shall be called ENG1, while the other subject, ENG2, was taken by all first-year diploma students. Both subjects were semester courses as was common practice for this faculty. ENG1 represented a more practical subject in a particular field of engineering requiring field and laboratory work, while ENG2 had a more reading and writing focus particularly for engineering studies. It should be noted that the reading and writing practices for ENG2 were similar across diplomas as there was collaboration among lecturers teaching the subject.

4.4.2 An analysis of interview data and assessments: subject ENG1

4.4.2.1 Reading practices for ENG1 as reflected in interview data

As one of the opening interview questions, the ENG1 lecturer was asked to share her idea of 'academic literacy'. She suggested that academic literacy constituted

... those techniques perhaps that students would use to understand things, like to understand text. I imagine it's about their reading, is to grasp ...

The lecturer seemed to equate academic literacy with the ability to use reading techniques to grasp meaning to understand text. When asked to elucidate what was meant by *to understand*, the lecturer noted that:

I want my students to be able to interact with ~~say~~ a text and get the gist and be able to perhaps give me the crux of that particular piece of reading that they've done. With the course that I teach, the complexity also is in the terminology ... it's a very practical course. So things like practicals, demonstrations then become very critical in their understanding as well because I can tell you now, the text is not very easy to read and understand, particularly as a result of the terminology that is used in there.

Three aspects could be considered pertinent here: (1) the ability to engage with text to extract main ideas, (2) the importance of interpreting terminology correctly to facilitate understanding of

content, and (3) the different literacies beyond textual academic literacy. These skills related to the ability to comprehend what the text was actually about by separating the gist of the content from the supporting ideas. An important part of comprehending, according to the lecturer, was the need to understand terminology that was complex, yet 'critical' to access subject knowledge. The opinion presented was that knowing subject terminology would grant access to comprehension of texts, processes, procedures and outcomes of practical tasks and demonstrations. Aspects 1 and 2 noted above related to test specifications of a standardised test: the ability to separate essential from non-essential information and to derive meanings of terminology from context are considered important elements of academic literacy for first-year university students. Given that the standardised tests referred to in this study all have reading texts or contextualised questions, these two test specifications would be considered central to extracting and understanding the essence of any text.

The *complexity in terminology* was noted as follows:

There's a lot of jargon there that is discipline specific, which then gets demystified in class and unfortunately with the glossary that they may have in the book, it may not explain all terms.

Jargon refers to particular terms used for a particular field of study, profession or activity. Some colloquial terms accrued particular meanings when used within the context of ENG1. For example, *backside* referred to a first reading taken when setting up a level instrument. As such, terminology needed to be known and learned. Although standardised tests are not subject specific from an academic perspective, they nevertheless test vocabulary items that students should know and be able to establish meanings from according to context. The important point to note here was that vocabulary played a pivotal role in facilitating meaning and understanding text for both the standardised test and subject content.

When asked what students would need to do to extract meaning from text, the lecturer's response was that:

... it's about being able to summarise things. It's all about extracting what's important ... they must be able to capture what it is that is intended and take away the rest of the fluff.

The quotation above provided repetitive comments that reinforced the opinions expressed on the importance of being able to extract and summarise the main ideas. Students should be able discern

between superfluous ideas and the author's intended message. This 'demystification' of text was explained as follows:

... if I'm saying to a student, 'a backside is the first reading that you take when you set up the level instrument', I've said a whole lot of things. I'm talking instruments. I'm talking about procedure. I also like to give them tutorial exercises. I will work through perhaps a particular chapter and give them directed questions. 'Okay, explain to me what the role of this is, this method or this particular technique that I've shown you. I want you to make use of the sketches below to explain that concept.'

The first sentence of the extract above demonstrated how loaded sentences could be and how much information was communicated by a single sentence, including the use of terminology, the use of instruments, particular procedures and the disciplinary language used in this field of study. Students would need to analyse the sentence structure, work out the terms as used in context such as 'backside' and 'first reading', know what a level instrument is, in order to grasp the full meaning of the sentence. Sentence analysis would necessitate understanding the relational elements of the different parts of the sentence pertaining to syntax, grammar and genre, specifications which all form part of a standardised test. Understanding how parts of a sentence fit together to construct meaning would be a requirement when engaging with tutorial exercises, working through chapters and answering related questions. More likely, engaging with chapters would include analysing sentences and paragraphs and paying attention to discourse structure in terms of how information was presented in field-related texts such as chapters of textbooks. This textual analysis would be reminiscent of similar types of textual engagement for standardised tests where paragraphs each have a role to play as parts that contribute a particular meaning to the text as a whole. The latter part of the quotation above alluded to the application of textual analysis: answering questions based on text and providing an explanation to demonstrate understanding by means of text or illustrations. Visual literacy featured prominently in conjunction with text.

In keeping with the discussion on textual analysis, the lecturer for ENG1 indicated that students worked from notes and presentations, but that the emphasis was prominently on practice and demonstrations. Lecture resources were:

... hand-out notes ... and my presentations. We have a very strong practical side of things, where they actually do. With me literacy is not really the key to the subject. With me it's about visualisation ... there's [sic] times when I will give a sketch myself and say to them what does this say and of course with the prior knowledge that they will have had in the lectures then in the practical they should be able to do it.

This extract foregrounded the different literacies prevalent in accessing and demonstrating knowledge for ENG1, from analysing notes and presentations to analysing and interpreting sketches using prior knowledge. The comment that *literacy is not really key to the subject* seemed to suggest that the lecturer equated 'literacy' with textual analysis while not considering visual interpretation as a form of literacy. The difference between visual analysis required for ENG1 and a standardised test was that prior knowledge was a prerequisite for ENG1, while analysis of visual representation in relation to text for a standardised test would not be subject or knowledge dependent. The principles in analysing the visual representation would, however, be the same. The vocational slant of this qualification was highlighted when the lecturer related the relevance of teaching and learning practices of visual literacy to requirements of the workplace:

In terms of the workplace, they will work from data to sketch ... they take the sketch and process it and reproduce it. If I send them out to do a survey, they collect data in a table or whatever and from that data they should be able to produce site layouts ... they translate the information they've collected into some graphical representation.

Visual literacy, according to the excerpt, constituted a particular kind of literacy, yet the practices of analysis for this subject were not dissimilar to those of text. The lecturer explained the different levels of analysis required for visual literacy: reading, analysing and interpreting data, transposing tabulated data to a sketch, and following processes and procedures for reproduction. The basis of the subject, however, remained the ability to read and interpret different genres and forms of data, including text, tables, sketches and various formats of illustrations. The multiplicity of literacies denotes different ways of thinking and engaging with different content representations.

The inseparable connection between text and visual representations for ENG1 was explained as follows:

It's one thing to read it in text. It will not make sense ... if you cannot show it, if you cannot draw the instrument over there, show the line of site over there, chances are you cannot work out the reading that I want or the particular height I want for that point. So it's one thing to read the text, but if one can read the text, make sense of the text by producing this diagram, this will be a working diagram for going to the field to actually do the work.

The lecturer considered the ability to relate text to an illustration as *very important*, since this was the nature of this subject. The ability to read text, *make sense of the text* and extrapolate data to produce a diagram was key to ENG1. Interpretation of texts and accompanying diagrams would lead to new information and new understandings of how to conduct fieldwork. The extract above

suggests that keen reading skills and practices and accurate interpretations of both text and drawings were pertinent to theory and practice. The ability to juxtapose textual and visual literacies and explicate the respective interpretations and meanings was noted in the following interview extract. When asked about the types of reading required for ENG1, the response was that:

It's really core notes ... the recommended or the prescribed book ... textbooks that I will prescribe for them. It's very numerical this subject. So after reading, sometimes I'll prepare a whole dialogue, and they have to translate that to a table and to a graph. So I would expect them to be able to read my notes and a couple of prescribed books.

While textual reading and analysis were foregrounded in this extract, the lecturer incorporated another aspect of literacy, that is, numeracy, and another genre of text, namely, the dialogue. The fluidity of engaging with the different kinds of literacies given the multi-modal presentations of information seems common practice for ENG2. This extract illustrates the interrelatedness of visual literacy, numeracy and different text genres where developing content knowledge is contingent on engaging with all three types of literacies simultaneously. While each modality has its own form of analysis and synthesis, they are not discrete entities when used adjunct to one another. An important distinction to be drawn here was that reading for ENG1 was not limited to accessing understanding for knowledge acquisition – the quotations suggested that students were required to read intensively and extensively by drawing on particular details in texts to translate into visual representations to provide new insights for actual use in fieldwork.

Given the reading list for ENG1, a question posed to the lecturer was to explain the kinds of reading skills and practices that students might use to understand the content. The response below related primarily to using different texts to: (1) facilitate understanding; (2) extract the main ideas; (3) develop a complete picture of concepts, their use, and the related instrumentation associated with these concepts; and (4) how these concepts and instrumentation related to the subject as a whole. The lecturer's response was:

I try to extract those things that are key to the work that they'll be doing. For instance, I will ask them to explain to me what levelling is. Then they can find levelling in two pages of this text and two pages of that text ... they should be able to extract that it is a procedure that is used to achieve that particular goal, using that particular instrument and perhaps going through further to explain how it works.

The lecturer would identify threshold concepts students had to verify using different reading sources to find related information. The main specifications identified here were understanding vocabulary in context, extracting main ideas, analysing texts, drawing inferences and parallels

between articles, and acquiring understanding of terminology. These specifications resonate with the core specifications of a standardised test of academic literacy, identified as key to textual analysis for higher education studies. The aim of this exercise seemed to be to develop a composite knowledge base of concepts, related instrumentation and fieldwork application. Of import here is that using subject-specific instruments in the field suggests that other literacies come into play, such as set procedures to be followed, analysing observations, analysing the data from observations and recording the information according to subject-specific conventions. Each excerpt, it seems, provides an additional literacy for analysis, with ENG1 using the most literacy modalities of the subjects reviewed thus far. The lecturer's comment that *they should be able to extract what's important, what links to practice* affirms the conclusion that reading practices were primarily about linking theory to practice.

In terms of textual cohesion starting with text headings, the lecturer considered the purpose of headings to succinctly capture the essence of the text to prepare the reader for what was to follow. Her understanding was that:

From the heading I expect that students should be able to anticipate what is going to follow in the text. Otherwise it defeats the whole purpose of having headings if it's not linked to the text. So I would expect that the student is ushered into what they're reading by the heading of the text so that they know what they're dealing with then perhaps they can create little mind maps of their own, as to what they think is going to be tackled in this particular chapter.

Headings seemed to have currency as an important component of textual analysis, given the explanation provided as to the role that headings play in preparing readers to engage with text. This speaks to the ability to use headings to pre-empt textual content and suggests a precursor to interactive reading strategies. All reading texts for standardised tests have headings that need to be analysed in terms of textual content and test questions would allude to analysing text headings. Very often headings have figurative meanings that capture the reader's attention and suggest different thought patterns to literal interpretations.

Since the approach to teaching and learning for ENG1 was reportedly *definitely applied*, the lecturer used case studies *quite a bit to ... get them* [students] *thinking about what would work under what circumstances*. The case studies provided opportunities to integrate the world of work with classroom theory and practical tasks, where students needed to read, analyse, draw conclusions and make recommendations.

A case study was usually accompanied by questions:

... such as, why did this engineer find it necessary to do this at that particular point in time? So I want them to think about all the possible reasons, or ... give any three possible reasons why this had to happen there. I wouldn't say things are always given upfront. When they read through something or if it's a case study, students should be able to sort of see what's not given. They should be able to give an explanation as to why this is happening there, without being told why it's happening there.

The comments suggested that the ability to apply insights, draw inferences and explain phenomena were expected from students. A case study was different from a comprehension exercise where information was provided *upfront*, and required a different approach in terms of drawing inferences and reaching conclusions. Inferencing for ENG1 was not limited to text. The lecturer explained that for visual representations

... inferences as well are very important. When the student has taken, observations and they plot it on a graph ... the student should be able to say okay, this survey ... it's raised in a linear manner, therefore this survey must be for a road. It must be for a pipeline or some other linear feature. But if the points are dotted everywhere then the student should hazard a guess ... it's perhaps for a treatment plant or for something like that. So we expect them to do a little more than regurgitate what we do.

The practical nature of the subject included on-site observations where students had to interpret tasks to be completed and understand terminology in context. According to the lecturer, students were required to draw inferences from one aspect of what was being observed to another, to apply what was read and observed, to translate the data to a graph, and to reason what item the data could represent. Although these processes described a practical task, it nevertheless required reading, writing, reasoning and interpretation, drawing inferences and conclusions and using terminology to access and demonstrate knowledge. It should be noted that while the genre and mode of reading, writing and interpretation might be visually oriented and be different from textual analysis, the application of test specifications was very similar. Students would need to be able to read and understand drawings and graphs in relation to accompanying text, values and measurements, extract the salient information relevant to the task, and analyse all the data at hand to draw inferences and conclusions about the subject example represented.

4.4.2.2 Reading practices for ENG1 as reflected in assessments

Three term tests were analysed as submitted by the lecturer to form part of this analysis.

[Refer to Appendix G for an exemplar of an assessment for ENG1.]

The test questions for the three term tests required similar reading practices in order to analyse and provide suitable responses. The questions for all term tests included:

- Straightforward knowledge-type questions, such as, *What is ... ?* or *Differentiate between ... and ... ;*
- Scenario-type questions that sketched a context and provided measurements and distances from which students had to extract data to write a response or complete calculations.

Each test question included jargon. The ability to understand the test questions, therefore, depended largely on prior knowledge of terms and how they were used in context. If students understood the assessment terminology such as 'discuss' or 'differentiate', and the subject terminology, the straightforward questions would not have required analysis. These questions could well be interpreted literally. The scenario-type questions required analysis of and understanding of the context and setting sketched, which would have incorporated visual interpretations to gain insight into what the scenario was about. A typical scenario-type question included the example given below:

The City of Cape Town intends to lay a stormwater pipe between stake values 00 and 120. The natural ground levels have been determined at intervals of 20m and are given in Table 1. The pipe is to be laid at a falling gradient of 1:500 from SV00. Given that the invert level of the pipe is 50:20m, the formation width is 2.5m and the side slopes are 1:1 ...

This example quoted provides insight into the importance that terminology played in accessing understanding of text. The order and sequencing of information was important in terms of creating an image of the setting as well as introducing the different values and measurements incrementally. Analysing such a case would have required attention to detail in terms of understanding the ratios and numbers by themselves firstly, and secondly, in relation to the details given in the text.

On revisiting reading practices for ENG1 as shared by the lecturer, there seem to be several parallels that may be drawn with the interview data and the reading required for assessments. Extracting the important points and terminology seemed to be dominant in every test question. For example, only the important points pertinent to what was required were provided, but students had to read the scenarios carefully to understand the setting that was sketched in relation to the values and measurements provided.

The relationship between textual and visual literacy were evident in questions such as:

- Use the sketch below to explain ..., and
- With the aid of a sketch, explain why in plane surveying, the earth's curvature is said to be negligible.

Parallels may also be drawn between the prominence of numeracy and numerical equations as noted in the interview as well as the majority of test questions where calculations were required either from data provided or data to be calculated for further analysis and calculations.

4.4.2.3 Writing practices for ENG1 as reflected in interview data

While the focus of standardised tests was on testing the ability to engage in interactive reading techniques to analyse texts with the purpose of accessing information, the productive components of writing were minimal and were limited either to cloze exercises or were non-existent. Although written composition was not included in the standardised tests, it nevertheless formed part of this research as it is argued that the same academic literacy skills and practices for reading would apply to writing. For example, using terminology correctly in a written context is similar to identifying the use of a term correctly in a reading text; understanding the importance of how sentences fit together and support one another, or identifying the genre as appropriate for a particular text are applicable to reading and writing.

When asked about the lecturer's view of what constituted the nexus between reading and writing for ENG1, the response was that writing concise summaries required reading that focused on the main ideas of text. The lecturer explained that students should

... be able to get what's important from whatever they're reading. They should be able to pick out what's important and ... demonstrate that they've captured that which is key ... They must be concise. For me I don't want whole paragraphs of nothing. They must hit the nail on the head.

Writing requirements were noted as the ability to summarise in paragraph format that only contained relevant information pertinent to the task at hand. However, the ability to compose a succinct summary was contingent on applying reading skills appropriately, such as understanding the gist of the text, identifying the main ideas, followed by arranging the main ideas into a logical sequence in written format. In addition to succinct paragraph structure, the lecturer expected *them to use the correct terminology* in writing whether for production of text or visual representations.

The interview data presented an impression of structured, factual, exact and procedural content that students acquired by reading, writing and subject-specific field work and practice. This impression was affirmed by the following excerpt:

They have to show order of events ... It has to flow. There's a specific order. The moment I say I want you to outline the procedure, then I'm saying take me through from A to B to C to D. You cannot get to C before you've done B.

The procedural nature of the subject content warranted a certain measure of coherence and logical flow of information to ensure that the facts were ordered correctly. Students would need to understand the relations between parts of text in terms of how one sentence related to the other in explaining a procedure in logical sequence. The factual nature of the subject where, for example, measurements were taken, tabulated and represented diagrammatically, could only be documented procedurally noting the steps and data in sequence of events. The need for students to write succinctly and to use terminology correctly seemed all the more relevant given the nature of the subject content. The discourse structure of the different literacy modalities could be deemed to be predetermined. However, the importance of presenting procedures correctly resided in content analysis and selecting the correct information in correct order.

In terms of written texts for ENG1, students had to produce a report after each practical. The lecturer expected of students to:

... prepare a report based on that particular practical. What they go out to do? What were the findings? What did they learn? ... they must use the correct terminology. I must be able to know exactly what they were doing, without trying to make sense of what they're saying they were doing ...

Report writing in the ENG1 context was more about inserting factual information about practicals and reflecting on learning. The lecturer indicated that the reports were *already structured ... they work according to a template* and students were required to complete the report by *basically ... [filling] in little sections* of the template. Besides writing summaries, *short sections of explanations* and the *little sections* of writing required for the report, the lecturer stated that students were not required to engage in any other written formats for ENG1. According to the lecturer, no essay writing or research assignments were required, and *none of the introduction, body, [and] conclusion* structure was called for in any productive written task.

The ability to think critically, to reason, select possible options and provide justification for possible options formed part of reading and writing requirements. An example of the ability to reason and provide motivation was given in the following excerpt:

... if I say to them here's the data. I want you to explain why or to justify using that particular technique over the other, given this information. I want them to be able to tell me, look I'm going to take this one, because this one is going to give me a better result ... and give me some reasons, why that is. These are the alternatives.

While a student's response to the above quotation would emanate from a knowledge base, which is not a factor for standardised tests, the point to note here was that students needed to demonstrate the ability to compose a convincing reason or argument for a particular choice of answer by giving pertinent reasons to support the motivation. Coupled with this would be the ability to develop a coherent argument by carefully formulating sentences that would communicate a particular intended stance. The genre used for writing such a document would need to be different from, for example, a factual report. Given the range of textbooks and recommended readings that ENG1 students were required to use, students would have had access to the discourse and genre of the discipline on which to mirror their written composition.

When asked about whether a particular style of writing was associated with ENG1, the lecturer indicated that she had not *really paid any attention to that* but sentence construction, was important in creating understanding, *without consciously going out of one's way* to identify *verbs* and *adjectives*.

The lecturer mentioned that *no metaphors* were used in ENG1 but the assessment data suggested otherwise. The extensive use of data to sketch and vice versa, revealed multiple examples of metaphors in use. Although metaphors were not a significant feature of standardised tests, students should nevertheless be able to establish the difference between literal and metaphorical meanings and their appropriacy in context.

As may be concluded from the interview data thus far, the lecturer noted that:

Numeracy is a big, big deal for us. We want them to be able to work out values, distances, directions and so on, so that they can plot these maps, plot the profiles. They must be able to design. It's based on numeracy. In theory tests we give them the data and we ask them to show that they can do the deductions.

The interview data revealed that understanding the subject content for ENG1 and translating text to visual representation were heavily reliant on the ability to manipulate numbers. The ability to calculate values and distances was entrenched in this subject in terms of succeeding in fieldwork. Basic numeracy skills were tested in standardised tests, given that many academic texts had graphs, tables or charts with numbers and equations that needed to be interpreted to fully understand the accompanying text. The subject nature of ENG1 revealed a strong tendency towards the use of numeracy and that there could well be a relationship between the numeracy requirements for a standardised test when compared with those of ENG1.

4.4.2.4 Writing practices for ENG1 as reflected in assessments

When a question on assessments was posed to the lecturer for ENG1, she noted that:

I don't ask questions that require a student to basically just recall. I normally ask them for explanations. I'll give them sketches to explain. and then there's the tabulated data that they would ordinarily collect in the field themselves ... in the tests – theory tests we give them the data and we ask them to show that they can do the deductions.

This quotation aptly summarised the three term tests in terms of writing requirements. Students were either required to provide explanations, draw their answers, tabulate data or complete calculations. Questions such as

- With the aid of a sketch explain why ...
- Briefly outline how you would ...

required explanations using full sentences with attention to detail of information provided. The sequencing of details in the explanations was in a specific order so that the reader could relate to the flow of events or understand the numeral details in sequence. Language use had a particular style given the factual nature of the details that needed to be provided.

A test memorandum revealed the need for the following specifications that compared favourably with what would be assessed in a standardised test, such as identifying the genre and style of writing (in this case factual and informative); the importance of knowing and using terminology correctly; constructing full sentences; and the logical ordering of facts to develop a comprehensible explanation. The explanations were usually accompanied by sketches. All test questions required the ability to interpret numerals, equations and values and use them in written responses, calculations and sketches. Certain questions consisted of tables with data provided, which had to be manipulated according to instructions.

4.4.2.5 Summary: ENG1

When comparing the interview data to the writing required for assessments, there seemed to be alignment between the lecturer's view of writing requirements for ENG1 and the writing requirements for assessments. The specifications and discussion on writing requirements may be summarised as follows:

- *There's a specific order* of information sharing based on procedures to be followed.
- Written tasks should incorporate *well thought-out* explanations, justifications.
- Correct sentence construction is important in so far as the purpose is to communicate a message effectively.
- The terminology was complex and determined the success of accessing, sharing and creating meaning.
- The subject was about visualising theory by being able to sketch and illustrate text.
- Numeracy was *a big deal* for ENG1.

The analysis of assessments mirrored all of the above specifications with the most significant being the use of numeracy and calculations in understanding questions and composing responses. Written responses were limited to explanations, some brief, some in longer paragraph format, which were always accompanied by sketches indicating values and measurements. The lecturer's comment that analysing and using metaphors were not applicable to ENG1 could well be documented as such when the distinctly factual nature of the written responses as text was considered. However, the emphasis on the visual representations from data to sketch, for example, provided another perspective on metaphorical representation. It has to be conceded that metaphorical representation is entrenched in this particular subject. The data showed that there seemed to be a noteworthy overlap between the lecturer's view of reading and writing practices for her subject and the application of reading and writing practices for assessments.

4.4.3 An analysis of interview data and assessments for subject ENG2

This subject formed part of all engineering diploma programmes at this site of study. The focus of this subject was on developing an understanding of written communication and communication theory for the profession, and improving reading, writing and presentation skills for both academic and professional purposes.

4.4.3.1. Reading practices for ENG2 as reflected in interview data

The explanation of 'academic literacy' as noted by the ENG2 lecturer, reflected a perspective of the ability to write *for*, and *in*, the engineering field of study. An example of writing *for* engineering would be the ability to write a technical report (which is a requirement for all engineering diplomas), while the academic assignment represented an example of writing *in* the field of study. The lecturer expressed his view of 'academic literacy' as:

It's helping the students to gather information, helping them to process that information, to analyse it, to synthesise and evaluate that information ... they must be looking for solutions to particular problems.

This explanation of academic literacy reflects a summation of the generic processes followed when preparing for an academic assignment. The lecturer alluded to the ability to critically appraise sources of information, by gathering, processing, analysing and evaluating the information. While the first sentence of the quotation above might appear to be simple and straightforward, the embedded reading skills and practices would be multiple. For example, the ability to *gather information* by finding relevant sources to answer an assignment question would necessitate various reading skills such as scanning and skimming to determine the suitability of text content before engaging in intensive reading skills to reach the analysis and evaluation processes. The reference to *the ability to draw conclusions from that information* suggested the need for close reading to: (1) understand vocabulary in context; (2) extract the main ideas; (3) understand the relationship between sentences and paragraphs to determine the flow of information; (4) identify the text genre (for example, style, purpose, statements or opinions) and how the text genre influenced the meaning of content, and finally; (5) to draw conclusions about what the author intended and the reader's response to those intentions. These specifications would form the core of engaging with texts for reading which would be representative of a standardised test.

While the lecturer's comments projected a study-skills model, on closer analysis they were loaded statements with many embedded academic literacy specifications. The lecturer mentioned the need to find solutions to problems, which added another dimension of drawing on subject knowledge to find solutions to text-based and real-time problems. This practice of drawing conclusions to solve problems was the subject of the investigative report (an assignment), as detailed below:

And that is why they do investigative projects where they have to go out there, see what the project is all about, they have to interview role players ... then do library research or an electronic search, so we have to teach them to how to go about gathering information. In other words ... summarising and synthesising, seeing what

information is relevant, irrelevant, what can be used, so they need to analyse again, synthesise, put it together and evaluate that information. And by evaluating that information, ... they need to draw relevant conclusions in order to find solutions to the problems that they have been investigating.

In addition to critical appraisal of texts followed by *summarising and synthesising* research sources, students had to visit and analyse project sites, develop interview questions to respond to the report question, analyse the interviews, extract the salient points from the dialogues and draw an analysis from the limited survey that was conducted for the investigative report. The genre and presentation of information for interviews would be very different from those of field-related texts, which by implication meant that students had to extract meanings in different ways based on how information was presented. The quotation presents several similarities with specifications of a standardised test, including all the elements of separating essential from non-essential information (refer to Table 3.1) of texts and interviews which are distinctly different genre modes. In writing the report, students would need to synthesise all the sources of information, then analyse the findings in order to draw conclusions and suggest recommendations.

One of the questions posed to the ENG2 lecturer was what reading practices he expected of students when they were required to engage with text. He responded that:

They must be able to make inferences; he [sic] must have the necessary vocabulary. If he hasn't then he needs to know how to work out the meanings of words, not only words, but concepts in contexts. He needs to know his audience, for whom has this person been writing, what's the purpose of that writing. If he knows the audience and purpose, then he's on his way to understanding the text. He can pick out main ideas ...

The lecturer's comments related directly to the expectations of students for standardised tests, noting several test specifications, for example, the ability to work out meanings of words from context, drawing inferences from information given in various parts of the text, elements of genre (audience, purpose of text) and extracting the main ideas to understand the gist of the text. The references to *must have ...* and *needs to know ...* created a sense of prominence of the academic literacy specifications for reading that students needed to demonstrate. Several reading skills were implicit and would precede the ability *to make inferences*, which were not necessarily mentioned by the lecturer. The ability to access meaning from terminology, analyse the message communicated, extract the main points in the text, and interpret the coherence and sequencing of information was implicit in the reading skills that would precede drawing inferences.

Although lecturers had certain expectations of academic literacy specifications that students should know for higher education, in reality these expectations were often not met. One of these expectations was that students should have a reasonable lexicon to either recognise and interpret vocabulary or work out meanings from context. The lecturer observed the difficulty that students experienced in trying to decipher words from context as a result of their not having the requisite lexical knowledge base. His observation was that:

... discourse is all about [disciplinary] terms, a lot of it is about plain English language. Knowing the [disciplinary] terms is not sufficient and so they can't engage with that text properly, so it becomes difficult.

The lecturer acknowledged the important role that vocabulary and subject terminology played in analysing reading texts, creating meaning and accessing understanding.

A mutually beneficial relationship was noted between reading and writing. If students were:

... able to write well, then you can read well because when you are writing and you have these sorts of elements that must be found in your introductory paragraph, when you're reading, you start reading and looking for those sorts of things ... this is the topic, this is how it's contextualised, so what is the writer's preview, what is the thesis statement ... you start looking for topic sentences, you start looking for main ideas, you discover that all these other things are simply there to support the main idea. Once you've picked out your topic sentences, you have your summary.

In this excerpt the lecturer explained what could be considered intensive reading practices, such as discourse analysis within and between paragraphs, how the message was 'contextualised' from the author's perspective and finding the main ideas to form a summary of the text. The lecturer presented clear ideas of the procedures and processes to be followed for reading and writing, which he considered to be very similar, such that practices were closely mirrored from one modality to the other. This could account for the claim that if students *write well* they would also *read well*. A skills-based approach seems evident where the emphasis is in finding the main ideas and identifying text structure with no reference made as to how text structure contributes to creating meaning and cohesion of text. A fine-grained analysis of text did not form part of the lecturers discourse. The suggestion that a summary may be quantified in terms of main ideas reveals a basic, functional approach to language engagement. Textual analysis for ENG2 consisted of identifying surface features of discourse without encouraging a deeper focus of, for example, dialoguing with the author.

4.4.3.2 Reading practices for ENG2 as reflected in assessments

Three summative assessments for this semester subject were reviewed. Two assessments were term tests and the other was an assignment. [Refer to Appendix F for an exemplar of an assessment for ENG2.] The term tests all had the same types of questions: a comprehension, an essay and a question on subject theory. The assignment was an investigative report where students had to develop a questionnaire, conduct a survey and write a report on the findings, draw conclusions and make recommendations.

Reading requirements for assessments focused mainly on the full-page article comprehension text and reading for the investigative report. The comprehension questions were simple recall questions, with both the comprehension text and questions not requiring in-depth analysis. Typical test questions for the comprehension included questions such as:

- Which four factors according to the passage have led to congestion on our roads?
- In one sentence state what this article is about.
- Give the meanings of the following quotations within the context of the passage.

It seemed as if the ability to engage with text to understand the gist of the text and access meaning was adequate to answer the comprehension questions. Other than the comprehension, , certain questions related to metaphors and the figurative meanings of phrases and sentences within context.

4.4.3.3 Writing practices for ENG2 as reflected in interview data

Common practice for most engineering diplomas was report writing. The ENG2 lecturer explained that students:

... need to write reports, and so they need to know the tone, the kind of language use, and there are different kinds of reports. There are short reports, memo reports, investigative reports ... the name of the game there is the ABC of writing: Accuracy, Brevity and Clarity. When they go out to work one day, they will be required to write reports.

While the focus for ENG2 was on one particular type of report, the investigative report, students were made aware that different reports were used for different purposes. The investigative report as compiled for ENG2 consisted of five prescribed sections, including the introduction, procedure, findings, conclusions, and recommendations. The interview and assessment data suggested that report writing for ENG2 assumed a comprehensive application of writing skills and practices such as using terminology correctly in context, extrapolation and inferencing as described in the test

specifications, selecting only relevant data, and using the appropriate writing genre in order to compile the report.

The integration of reading, writing and assessment across different subjects was explained as follows:

... when they're doing ENG3 ... in those experiments that they are doing, they must argue, for instance, they're testing the strength of certain cement. So it's ... not just making claims, but producing evidence for those claims. So when they're writing, they can never give an opinion without giving reasons and evidence for that opinion.

The point reinforced in this quotation was the need for students to be able to present an argument based on facts. Implicit in this seemingly commonplace statement resides a host of reading and writing specifications. For example, an evidence-based claim would be preceded by: (1) reading, understanding and analysing details in a text, (2) drawing conclusions, and (3) articulating the claim by providing supporting opinions and evidence. Considering that there is no writing component in a standardised test, the data for ENG2 suggest that the application of test specifications seemed equally relevant in analysing or producing text. These are all skills and practices that are relevant to both extracting information and producing information, reading and writing respectively.

The kinds of academic literacy competences that students of ENG2 should be able to demonstrate for writing purposes were explained by the lecturer:

They must know the appropriate language to use, whether that report is a formal or informal one, whether they can use a personal or impersonal tone. We relate everything to [the field of study]. I give them a big research theme ... then I will give an essay to write, either an expository one or an argumentative essay.

The references to register, tone and argumentation were repetitions of previous comments for ENG2, signifying their importance for composing different kinds of written text. The different written pieces required different literacies given the genre shifts from the factual report to an expository or argumentative essay. For paragraph writing:

... there must be an introductory paragraph, there must be a body of content, there must be a conclusion, ... the introduction needs to relate to the conclusion ... for coherence the content in the body of the essay must relate to the thesis statement or the preview that they've given in the introduction. There must be topic sentences with supporting sentences, how do they give support, etc.; they give examples and illustrations, that sort of thing.

The description above showed a close link with the lecturer's description of the structure of an essay, that is, from introduction to conclusion. While the structure of essay writing seemed overt, many implied academic literacy specifications as required for a standardised test were incorporated in composing a coherent, meaningful essay. For example, the ability to:

- use vocabulary in context;
- construct meaningful sentences using correct grammar and syntax;
- demonstrate coherence within and between paragraphs by using appropriate discourse indicators;
- show the development of thought patterns and ideas present in each paragraph;
- compose a paragraph with a *topic sentence with supporting sentences* of different kinds; and
- use genre appropriately, whether it be *argumentative* or *expository*.

There seemed to be an emphasis on specifications for textual analysis and composition in line with the knowledge base of ENG2, that is, to develop reading and writing skills specific to the field of study. The lecturer seemed to be more pedantic about the requirements for reading and writing, and explained the ability to successfully compose texts within the context of text structure and coherence.

4.4.3.4 Writing practices for ENG2 as reflected in assessments

The writing requirements for assessments seemed to be more demanding than the reading requirements, with the essays being allocated the highest mark of all the test questions. The essays were based on the comprehension text and required students to adopt a stance and present their opinions.

The writing components for ENG2 assessments presented more opportunities to apply the test specifications of a standardised test than the reading components. In addition to using vocabulary appropriately in context, and developing sentences and paragraphs to conform to correct grammar and coherence, students were also required to structure an argument and present their perspectives. As indicated in the interview data, there seemed to be a considerable emphasis on textual structure and genre, on the ability to develop an argument and provide reasons to justify claims made in an argument.

While most of the report was factual, it required the ability to draw conclusions and inferences, and extrapolate information from the findings and the conclusions to propose recommendations

For the report the data were more factual and objective and had to be presented as such, while the essay allowed leeway for providing an opinion and foregrounding personal perceptions.

The analysis for ENG1 and ENG2 revealed several similarities and differences to requirements for reading and writing. The reasons for the differences in the lecturers' perceptions and requirements could be attributed largely to the nature of the subject content and the types of knowledge structures that constituted each subject. The subject content and knowledge base for ENG1 were more practice oriented than text dominant, while ENG2 was more text dominant and focused on textual analysis and writing skills.

4.4.3.5 Summary: ENG2

The academic literacy practices for ENG2 subscribed to the skills-based and academic socialisation models that focused on the surface features and structure of texts for reading and writing with a particular vocational bias. With ENG2 having a language focus, the academic literacy practices closely resembled the specifications of a standardised test in terms of discourse analysis and how language conveys meaning and nuances of tone, style and register. The interview data seemed to be aligned with the summative assessments with particular reference to the writing requirements for the research essay and the report. An assessment rubric clearly outlined the expectations of content, grammar and syntax as well as style and tone. One could infer that an objective of the lecturer was for students to develop an understanding to transact with text in such a way that they would be able to provide critique based on an own opinion, to debate and present an informed argument with plausible reasons as motivation. ENG2, according to the lecturer, did not require an ability to analyse visual literacy and numeracy in relation to text.

4.4.4 Comparison of reading and writing practices: ENG1 and ENG2

When comparing the academic literacy requirements for ENG1 and ENG2 with the specifications for a standardised test, ENG2 was more closely aligned to the kinds of specifications and how they were tested by virtue of its text-dominated bias. ENG1, being more practically oriented, with practicals, observations and experiments as content representations, meant that different applications of literacy skills were required. It could be argued that specifications of a standardised test would be equally applicable to ENG1 but in different forms and different contexts. The different genre modes evident in ENG1 would be the distinguishing feature for the application of relevant literacies in which the analysis of vocabulary, discourse structure, genre representation and metaphor, amongst others, would be applicable. The ability to support conclusions and claims

with valid reasons from data and text was common to both subjects. Although both subjects were reading intensive, the distinguishing feature of ENG1 was its plurality of literacies. Drawing conclusions from observations, then recording the conclusions in written format, require distinctly different literacy skills from text-dominant language functions.

While it could be argued that most academic literacy specifications of a standardised test might be applicable to both subjects in varying degrees, the content representations and genres were different given the different subjects of study (i.e. disciplinary literacies), the different approaches to accessing and articulating information and the different requirements of how academic literacy was manifested within each subject. Similarly to ED1 and ED2, ENG1 and ENG2 revealed differing literacies and literacy practices prevalent in different subjects in the same year of study. Of import for this study is whether firstly, standardised tests are too generic to accommodate the differences in literacies and literacy practices, and secondly, whether lecturers are cognisant that different literacy demands are made on students from one subject to another.

4.5 HEALTH AND WELLNESS SCIENCES: Subjects HWS1 and HWS2

4.5.1 An overview of HWS1 and HWS2

The two subjects selected as case studies for this diploma, HWS1 and HWS2, were major subjects, that is, these subjects were taken from the first year to the final third year of study. Given that progressive and successive knowledge building would be required for vertical alignment of subject knowledge, it could be argued that similar academic literacy specifications would be applicable for these subjects across the three years of study. However, the focus of this study was on the academic literacy requirements for these subjects at first-year level and the extent to which these requirements aligned with the specifications of a standardised test of academic literacy.

This diploma had a substantial workplace-based learning component sandwiched between theory-based classroom sessions. As such, the emphasis on applied competence within the profession was evident in the implementation of the curriculum, where each subject was taught with an application of knowledge bias. This practical focus had implications for the kinds of reading and writing practices outlined by the lecturers below.

4.5.2 An analysis of interview data and assessments: subject HWS1

As one of the opening interview question, the lecturer for HWS1 was asked about her understanding of the term 'academic literacy' that was explained as follows:

It's difficult to understand and to conceptualize. For me it means being able to find information, make meaning of that information and report on that information. Giving your understanding, reflecting your understanding in whichever way of communication.

This comment revealed an understanding that academic literacy was about using specific skills to access information, to access meaning from that information and to articulate an own understanding of that information. Very broadly, these three actions seemed to have captured the essence of studying at tertiary level.

The several references to *understanding* and what it meant was explained as follows:

They must be able to read the text, and indicate to me by means of writing, by doing calculations, any form of showing their understanding of that specific text . Understanding in terms of 'I know what [this artefact] is, I can define [this artefact], I can give examples of where to use [this artefact].

By implication, students should be able to apply reading skills and practices to understand text and then translate that understanding into a tangible format, such as written texts, tables or illustrations. Information accessed from texts, for the lecturer, was about knowing, defining and relating that information to broader contexts beyond the reading text. Both quotations above reflect the purpose of standardised testing: to determine whether students would be able to read in order to access information. However, the questions of a standardised test were designed specifically to reveal whether students had the ability to engage with text in specific ways to access information. For example, questions might be asked about the main idea of a paragraph or text, relating anaphoric references to their signifiers or the significance of discourse markers in context.

4.5.2.1 Reading practices for HWS1 as reflected in interview data

The lecturer for HWS1 seemed to have a comprehensive notion of the reading practices that students should engage with for this subject, ranging from the ability to appraise texts critically for specific tasks to analysing vocabulary in context and extracting the main points of a text. The lecturer's description of reading skills and practices was given as follows:

They should be able to find relevant information to the subject area, they should be able to identify the relevance of that information, whether it is a trustworthy source. They should be able to read through that information and be able to understand from that reading and take out the important bits ... and then be able to write about it, in a test or essay, to show how they interpret and understand that specific concept.

Various levels of reading skills would be embedded in finding relevant texts, such as scanning, skimming, and extracting the main ideas to determine *the relevance of that information*. Critical appraisal of texts would include differentiating between text genres and sources of information, language use, tone and style of writing and whether the information is opinion or fact. The expectation of the lecturer was that students should be able to discern between appropriate, relevant and trustworthy sources of information by applying the requisite reading skills and practices to appraise texts critically. Although critical appraisal of texts was not a standardised test specification, the application of reading skills was equally applicable to accessing understanding of texts.

In exploring reading requirements for HWS1, the lecturer was asked to describe the kinds of reading processes with which students should engage to enable them to access meaning from texts. The response below suggested a procedural approach to discourse analysis by analysing the structure, establishing meanings of vocabulary and *unpacking paragraph[s]* to derive ~~the~~ meaning. The lecturer's interpretation of how students should apply reading skills to access meaning was to:

... unpack and pull the article apart ... they start with the first paragraph; they must know that this paragraph introduces this article and ... look out for introductory words. Underline words that are new to them and that they don't understand and to go and find out. I would assume by unpacking the paragraph individually and writing key words and key phrases, they would then make meaning out of the whole article. And also summarise that article in order to present their understanding.

The lecturer's interpretation centred on understanding vocabulary to access meaning, extracting key words and phrases from each paragraph and summarising an article. The interface between reading and writing seemed to be the summary. However, the importance of academic literacy seemed to reside in the structured skills approach of analysing text from word to paragraph level in a mechanistic way. The underpinning notion, as with ENG2 is that students must 'look for', 'find' and *unpack* as if language and the meanings may be atomised into discrete sections. As seemed to be common practice with most subjects, the summary was the application and end-product of reading and analysis.

Although the question was aimed at analysing text structure for reading purposes, the response was about structuring texts for writing purposes. 'Structure' for the lecturer seemed to be equated with evidence of order and coherence of thought but was not explicated as such.

The importance of identifying sentence structure in reading was noted as follows:

... everybody can read, but the ability to read and identify certain words or word groups in that sentence and using those word groups to formulate an understanding and make meaning of what they read ... if a student does not understand how it fits into the whole paragraph structure, they're not going to understand what they're reading

The lecturer suggests that reading engagement should be more than what appears at face value. The comment explains discourse analysis at sentence and paragraph levels and the interdependence of how sentence structure creates and advances understanding of the paragraph as a whole. Texts should be analysed and understood in its totality. By implication, the individual components (words, phrases and clauses) should be analysed within the context of the complete text.

4.5.2.2 Reading practices for HWS1 as reflected in assessments

The assessments for HWS1 included three summative term tests and two assignments. The term tests consisted of MCQs and short questions requiring written responses or diagrammatic representations. The assignments included a combination of visual representations and essay writing. [Refer to Appendix H for an exemplar of an assessment for HWS1.]

Reading for assessments focused on analysing test questions and analysing the responses for the MCQs. While some MCQs tested knowledge mainly, other questions required a detailed analysis of the question in order to select an answer from multiple sentences. The following example of an MCQ illustrated the multi-step procedures to arrive at an answer:

When an electron is raised from an inner 'K' shell to an outer 'M' shell:

- A ionisation occurs
- B an isotope is formed
- C excitation occurs
- D a positive ion is formed

The stem of this question required prior knowledge to analyse and understand, and the distractors would only make sense if the terms were known by the student. This question illustrated that reading and analysing MCQs could be more demanding than testing recall at a basic level. Standardised tests of academic literacy consist of similar-type questions that test the reasoning abilities of students to select the correct answer from plausible options across a range of difficulty levels, from testing basic reasoning skills to reflection-type questions. The short questions for HWS1

ranged from simple sentences to very brief scenarios to set a simple context such as the examples given below:

An object with a height of 30mm is placed 70mm from a biconcave lens. The focal length of the lens is 35mm. Determine the magnification formula.

and

A circuit contains two resistors connected in parallel to each other. The circuit includes a 1.5V battery.

- Draw and label this circuit, include the direction of the current flow.
- Calculate the total resistance of the circuit.
- Calculate the current flowing through each resistor as well as the total current drawn from the battery.

These examples of test questions showed the kinds of reading demands required for analysing and understanding questions. The answers might well be brief but understanding the questions required knowledge of terminology, analysing sentence structure, selecting particular bits of information (words, numbers, graphics) and gaining an understanding of what the question actually required. These examples illustrate the typical procedural-type questions where the answers can only be arrived at by following specific reading procedures for the stem as well as the distractors. Visual and numerical literacy were also tested where illustrations had to be analysed using the formulae provided. The questions may have been short but the reading processes were intensive, given the use of subject and field terminology that was unique to the health and wellness sciences field of study. The essays required more detailed, structured reading processes to find appropriate information for assignment-writing purposes.

4.5.2.3 Writing practices for HWS1 as reflected in interview data

The lecturer drew an association between reading and writing by suggesting that the written product should reflect the student's interpretation and understanding of what was read or learned in the text. The explanation of text structure in the analysis above was relayed to writing as follows:

They won't be able to make meaning if they don't know the structure of the words, whether it's structure of words or sentence structure in a paragraph ... I see academic writing ... [as] the ability to arrange my words in a cohesive sentence, making up a cohesive paragraph.

The common denominator for extracting meaning and academic writing according to the lecturer seemed to be the use of correct word order and correct sentence structure. While these references related to structure in producing written texts which do not fall within the ambit of the standardised test domain with its focus on textual analysis, an argument could be made that the

lecturer's expectations of academic writing for students reflected several test specifications. For example, writing *cohesive sentences, making up a cohesive paragraph* would necessitate:

- composing sentences using correct syntax, grammar and genre;
- using appropriate cohesive devices within and between paragraphs;
- using relational elements to link ideas in a logical order;
- arranging different types of sentences in logical order to present a paragraph (such as the position of the topic sentence in relation to the supporting ideas); and
- using appropriate transitions between paragraphs to ensure coherence in texts.

These elements of establishing coherence all represent standardised test specifications in one way or another.

The lecturer considered textual coherence to be supported by:

The introduction, how they introduce the topic, the body with sub-headings and the sub-headings relating back to task that was given, then some examples to show their understandings, whether it's as appendices or diagrams, and also the conclusion where they indicate, 'This is where I am now ... this is what I am not so clear about.'

This excerpt focused on the relational elements of text, using appropriate introductory and concluding sentences to link paragraphs, providing examples by means of illustration both textual and visual, and ensuring that the concluding paragraph incorporated a summation of the content with a personal stance included. The lecturer compared textual coherence to planning a paragraph. The expectation was that students should commence the paragraph with a topic sentence or the main idea, provide supporting information, conclude the paragraph with a closing sentence and provide a link to the ideas presented in the next paragraph. This *flow of information* as expected of students, was that:

They must introduce me to the topic that they will discuss in the paragraph, then points about that specific topic and then draw the whole topic to a close, but then also leading me to the next paragraph. So it's that whole flow of information.

In summary, it seemed as if the lecturer for HWS1 placed emphasis on the ability to structure sentences, paragraphs and essays given her view that structure contributed to creating meaning and understanding as well as demonstrating the ability to write *in an academic way*. The lecturer's detailed interpretation of structure provided insight into the importance attached to how coherence was developed for academic texts. This aligned with features of a standardised test such as extracting main ideas, understanding anaphoric references, identifying transitions between

paragraphs and identifying relations between parts of text. Implicit in any written composition would be the use of grammar, spelling and syntax.

Regarding the test specification of genre in terms of argumentation or presenting a motivation, the lecturer was of the opinion that:

... because they are first years, I just want to know that they know the topic, so it's more giving information. So I've never explored arguing a point. I think it's because I think of them as first-year students where I need to give them the information, lay the foundation and give them the building blocks and not expecting them to come in and be able to argue a point.

The focus on building a conceptual knowledge base was more important than developing an argument or explaining a motivation. The lecturer suggested that a possible reason for drawing inferences not being common practice could be that *students don't know how to make inferences or they don't know when to make inferences*. The ability to use vocabulary and terms particular to this field of practice, on the other hand, was considered a *very important* skill for HWS1. The lecturer alluded to three different genres of terms for one concept used in three different contexts: *jargon in the department ... in class I teach them the technical terminology ... when they talk to the patient it's layman's terms*. The implication of using three different terms in three different contexts for one concept was that *it's three different words having one meaning*. A further implication as explained by the lecturer was that each term was unique to its context and was not considered appropriate to other contexts.

The similarity of terms in context for HWS1 and vocabulary items in a standardised test was whether students could establish word meanings from the contexts in which they were used. For HWS1, the lecturer explained that students *would need to know the terms of the discourse* as they were subject specific and did not form part of any layman's colloquial vocabulary. However, knowing the terms and their meanings was one part of vocabulary requirements for HWS1; the other part was noted as the ability *to use the terms in the right context*. The lecturer claimed that *most of the information is factual, it's either right or wrong*. Subject terminology had to be learned and known in order to *use the terminology accurately* and students were required to *know the definition of each of term and how those terms applied to specific subject artefacts*.

The ability to interpret visual representations such as graphs and especially images, was *very important*. The images were subject-specific and required specific literacy applications to understand what the image presented. Images had to be analysed and understood within the

context of related numeracy and disciplinary terminology. With reference to the analysis of images, students were expected to draw on their knowledge of subject theory to interpret the images. In addition to images, students could, for example, be asked to *draw a graph ... be able to read from a graph and write words about what is going on in that graph*. HWS1 represented the plurality of different literacies where analysis and understanding of one type of literacy was inter-dependent on others. For example, analysing a graph might draw on information from images or tables, all of which might need to be translated into text. These applications of visual literacy skills to analyse images, graphs and tables within the context of relational texts represent much more than what would be required for a standardised test.

Where subjects are visually dominant, visual representations represent much more than supplemental understanding of text. Visual representations each have their specific purposes that best display data, explain and/or describe phenomena or processes. For example, tables, graphs, pie charts, diagrams or illustrations each has a specific purpose and requires specific analytic and disciplinary literacies to develop understanding. Visual representations generally do not feature independently but are relational to other literacies and/or to text and require an understanding of the kinds of genre shifts salient to the different forms of visual literacy, text and numeracy.

When asked about whether students needed to have numerical skills for HWS1, the lecturer replied that

It's the basis of the subject – they need numerical skills, because they need to work out deciles and the exposure factor ... they need to use fractions and percentages.

The numeracy skills referred to by the lecturer referred to the kinds of skills required of students for a standardised test: calculating percentages, fractions and chronological sequencing of numbers. Numerical literacy for HWS1 was applied within the context of the subject with specific formulae and ratios, whereas a standardised test assessed general literacy skills.

4.5.2.4 Writing practices for HWS1 as reflected in assessments

Writing requirements for assessments ranged from short descriptions, explanations or definitions to essays, drawings and labelling of diagrams. The similarities of writing for assessments and the interview data included the importance of knowing and using terminology correctly in context, the ability to construct sentences and paragraphs to portray intended meanings, establishing coherence using cohesive devices within and between paragraphs and applying the conventional essay structure of introduction, body and conclusion. These features of academic literacy

foregrounded in the interview data were reflected in the assessment questions. Although the lecturer emphasised the importance of structure and coherence for essays and assignments, this did not seem to attract any significance in application. If assessments were to represent the kinds of academic literacy skills and practices that were privileged and had legitimacy for HWS1, then structure and coherence would not be included.

4.5.6 Summary: HWS1

Certain aspects of the interview data did not seem to align with the assessment data – academic literacy requirements that were articulated in detail during the interview, were limited in assessments, particularly for the writing component. This subject, like ENG1 and ED2 included multi-literacies, with an added dimension of evaluating actual artefacts as used in practice. In drawing conclusions from the interview data, an assumption could be made that although the lecturer was cognisant of the kinds of academic literacy practices that should characterise HWS1, the focus was more on transfer of information and building a conceptual knowledge base. As such, academic literacy practices seemed to remain at the skills level. However, by virtue of the intense focus on practice, academic socialisation was evident to immerse students in the discourse of the discipline.

4.5.3 An analysis of interview data and assessments: Subject HWS2

HWS2 was a theory subject that complemented a practical subject. As one of the introductory questions, the HWS2 lecturer was asked to outline the academic literacy specifications that students would need for this subject. Central to her response was the importance of terminology:

... we have a certain language that we speak in [field of study]. I introduce them to the words ... I give them the root of the word and then they will have to go to a textbook to look up different kinds of words pertaining, to say, the root.

Terminology was considered to *very important because only* [professionals in the field] *use a certain kind of terminology*. This implied that terms had to be learned and that working out meanings from context might be problematic, especially on entering at first-year level. This application of terminology did not align with a standardised test where students were not required to know disciplinary terms but were tested on known vocabulary or the ability to deduce meanings of words from the context in which they were used. The reference to this field of study's having *a certain language* seemed loaded with meaning since 'language' incorporates the use of terminology, language use, genre, style, tone, discourse structure and disciplinary literacy in extracting and

articulating information. An example of this *certain language* for the field of study was explained in the following extract:

I suppose it's jargon hey, we use a [field] tube. Outside you can say, 'Oh I will turn the tube up', but as a [professional] you should say, 'I will angle the tube cordially or covalently.'

A particular register, tone, style and jargon were required, such as using the third person when communicating and colloquial language use was not acceptable for HWS2. The supposition presented here was that genre-related specifications of a text underpinned the intended meaning conveyed by the author.

4.5.3.1 Reading practices for HWS2 as reflected in interview data

Students were required to use the prescribed textbook; no core notes were given but worksheets were common practice. The lecturer expected of students to *first read and tell me then what they understand about it*. A further comment of, *I think that's probably all ... I haven't been here long*, suggested that the lecturer was not familiar with academic literacy practices that would elicit meanings and understanding from text. With subsequent question prompts on how to elicit meaning from analysing text structure, the lecturer conceded that:

I do look at structure because we give them a case report. When we do an introduction ... what is an introduction? See that you have all of these things in your introduction. That's basically all.

The data suggest that the lecturer seemed unable to expound on how text structure contributed to creating meaning in text, such as focusing on the communicative functions of sentences, identifying coherence in text or analysing and understanding relations between parts of text. However, the inability of the lecturer to articulate academic literacy specifications for analysing texts for reading did not necessarily imply that these specifications were not required for the subject. What this did imply was that textual composition for academic purposes, i.e. developing and constructing meaning in the form of an essay was not required. Similarly, content seemed more important than the textual structure. If, as the lecturer stated, students were required to use their textbooks as the primary source of information, they would have been required to apply the following test specifications, amongst others:

- Understand the vocabulary used.
- Extract main ideas from paragraphs to determine the gist of a section or chapter.

- Develop an understanding of how the information was presented in terms of relations between paragraphs and sections in a chapter.
- Relate text to illustrations.
- Understand the genre in use.

It should be noted that the above points for reading are implied given the reading resources but were not made overt by the lecturer. While the lecturer might not have been able to articulate a detailed strategy for analysing a text for reading, the implied reading skills and practices for the subject would be similar to that of a standardised test. One of the reading strategies mentioned was that of knowing the appropriate use of terms in context. The lecturer explained that:

We don't use 'bend', we use 'flex'; we use 'extend', we don't use 'straighten'. So if you don't know the meaning of the words you won't be able to apply it.

This example illustrates three points in particular:

- How synonyms may not necessarily be used interchangeably.
- That colloquial terms could be subject specific.
- That students should determine the correct use of terms in context.

Reading, interpretation and analysis were extended from texts to artefacts. The lecturer explained that the ability to analyse visual artefacts was a necessary requirement for the subject and the profession:

... they have to find [artefacts]. So to me that is visual, then they have to look at it and see, 'Oh but this isn't normal.' A [professional] cannot function without knowing what [this artefact] is supposed to look like.

The evaluation and analysis of images and artefacts included drawing conclusions as to why they were not acceptable and providing reasons for claims made using the terminology of the field of practice. The multi-literacy perspectives for HWS2 required genre and literacy shifts to analyse images and specifications related to reading and writing.

Although the reading requirements for HWS2 were not explicated in detail by the lecturer, implicit in the comments were embedded multi-literacy skills and practices that were not necessarily articulated overtly. This reticence to explain academic literacy requirements for HWS2 could be attributed to the lecturer's insecurity based on her brief tenure (*I haven't been here long*) or the lack of knowledge about academic literacy as a means of accessing knowledge. In addition, the inexperience in teaching this subject might have contributed to the uncertainty to explicate what and how academic literacy should be applied for HWS2 to provide access to meaning and

knowledge acquisition. Irrespective of the reasons advanced for the brief explanations, the point to be made was that certain test specifications were overt while others were implicit in reading for this subject.

4.5.3.2 Reading practices for HWS2 as reflected in assessments

Three term tests and two practical summative assessments were evaluated. [Refer to Appendix I for an exemplar of an assessment for HWS2.] The practical assessments included reporting on activities using templates requiring specific details that were given. The tasks for the practical assessments were procedural and the limited responses were completed on prescribed forms and templates. As such, reading practices for the practical assessments focused on analysing images and writing consisted of filling in bits of information on forms and templates. Given the dissonance with the kinds of reading and writing required for standardised tests and the practical assessments for this subject, these assessments were not factored into the analysis of reading and writing requirements for assessments, except the reference to visual literacy.

The reading requirements for assessments seemed minimal, given the types of questions that were asked. Typical test questions for summative term tests included:

- providing definitions for terms;
- matching columns with statements or definitions and accompanying terminology;
- true and false questions with reasons for choice of answer; and
- visual literacy, providing labels for diagrams and analysing subject-specific images.

Examples of verbatim questions taken from test papers included the following:

- State 3 examples of ...
- Explain 3 reasons why ...
- Define the words that are underlined in the scenario below.
- Match the words in Column A to the definitions in Column B.
- State if the following statements are TRUE or FALSE. Give a reason for your answer.

The questions revealed basic reasoning skills and recall of information implying that textual analysis of scenarios and articles was minimal. Evidence of procedural reading or textual scaffolding was limited for texts. The questions were devoid of contexts or basic scenarios and content knowledge was tested with a significant focus on knowing terminology.

When comparing the reading skills and practices for assessments for HWS2 with those of a standardised test of academic literacy, the latter could be considered more cognitively demanding by virtue of the level of textual analysis, all questions were framed within a context, and certain questions required procedural steps and reasoning skills in order to arrive at an answer. The specifications of a standardised test such as extracting the main points, drawing conclusions, extrapolation and inferencing were not applicable to the reading skills and practices required for the assessments of HWS2. The specifications that a standardised test and HWS2 had in common in terms of reading requirements were the need to know and analyse meanings of terms within context, analysing discourse at sentence level, applying the use of metaphor by analysing artefacts and visual representations, and by relating text to visual representation.

When comparing the interview data with the analysis of the test questions there seemed to be congruence with the emphasis on terminology and visual analysis of images. The application of intensive reading skills and textual analysis in the form of case studies or scenarios were non-existent.

4.5.3.3 Writing practices for HWS2 as reflected in interview data

The lecturer's understanding of the objective of academic writing was that students would:

... need to understand, analyse, be able to communicate. I don't know if this is right, but to communicate the language of your profession ... also then to write it out. So, to understand it, analyse it then give it back to me.

This statement could be interpreted as the interviewee's viewing writing as an end product, Academic writing for the lecturer seemed to be equated with using a *formal style* with *no slang* and using a particular word order *like in the third person*, to express ideas.

The lecturer alluded to the importance of constructing sentences concisely and coherently. According to the lecturer, *the paragraphs that they do write in my tests are straight from the books. So they can't even put it in their own words.* This quotation suggests that information from the textbook was factual and procedural and that it needed to be copied verbatim and followed to the letter without any analysis and interpretation required. The reference to *short answers* signalled limited explanations and clarification, merely presenting recall of information.

In terms of writing paragraphs, this is what the lecturer expected of students:

... the same kind of work in one paragraph ... one idea per sentence ... the next paragraph ... must be linked to the paragraph before that. In the instructions, I actually tell them what to do. I give them the headings. I say that's your introduction, that is your first paragraph ... Discuss the age and the sex and family history ... So it's a case report and everything is given to them.

The template-style report where the headings and instructions *actually tell* students *what to do* did not necessarily allow for developing the report based on students' own content and interpretation as the information in each section of the report was prescribed by the lecturer. In terms of developing coherence between paragraphs, the lecturer conceded that she *simplified it by giving them the headings*. Students had to complete a template where prescribed guidelines were given as to the content that should appear under each heading. This highly structured approach of what information should be provided, in which order did not allow for creativity of thought or analysis of data.

The comment that *either you know it or you don't* suggests factual, procedural information that needed to be learned to apply knowledge. Although there is a specific order and coherence of information, the difference between communicating factual, procedural information and developing an academic research essay is that coherence and paragraph development need specific academic literacy skills. Developing relations between paragraphs, developing a thesis statement with supporting information, developing a logical argument so that the writer's opinion is foregrounded and linking the introduction, body and conclusion are absent from factual, productive pieces. While it might be necessary to provide factual information at times, academic literacy for higher education requires a deeper level of language knowledge and engagement.

4.5.3.4 Writing practices for HWS2 as reflected in assessments

Writing seemed to be kept to a minimum of one-word answers or simple sentences for definitions, reasons for TRUE or FALSE answers and brief paragraphs. Although a report was written as an assignment, the specific information required was template-driven and clearly defined by the lecturer. The analysis of assessments showed that there was no need for students to independently plan paragraphs and academic essays that required discourse structure, coherence or attention to the communicative functions of sentences. A question on visual analysis of an artefact was tabulated with no requirement for explanations or motivation. Report writing was limited to filling in details according to specific instructions without the necessity to articulate and develop

responses independently. All information included in the report had to conform to the instructions and headings provided.

The case report consisted of a brief task outline with sub-headings and specific information to be included. The following examples taken from the case report illustrate the guided approach to assessment:

Introduction

- Introduce the topic
- Define the key terms

Person's History

- Age and sex
- Family history
- Medical history

The case report was divided into additional sub-headings and guidelines that also included reporting on the findings and interpretation of the case, drawing conclusions and making possible recommendations. The latter section of the report required reasoning and writing skills to summarise the findings in written format, and report on appropriate conclusions of the findings according to the written conventions of the profession. While writing progressed from sentence to paragraph format, and reasoning developed from facts to drawing conclusions, the lecturer adopted a nurtured, guided approach of *actually* [telling] *them what to do*.

4.5.3.5 Summary: HWS2

HWS2 was both reading and writing intensive, but of a different kind. While students had to present written outputs, they were planned and choreographed by the lecturer as to the kind of information that should feature under specific headings. Written outputs were mainly template driven, probably to entrench conceptual understanding and terminology and promote the kinds of processes to be followed in practice. Since this programme had a workplace-based component *as* from Year 1, professional practice was introduced at the inception of the programme, such as how to write a case report. The multiplicity of literacy engagement for reading and extracting information, that is, textual, drawings, tables, templates, and artefacts would have required different ways of applying academic literacy skills and practices, especially where one genre was contingent on understanding another. The use of terminology, as in ED2 and ENG1, was specific to this field of study, new to first-year students and was a discourse on its own. This could account for the types of assessment questions where knowledge was tested rather than the use of language

(with all its facets) as a vehicle for knowledge representation in whichever format, genre or literacy knowledge is presented.

4.5.4 Comparison of reading and writing practices: HWS1 and HWS2

When comparing the academic literacy requirements for HWS1 and HWS2, a possible conclusion could be drawn that the way in which the lecturers viewed academic literacy played itself out in their subjects and their assessments. For example, the lecturer for HWS1 explicated the importance of sentence and paragraph structure and coherence in influencing meaning and included an essay in two term tests as part of assessments. The lecturer for HWS1 explained academic literacy in terms of vocabulary and knowing the roots of words to support understanding. The reading expectations for subject HWS2 could not be explicated in detail and writing was limited to brief paragraphs and completing templates. The reading and writing requirements for subject HWS1 aligned more closely with the kinds of academic literacy specifications of a standardised test than for HWS2, where academic literacy practices were guided by the lecturer. Although parallels could be drawn between the test specifications and academic literacy practices for both subjects, the application and intensity were very different. The standardised test assessed whether students could apply academic literacy practices by analysing text in a fine-grained way. The focus of language for HWS1 and HWS2, in contrast, was about knowledge acquisition in a surface, skills-based way. This brings into question whether fine-grained textual analysis is appropriate as a specification for any of the subjects of this study if it is not a requirement in practice.

4.5.4 Summary

The reading and writing requirements for first-year diploma subjects across different fields of study have been elucidated and revealed commonalities and differences across the case studies. Reading practices mainly alluded to applying processes and procedures in analysing discourse structure, from headings to conclusions, suggesting a surface, skills approach to access content knowledge. While some lecturers required deeper engagement with text to provide an own opinion, present an argument and substantiation, this was not common to all subjects. An emergent theme was the relationship between the various disciplinary knowledge areas and the literacies applicable to each. This theme is discussed further in the next chapter. Lecturers' conceptions of literacy, and academic literacy in particular, were mirrored in their expectations of reading and writing engagement. For example, where a lecturer noted that visual communication was important, the literacy practices aligned with the interview data; where textual analysis and academic writing were

foregrounded by the lecturer, these featured in assessments. It should be noted, however, that not all interview data aligned with summative assessments. In certain cases, lecturers explicated the kinds of literacy engagement required but the summative assessments presented limited opportunities for such engagement. A possible explanation for this could be the emphasis on entrenching conceptual knowledge that resulted in more questions focusing on definitions, explanations, and labelling important diagrams than developing arguments in written composition. Writing outputs differed across subjects to include research assignments, investigative reports, case reports, an essay based on a dialogue and writing up experiments and observations, each requiring its own style as required for the profession. Academic literacy test specifications were applicable to all outputs but in very different forms, guises and gazes. This analysis of data as explicated in this chapter underscored the notion that literacy is situated and contextual and that there are some forms of literacy process that are generic and transferable, but their manifestation and expression carry additional disciplinary meanings and practices.

The next chapter illuminates the findings of the analysis of the case studies and presents emergent themes for discussion to present a position on how academic literacy practices for standardised tests relate to reading and writing practices in the various subjects.

CHAPTER 5: DISCUSSION

5.1 INTRODUCTION

This chapter foregrounds the findings of the study based on a summary of the analysis of data from interviews and document analysis. This chapter focuses on themes that emerged from the data analysis in response to the research objectives. The research objectives as explicated in Chapter 1 are revisited below to set a context for themes that emerged from the data analysis. The research objectives were to determine whether:

- a standardised test reflects the kinds of academic literacy specifications that are typically applied at first-year level across different subjects of study;
- the specifications of a standardised test of academic literacy are appropriate to gauge students' academic literacy proficiency for appropriate inferences regarding suitable placements; and
- one generic standardised test is appropriate to assess academic proficiency of first-year students across different diploma programmes at a university of technology.

The following themes that emerged from the findings and discussion are discussed further in 5.2 below:

- Participants' conceptions of academic literacy in relation to the subjects of study.
- Academic literacies within the context of text-dominant and visual literacy-dominant subjects.
- The similarities and differences of reading and writing practices across the subjects of study.
- The relationship between academic literacy skills and practices of different subjects and the academic literacy specifications of a standardised test.
- Participants' literacy practices in comparison with test specifications.
- The question of a 'reading only' test being appropriate for a standardised test when writing is the predominant currency of demonstrating understanding of knowledge acquisition.

5.2 DISCUSSION OF EMERGENT THEMES

5.2.1 Participants' conceptions of academic literacy

During the course of each interview, participants were asked to describe their understanding of 'academic literacy' with reference to their particular subjects. This would provide a context in which their responses on reading and writing could be framed. As noted by Lea and Street (1998: 158), 'in order to understand the nature of academic learning, it is important to investigate the

understandings of academic staff ... without making prior assumptions as to which practices are either appropriate or effective'. The standard response from lecturers (barring one) was that academic literacy related specifically to reading and writing, such as the ability to read with understanding, think critically, evaluate texts and other content representations, extract main ideas, use vocabulary appropriately and to summarise texts to acquire knowledge. This understanding resonates with the NLS perspective that 'academic literacy practices – reading and writing within disciplines – constitute central processes through which students learn new subjects and develop their knowledge about new areas of study' (Lea and Street 1998: 158). Although visual and other literacies were acknowledged as important and were included in the interview data and assessments, lecturers seemed to limit their understanding of academic literacy to textual formats. For example, the ability to separate main ideas from supporting ideas was viewed primarily as a text-dominant skill. A common understanding of respondents was that writing was a consequence of reading, with the written task a product of a reading exercise. Writing practices were explained in greater detail than reading, perhaps because of the dominant emphasis on assessments mainly being in written format.

Academic literacy was viewed by the research participants as skills and practices with which students should be able to engage. Their verbatim interpretations were recorded as:

- ... when they're able to understand basic concepts ... vocabulary ... being able to communicate in the language of instruction ... [BUS1]
- ... writing skills, communication, interpretation of questions ... reading skills as well, when they read an article, study material, can they make sense out of it and address questions that come out of the concepts from those articles ... [BUS2]
- ... to be familiar with how academics write ... they acquire that through reading ... understanding what they are reading in plain English ... being able to interpret it and write something else out of it ... on their own ... [ED1]
- Scientific literacy ... it's probably what one would also call academic literacy ... scientific writing, using the scientific method, hypothesis writing ... how does science speak to us ... it's either in the form of text or drawings, diagrams, flowcharts, graphs and tables ... [ED2]
- ... it's those techniques ... that students would use to understand things ... like to understand text ... it's about their reading ... is to grasp ... [ENG1]
- ... helping students to gather information, helping them process that information, to analyse it, to synthesise it and evaluate that information [ENG2]
- ... being able to find information, make meaning of that information and report on that information ... giving your understanding ... [HWS1]
- ... we have a certain language that we speak ... they are introduced to the different kinds of language they'll be exposed to ... I introduce them to the words ... [HWS2].

The quotations above allude to academic literacy as a *process* through which knowledge is acquired via reading and writing practices. Literacy activities (i.e. 'understanding concepts', 'writing skills',

'reading skills', 'make meaning of ... information') were foregrounded as the vehicle to knowledge acquisition using the schema of 'language ability' (Bachman and Palmer 1996) to access subject knowledge. Each quotation speaks about related scaffolded activities to process information, understand text, interpret text, *make meaning* of information, and the ability to communicate in the language of instruction. Reading and writing were closely aligned, with reading equated with accessing information, and writing with showing understanding of that information. The focus of academic literacy as the ability to read and understand text was explained within the context of critical appraisal of texts, interpretation and evaluation of textual content, while academic literacy within the context of writing reflected the importance of communicating an own understanding within the context of the subject of study. While the responses might have been articulated differently, there were distinct commonalities and generalisations to be drawn from these quotations.

Academic literacy for lecturers was about the ability to apply reading skills and practices to appraise and evaluate texts for specific purposes, to interpret texts for creating understanding and meaning and to summarise texts as accompanying writing tasks. Writing was viewed as the ability to communicate textual content from an evaluative or critical perspective, by providing an own opinion rather than a paraphrase. The types of reading skills ranged from skills-based, surface features of language to the more interactive reading strategies (analyse, synthesise, evaluate) for in-depth discourse analysis. The application of interactive reading skills was described to a greater or lesser degree by all but one lecturer who equated academic reading with identifying words and terminology. The comparison of academic literacy with scientific literacy revealed variations in *literacies* and so doing foregrounded an important distinction: literacy is about reading and writing for different purposes, in different contexts, using different genres of how information is presented.

What emerged from lecturers' understandings was that academic literacy is not an absolute construct but has many forms (textual, visual, numerical literacy), has multiple forms of engagement (academic and disciplinary literacies) and provides a lens for different gazes (academic, professional, social) that resonate with the academic socialisation model (Lea 2008; Lea and Street 2006; Lea and Street 1998). Scientific literacy speaks to the need for students to be socialised into the practices and contexts in which reading and writing are embedded, rendering literacy an inherently social, context-embedded construct. The application of literacy practices in interpreting and creating meaning may be demonstrated very differently depending on the subject

of study. Academic literacy is but one kind of literacy that provides access to knowledge through appropriate reading and writing practices in alignment with particular disciplinary literacies.

The quotations revealed distinct similarities in the more visually literacy-dominant subjects when compared with the more text-dominant subjects that were more textually reading and writing intensive. The distinction between text-dominant and visual literacy-dominant subjects foregrounds the different literacies prevalent in the respective subjects of study, but does not distinguish these distinctions as absolutes. For example, visual literacy-dominant subjects would include text-based analysis, but not as prominently as for text-dominant subjects. In other words, all subjects have a place on a continuum indicating text-dominant and visual literacy-dominant subjects, depending on their dominant forms of content representations. Academic literacy for the more visual literacy-dominant subjects was explained in terms of *techniques* [ENG1], using the *scientific method, hypothesis writing* and interpreting different visual representations of how subject content was presented [ED2]. In contrast, academic literacy for text-dominant subjects was explained in terms of analysis, synthesis and evaluation of information [ENG1]; being *familiar with how academics write* [ED1]; critiquing text and demonstrating an own understanding [HWS1]; communicating in the language of instruction [BUS1], and *to make sense* of articles and *address questions* from the articles [BUS2].

When comparing lecturers' understandings of academic literacy and the specifications of a standardised test, their statements captured the essence of the construct assessed in standardised testing: to determine students' ability to read and interpret texts, analyse information, *make sense* of an article and relate text to visual and numerical data. The vocational focus of diploma qualifications provides a platform for academic socialisation and academic acculturation to be foregrounded. Irrespective of content representation, the processes engaged in for textual analysis could be considered similar to processes for visual and numerical analysis where main and supporting ideas had to be differentiated through similar skills and practices.

The data revealed that the identity of the participants as subject experts was inextricably linked to how they understood academic literacy in their fields of study. As such, their interpretations of academic literacy were explained in terms of their conceptions of reading and writing practices, given the types of knowledge structures and practices salient to their subjects. A study on writing in higher education conducted by Lea and Street, reports that the 'disciplinary history' of staff 'had a clear influence on staff conceptualisations' and how they expressed writing requirements for

their subjects (1998: 162). The findings of this study show that lecturer conceptualisations of academic literacy and how this is interpreted in practice for their subjects has a major influence on what students do. The various lecturer interpretations presented different biases towards primarily text-based analysis when compared with images, experiments and other visual representations. For the more practical subjects texts were used to a lesser degree and in a supplementary role to support or explain visual and numerical information. This study revealed that different disciplinary literacies are prevalent in diploma studies and they are all equally important in presenting meanings in different ways. The data showed the relevance and equivalence of test specifications for both text and visual representations, with visual representations being another form of text. A distinction could be drawn between verbal text and visual text, with the same literacy skills applicable to both literacy forms. Different forms of literacy as presented in this study were more often complementary than mutually exclusive.

Respondents were not all able to articulate a response to their understanding of 'academic literacy', except when prompted to explain about reading and writing practices for their subjects. 'Academic literacy' as a construct did not seem to hold a particular meaning for all respondents. The inability to describe academic literacy for their subjects was attributed to their having been in the profession for only a few years and not having thought about academic literacy practices before the interview. Often lecturers can explain the literacy requirements for their subjects, but do not always explain these expectations to students. The ability to use interactive reading strategies, for example, is considered by lecturers to be tacit or assumed knowledge embedded in routine reading activities. Although lecturers noted the challenges that students have with reading and writing, the claim was that they do not have time to focus on teaching academic literacy skills. Some lecturers (for example, BUS1, BUS2 and ED2) were appreciative of the interview which, they claimed, created an opportunity for them to think about how students accessed meaning for their subjects as they had not thought about academic literacy practices in this way before.

5.2.2 Academic Literacy within the context of text-dominant and visual literacy-dominant subjects

5.2.2.1 Academic literacy within the context of text-dominant subjects: ED1 and ENG2

Using subject ED1 as an example, the subject was reading and writing intensive with summaries, paragraphs and essays the major forms of assessment of learning. One assessment included selecting, critiquing, summarising and providing an opinion of ten subject-specific news articles. This lecturer placed a high premium on reading and writing and explained detailed procedures on

how students should engage with text, engage with the author, think critically and provide an own opinion. This form of textual engagement, 'that views student writing and learning as issues at the level of epistemology and identity' rather than literacy skills acquisition (Lea and Street 1998: 159). This assessment challenged students to reflect on how topical subject-related issues could influence, improve or change the profession of which they would be a part and present their stance in an opinion piece.

For subject ENG2 the focus was on the application of reading and writing within the professional context. All texts for reading and writing tasks were aligned to vocational and academic expectations, resembling academic socialisation where students are inducted into the profession and academia. Research assignments were integrated across subjects and included essays and reports geared to the profession. Subject-specific literacy was characterised by intensive reading skills to critically appraise and select appropriate sources of information, to the more demanding skills of analysis, synthesis and evaluation of text pertinent to the world of work.

Both lecturers alluded to intensive reading skills for textual engagement. However, where subject ED1 required textual analysis for information and engaging with the author, reading and writing for ENG2 focused on preparing students primarily for the world of work. For example, report writing and argumentation were taught as required by the profession and the discourse community. This alludes to Gee's (2012) concept of 'Discourse' as the ways of thinking, doing and being as espoused by a discourse community. For these subjects, content knowledge was primarily acquired and demonstrated by means of textual evaluation, analysis and synthesis, with minimal visual and numerical literacies engagement. Visual literacy was limited to PowerPoint presentations and flowcharts that formed part of assessments.

The reading requirements for ED1 and ENG2 related directly to the kinds of analysis and interpretive processes that a standardised test would require. With standardised tests being text dominant, a noteworthy overlap in the kinds of reading skills required for ED1 and ENG2 and that of a standardised test of academic literacy was evident. This suggests that academic literacy skills for text-dominant subjects seem to be aligned with most of the specifications of a standardised test. If the test specifications are typical academic literacy representations deemed necessary for higher education, then it could be argued that inferences drawn from test results for text-dominant subjects could provide indicators of students' academic readiness for higher education.

5.2.2.2 Academic literacy within the context of visual literacy-dominant subjects: ED2 and ENG1

Where ED1 was about discourse analysis of text-based content representations, the lecturer for ED2 explained academic literacy as a representation of 'scientific literacy' using a specific method to access and demonstrate knowledge. Textual discourse and analysis for reading and writing were secondary to visual and numerical analysis of subject information. Subject content for ENG2 involved visual literacy: analysing visual artefacts, illustrations, graphs, drawings and observations. The need for numeracy literacy to analyse data in relation to visual and textual content was commonplace. Textual analysis in relation to visual and numerical representations formed the basis of this subject. Shifts in genre analysis from one 'genre mode' (Lea and Street, 2006: 371) to another characterised both ENG1 and ED2. Lea and Street (2006: 271) differentiate between 'genre' as register, style and tone and 'genre modes' as an image, gesture, graph or written text, the latter which is applicable to this discussion. These genre shifts foreground the 'multimodal nature of literacy and of different genres that students needed to learn in order to represent different types of curriculum content for different purposes, and therefore to participate in different activities' (Lea and Street 2006: 373). For visual literacy dominant subjects, using academic literacies (plural) as a vehicle to epistemological access required 'deploy[ing] a repertoire of linguistic practices appropriate to each setting' or learning environment (Lea and Street 1998: 159). Although the focus of this study is on academic literacy, the central thesis explored is how academic literacy is 'deployed' (Lea and Street 1998: 159) for textual, multimodal and academic engagement to access meaning, information and understanding, not on skills application in a technicist way. The data suggest that genre shifts were characteristic of visual dominant subjects given the different modalities of how content was presented, taught and assessed. The 'shifts' suggest fluidity and movement where the different genre modes do not represent entities in themselves. Modalities could be integrative to present a combination of meanings, for example, shifting between analysing a graph and accompanying text. The point to note here is that each genre mode requires distinctive analytic skill sets with a combination of analysis to arrive at a composite meaning of the relationship between two or more genre modes. These shifts reveal the 'fluid overlap of the boundaries for each genre' (Lea and Street 2008: 371), and the particular role that each one plays in establishing meaning in different forms and subject areas. The different analytical skill sets noted above suggest that multimodal literacies could be more cognitively demanding than textual analysis that characterise text-based subjects like ED1 and ENG2.

Although both ED2 and ENG1 were visual literacy dominant, the way that knowledge was structured and presented for ENG1 was distinctly different from ED2, with different genre modes and representations of knowledge prevalent. For example, ENG1 represented incremental, scaffolded knowledge building with vertical conceptual knowledge structures, while ED2 displayed a more horizontal knowledge structure with interpretations contingent on the objects of study. However, the more practice-based subjects should not be assumed to be devoid of analysis, evaluation and dialoguing with the author. The literacy practices for text-dominant subjects would be replicated for visual literacy-dominant subjects, but for different forms of content presentation.

The main distinctions between a standardised test and visual literacy-dominant subjects was the application of specifications to different knowledge forms, different genre modes and different content representations. The application of specifications for visual literacy-dominant subjects might be deemed similar to academic literacy practices required for standardised tests, but the products of and for analysis (drawings, observations and graphs) were markedly different from the textual bias of standardised tests. However, it could be argued that different content representations and disciplinary literacies do not necessarily negate the importance of academic literacy requirements as included in standardised tests as all higher education subjects of study include textual literature. A primary distinction is that standardised tests serve a specific purpose, i.e. to assess students' academic literacy proficiency on entry to higher education, whereas disciplinary literacies are salient to the subject of study, used for knowledge acquisition and relate to both the academic and professional discourse communities.

How participants understood academic literacy revealed the intimate link between their role as subject experts and their interpretations of academic literacy within the context of how (1) information was presented, (2) knowledge was acquired, and (3) knowledge was demonstrated in productive pieces. Academic literacy was explained with reference to the specificities of subject representations and the acquisition of subject content. Given the subject specificities and the different genre modes, academic literacy defies the view that it is a decontextualised construct that once learned is transferable to all subjects across all fields of learning. Literacy in higher education extends beyond the autonomous view of skills transfer, since the types of literacies for knowledge acquisition are largely dependent on how information is presented for particular subjects and fields of study. For example, content analysis and representation for visual literacy-dominant subjects would include text in relation to a range of visual representations and numeracy, while for text-dominant subjects, illustrations and numeracy would more often than not be minimal. By way of

illustration, all subjects are on different points on a 'textual-practice dominant' continuum where each subject includes elements of different literacies to a greater or lesser degree. This point is particularly pertinent where the first year of a diploma programme consists of different areas of study. For example, subjects ED1 and ED2 formed part of the same programme but the genres of content presentation, academic literacy expectations and assessment practices were very different. Students would need to be schooled in the ways of thinking, doing and being for each respective subject as literacy practices for one subject would not necessarily be the same for another. Lea and Street (2006: 370) suggest a 'focus on pedagogy' and emphasise 'the importance of teachers being explicit in showing students the shifts' in genre modes as they move between different content representations. This 'focus on pedagogy' (Lea and Street 2006: 370) would be equally applicable within and between subjects. For example, academic literacy practices for ED1 would not necessarily be applicable in the same form or transferable to ED2 and vice versa. In terms of curriculum support programmes, cognisance should be taken of these differences in disciplinary literacies that have implications for teaching and learning in any diploma programme of study. An important commonality of both text-dominant and visual dominant subjects that constitute this study, is how academic literacies are used to develop disciplinary knowing, doing and being: knowing, i.e. reading, writing and analysis for acquiring and reinforcing content knowledge; doing, i.e. subject-specific practice based orientations, and being, i.e. developing a professional gaze by inculcating subject- and discipline-specific literacy conventions within each subject of study. The application of academic literacies contribute to a pedagogy of epistemology and ontology befitting vocational qualifications, also referred to as epistemological access to higher education (Morrow 2007).

5.2.3 Disciplinary literacies in comparison with a standardised test

Irrespective of the way that subject content is presented, the purpose of applying academic literacies within a subject context is about knowledge acquisition to use language as a means of 'understanding, interpreting and organising knowledge' (Lea and Street 1998: 158). As reiterated by Lea and Street 1998: 158), 'academic literacy practices – reading and writing within disciplines – constitute central processes through which students learn new subjects and develop their knowledge about new areas of study'. The distinction between academic literacy application for standardised testing and for subjects of study is that testing is to determine the ability to apply reading skills and practices to understand, interrogate, and interpret text, not for knowledge acquisition. As such, test specifications and application do not factor in disciplinary differences. The purpose of a standardised test is to assess students' ability to use language knowledge to access

information using skills that characterise academic literacy for higher education based on a sociolinguistic theoretical framework. There might well be commonalities in practices generic to subjects, as this study has shown. While the kinds of academic literacy practices might be generic across subjects, the context and application are very different, depending on the way information is presented and structured. The different literacies present a challenge to the previously held autonomous view of academic literacy as generic to higher education per se, where academic literacy support programmes occurred outside of the subject itself. This view, according to Butler (2013: 77) has shifted to 'academic literacy interventions ... increasingly being situated within disciplinary contexts'. Butler (2013: 76) notes that 'there is currently a strong move towards acknowledging the discipline-specific nature of academic discourse in different academic disciplines ... [and] how academic literacy practices are embedded in the contexts of such disciplines'. A disciplinary literacies focus as Butler (2013) suggests, could present a challenge for the content validity of generic testing in terms of whether a standardised test would align with the target language use for the different fields and disciplines of higher education study. Consider the summaries of text-dominant and visual literacy-dominant subjects below.

For text-dominant subjects (ED1, ENG2) extracting meaning required intensive reading strategies, analysis, interpretation and understanding of discourse structure in terms of how textual content was communicated. The ability to interpret visual representation in the form of accompanying graphs, illustrations, tables or diagrams was downplayed and the need to apply numerical calculations to facilitate understanding of text was almost non-existent. Writing requirements were usually explanatory and expository, incorporating the use of correct syntax and language use for sentence, paragraph and essay construction. The ability to articulate ideas, provide explanations and demonstrate the aptitude to reason or present an argument in productive texts was the norm. The application of academic literacy skills and practices, that is, reading and writing using texts primarily, was central to extracting meaning and demonstrating understanding for text-dominant subjects.

Content representation for practical subjects was multi-faceted, drawing on combinations of text, various visual representations and numerical data, depending on the unit of learning and field of study. The ability to interpret text in relation to visual representation and numeracy and vice versa was paramount to extracting meaning and demonstrating understanding of content. While language use was important to convey meaning for all literacy types, text was always accompanied by either visual representation and/or calculations to support textual interpretations.

Practical subjects were multi-modal and required the ability to be proficient in different literacies to relate one literacy type to another. Written responses included tables, templates, structured reports with headings and sub-headings, records of observations, drawings, graphs and numerical calculations. Using textual development to develop an argument or composing a paragraph or essay was non-existent in the four subjects that were practically oriented. The ability to apply skills and practices of various genres of academic literacies was central to mediating meaning and demonstrating understanding for visual literacy-dominant subjects. The similarities for visual literacy-dominant subjects included the ability to extract the main ideas from texts and visual representations, using subject-specific terminology in context, drawing conclusions from different information sources, numeracy and relating visual representations to text in one way or another.

Visual literacy-dominant subjects were factual and numeracy intensive; visual literacy was integral to the subject, and terminology had to be learned to access subject knowledge. The difference in reading between a text-dominant and visual literacy-dominant subject could be substantiated with the following quotations: for a visual literacy-dominant subject, ... *it's one thing to read a text, but if one can read the text by producing this diagram ...* ; text-dominant subjects required students to *analyse, synthesise ... and evaluate that information, ... to not just [read] to understand but going beyond ... to take a position*. The reading requirements for the different subjects reflected a difference in textual engagement. The ability to analyse and evaluate texts by means of discourse structure, analysing the communicative functions of sentences and paragraphs for their inherent meanings to the text as a whole, were not considered key for practical subjects. It could be argued that the factual nature of visual literacy-dominant subjects when compared with the expository nature of the text-dominant subjects required different types of reading skills to access knowledge and use disciplinary discourse. While the same reading specifications might be applicable, disciplinary literacies required different literacy applications.

For visual literacy-dominant subjects templates were used more frequently, numerical literacy was imperative, short scenarios were used for questions, with no structured essays or paragraphs required. Written representations were kept to a minimum in favour of templates requiring short sentences and reports were structured to record data, observations and practicals. In contrast, text-dominant subjects required the ability to structure sentences and paragraphs correctly, to develop an argument in context, to provide an opinion or individual perspective, and assessments were often in essay format. Written text was the currency to demonstrate knowledge, language ability, coherence, discourse structure and the appropriate style.

The ability to draw conclusions and develop an argument in visual literacy-dominant subjects was primarily based on empirical evidence, observations and practical experimentation. For example, ED2 students were required to apply scientific enquiry using hypothesis statements, *to make deductions ... how the numbers have declined or increased because of environmental factors.*

Given the differences in reading and writing practices required for text-dominant and visual literacy-dominant subjects, that is, the differences in extracting information, drawing conclusions and analysing discourse structure, the query here is whether a predominantly text-dominant standardised test of academic literacy would be applicable to assess the academic readiness of students entering different fields of study. Cognitive processes about language use for specific purposes, reasoning skills, and organisational competence, for example, were shown to be distinctly different for different subjects. Given the differences in cognitive processes regarding productive pieces, Hounsell (1988) in Lea (2008: 229) advises that 'students need to be sensitive to different disciplinary ways of framing in their writing and highlights the tacit nature of the academic discourse calling for features of the discourse to be made explicit to students'. The more specialised academic disciplines become, the more specialised the ways of literacy engagement and knowing become. The situated, embedded meanings that texts and other content presentations evoke, as well as the social and contextual nature of academic literacy for specific subjects of study, would suggest a very different engagement with literacy and 'language ability' (Bachman and Palmer 1996) than when applying academic literacy practices for the purpose of a standardised test.

If the purpose of a standardised test is to determine academic literacy proficiency for higher education, but more explicitly for the field of study, would a generic standard test be appropriate to assess reading proficiencies for all subjects, fields and disciplines? Based on the findings and discussion, I would argue that the distinctiveness of disciplinary literacies negates the promise that a generic test holds of providing an indication of academic literacy proficiency for all subjects. The distinctiveness of disciplinary literacies is characterised by:

- different content representations for different subjects;
- a range of textual, visual and numerical literacy engagement;
- genre shifts from one genre mode to another being more prevalent in practice-based subjects;
- different ways of drawing conclusions using experiments, observations, hypotheses or textual analysis, and
- similar literacy specifications being applicable to all subjects but for different genres and in different contexts.

Given the differences in disciplinary literacies, it could be argued that the sample standardised test would not be fit for purpose across all subjects of study as the predominant textual bias would not accommodate differences in disciplinary literacy.

According to Fang and Coatoam (2013: 628), subjects are different

in content but also in the ways this content is produced, communicated, evaluated [and] being literate in a discipline means understanding of both disciplinary content and disciplinary habits of mind (i.e., ways of reading, writing, viewing, speaking, thinking, reasoning, and critiquing).

The findings of this study clearly revealed the different applications of test specifications, the different cognitive processes to be employed and differences in language use and language abilities as a result of the variations in genre and content representations. If a standardised test of academic literacy has as its purpose to assess students' language proficiency for higher education, such tests should ideally accommodate the kinds of academic literacy practices salient to that field of study, that is, should align with the target language use (Bachman and Palmer 1996). One way of ensuring that the assessment of students' academic literacy proficiency is assessed fairly would be to ensure that standardised tests accommodate the kinds of disciplinary literacy practices required for both text- and visual literacy-dominant subjects.

5.2.4 The similarities and differences of reading and writing practices across the subjects of study

Chapter 4 provides a detailed analysis of the kinds of reading and writing practices required for the various subjects of study. The discussion that follows presents a summary of the similarities and differences of specifications across subjects, in the following format:

- Similarities of reading practices across subjects.
- Differences of reading practices across subjects.
- Discussion of reading practices and the specifications of a standardised test.
- Writing practices across subjects.
- A comparison of writing practices across subjects.
- Summary of writing practices.

The discussion below presents similarities and differences using test specifications of a standardised test as the framework for discussion. [Refer to Table 3.1 for the test specifications and their accompanying descriptions.] Each specification is discussed according to the summary of interview data across subjects, assessments and an explanation of each test specification as

described by Cliff and Yeld (2006). The similarities and differences of reading practices across subjects is followed by a discussion on writing practices across the subjects of study. The comparison of subject-specific literacy practices with the test specifications did not only focus on the presence or application of test specifications in subjects, but included the manner in which questions were asked and the types of questions that characterised those found in the standardised test. The comparisons showed that the line of questioning of the standardised test was somewhat different when compared with subject-specific academic literacy practices.

5.2.4.1 Reading practices across the subjects of study

Sub-section 5.2.4.2 relates to 'Appendix J: Summary of Interview Data for Reading' and 'Appendix K: Summary of Assessment Data for Reading' that summarise the commonly noted requirements for reading across the subject areas. The discussion below incorporates summaries of interview data, summative assessments and an explanation of each test specification as they feature in various subjects.

5.2.4.2 Similarities of reading practices across subjects and their relevance to academic literacy test specifications

Test Specification 1: Extracting main ideas from supporting ideas

The ability to extract the main idea(s) from supporting ideas was a particular requirement for reading as explained in detail by the research participants.

At least one assessment in every subject had short scenarios, case studies or an article for analysis, with some subjects having more reading-intensive questions than others do. Students were required to extract the main ideas from scenarios, case studies, articles, visual and numerical representations and relate this information to the accompanying questions. The lecturers' described reading as procedural and expected of students to reading for meaning and identify the points of information that actually related to the questions. The ability to separate essential from non-essential information was pertinent to textual as well as visual forms of information. In the more visual dominant subjects, students were required to extract numerical data from texts for application in tables, pie charts or graphs, extract data from observations, visual representations, explain phenomena, extract numerical data and/or textual information to answer accompanying questions. The use of this specification was applicable to all subjects, albeit within the context of different representations of subject content. However, for some subjects (BUS1 or ED2) reading might have been reduced to a superficial, technician act of finding information to complete a table, an equation

or finding bits of information for specific purposes, without actually engaging with text for in-depth analysis.

Based on the frequency of the test specification in a test of academic literacy, this specification was pivotal for the higher education context and was included to test students' functional knowledge of language (refer to Bachman and Palmer 1996). The ability to distinguish between essential information and supporting points was one of the main purposes of reading for critical appraisal of text, to access relevant points from all literacy sources and to extract pertinent points for assessments. Examples of how this specification was presented in a test of academic literacy are shown below:

- *The main idea in paragraph 1 of the passage ...*
- *Overall, what is the main focus in paragraph 3?*
- *What phrase from the paragraph tells us ...?*

This test specification was integral to higher education according to participants, especially for summaries, paraphrasing, visual analysis, observations and experiments where different formats of data had to be extrapolated. Students had to apply this specification to all subjects for critical appraisal of texts for assignments or for assessments. It would be unlikely, though, that questions such as the test examples above would feature so pertinently in any of the subjects used in this study. Separating essential from non-essential information would form an implicit part of reading and discourse analysis for all subjects without overt attention being paid to the kinds of questions as asked in the test. The regular frequency of this specification in a standardised test, the importance accorded by lecturers and the need for this specification to access information could lead one to conclude that there are commonalities between the various subjects and a standardised test.

Test specification 2: Analysing discourse structure

There are distinct similarities in the use of this specification for reading across subjects but the data show that for subject use a fine-grained approach to discourse analysis was diminished or implicit in reading. Analysing discourse structure from words to paragraphs, was associated with extracting meaning and was characterised by terms such as *understand, make meaning, interpret ... how the text was constructed, draw inferences, finding the thesis statement*. Participant responses suggested a sense of order and procedure, starting with analysing the heading in relation to the text, and analysing texts from word, to sentence and paragraph levels for meaning and interpretation. By implication, discourse analysis was about identifying the flow of information in texts and the

arrangement of information within discourse structure as it presents meaning. While interview data portrayed discourse analysis as hierarchical from word to paragraph level, reading, like writing, is multi-componential with aspects of analysis happening simultaneously. For example, analysis of vocabulary and syntax, and establishing cohesion happen simultaneously and might be an iterative activity rather than sequential. The quotations from interviews suggest that analysing how structure contributes to meaning requires knowledge of language structures, syntax, morphology, understanding vocabulary, topical knowledge, and style amongst others. Respondents noted the purposive structure of paragraphs and their functions with particular reference to introductory paragraphs. With the subject focus being primarily on using discourse analysis to access, meaning, understanding and content knowledge and references to organisational patterns of text structure and how this contributed to textual coherence, reasoning and meaning were largely absent. Loveland (2014: 11) alludes to the importance of using language knowledge and organisational knowledge in discourse analysis, given the different organisational patterns in text structure (i.e. chronological order, cause and effect or compare and contrast). Technical texts, such as for ENG1 may be factual and straightforward, news articles for ED1 might be presented in chronological order, but both require particular forms of analysis. Where case studies, scenarios, articles or research assignments formed part of assessments, discourse analysis for reading would focus on accessing information within the context of the accompanying questions. The question types and how they were phrased were directly relational to the kinds of discourse analysis required of the accompanying texts or visual representations. Reading for assessments ranged from intensive reading tasks such as articles to simplistic questions limited to *Explain*, *Differentiate* and labelling diagrams. Limited analysis beyond sentence structure was required for these assessments.

The focus of the specification, 'analysing discourse structure' in the sample standardised test was to interpret texts for meaning and cohesion from sentence to paragraph and essay/article level. As noted above, standardised tests generally consist of texts for reading that require detailed analysis, including identifying text markers, textual cohesion and coherence, and understanding how sentence types have a purpose in developing an idea. Examples of questions taken from the sample test show how questions were set:

- In paragraph 2, the writer uses a phrase to signal that he is introducing a contrasting idea. What phrase from the paragraph tells us this?
- Which of the following sentences best reflect the relationship between paragraphs 1 and 2 in the text?

The interview data and assessment showed sufficient evidence to suggest that discourse analysis formed an integral part of reading in the various subjects of study, to a lesser degree in HWS2. It is important to note that textual discourse analysis for lecturers was about the broader notion of analysing texts in terms of how meaning was presented, interpreted and how each section (i.e. heading, words, sentences, paragraphs) contributed meaning to the whole.

The more detailed and fine-grained textual analysis of:

- (1) understanding the communicative functions of sentences
- (2) identifying cohesive devices in texts
- (3) understanding relations between parts of texts, and
- (4) identifying organisational patterns

were not defined or explained in the interview data nor did they feature in assessments. A reason advanced could well be that subject lecturers might not have been familiar with the finer elements of academic literacy such as 'understanding the communicative functions of sentences' or that this might have been assumed to be tacit language knowledge. Organisational knowledge of texts such as communicative and cohesive devices did not seem to form part of lecturers' discourse. Certain lecturers could not explain these finer elements of text structure and the role it played in developing meaning or argument in text. What emerged was that the majority of interviewees could not explain the fine-grained analysis of textual discourse as part of academic literacy practices such as anaphoric references. The specifics of cohesive devices were not noted in interviews or assessments. Regarding this specification, the focus for lecturers was on accessing meaning and understanding content not on the finer nuances and appreciation of how cohesive devices contributed to textual coherence.

There did not seem to be full congruence of this specification and what lecturers required for their subjects. Lecturers did not allude to aspects of coherence or responded that it was not a requirement to identify textual hedges and communicative functions. However, the inability of lecturers to explicate this specification might imply that the relevance of this specification might have been diminished and not made overt. While paragraph structure was noted as important for most subjects, the focus was more on accessing content knowledge than on identifying linking devices and their meanings in text. It should be reiterated that the focus on text-dominant analysis resides in the textual nature of standardised tests and in no way suggests that other literacy types are less important.

Test specification 3: Identifying coherence and cohesion in discourse structure

The quotations in Appendix J revealed that the analysis of discourse structure alluded to the importance of how discourse in and of itself contributed to an understanding of text but was not stated explicitly by all respondents. The focus on structure and coherence was more overt as a writing requirement in developing a paragraph, an essay or a report and was not explained explicitly within the context of reading. Where reading texts formed part of assessments, the expectation would be that the discourse structure be analysed in terms of coherence and cohesion of ideas as explained during the interviews. For subjects, this specification seemed more relevant to writing development than for students to identify how coherence is achieved in reading texts.

Test Specification 4: Analysing genre types

Genre and genre modes (Lea and Street 2006: 371) were subject specific regarding sentence types, register, style, tone, and the different representations of information such as illustrations, tables, diagrams and images. While genre modes might have been subject-specific, the ability to analyse genre was applicable to all subjects. The similarity across subjects resides in the presence of different genre modes and genre nuances that need to be understood within the context of subject content. For example, BUS1 students had to differentiate between statement, opinion and fact, which, according to the data, was not the case for any visual literacy-dominant subjects. The functions, purposes and contexts were different for text-dominant and visual literacy-dominant subjects. Two subjects (ED1 and ENG2) included minimal visual representations of information. Argumentation and presenting an own opinion were important for most subjects in terms of demonstrating the ability to provide substantiation for claims made either from experiments, observations, pie charts or texts. Each subject had its own requirements regarding academic and professional style. The visual literacy-dominant subjects did not include academic research assignments requiring essay writing and referencing but consisted primarily of analysing experiments and observations in conjunction with texts for explanatory purposes. As such, the more practice-dominant subjects (ED2, ENG1) did not require critical appraisal of texts, analysing discourse structure, identifying nuances of meaning or understanding the communicative functions of sentences, nor did they have to pay attention to textual aspects of style for selecting texts. Texts were factual to frame experiments and observations. Genre requirements representing various literacies conformed to academic and vocational expectations.

Shifts in analysis of different genre modes were particularly pertinent when analysing questions for the more visual literacy-dominant subjects, where visual and numerical representations for analysis

were juxtaposed alongside textual questions. Subjects ED2, ENG1, HWS1 and HWS2 included several drawings, illustrations, pie charts and tables for analysis. Subjects BUS1 and BUS2 included the analysis of graphic representations such as pie charts, graphs and tables. A range of different textual genre types formed part of assessments for different subjects, including extracts from news articles and a case study in the form of a dialogue. Based on the interview data and assessments, the ability to recognise and analyse different genre types would be a regular activity since students would be presented with texts and various visual representations of information on a daily basis. The genre shifts would be most prominent for the more visual literacy-dominant subjects by virtue of the range of sources of information in which content was presented. Lea and Street (1998: 161) assert that genre shifts or “course switching” require different assumptions about the nature of [content representations], related to different epistemological presuppositions about the nature of academic knowledge and learning’. Although Lea and Street’s (1998) study is about student writing, these claims could be equally applicable to reading. The thesis presented by Lea and Street (1998) is that multimodal shifts and engaging with different content representations, sometimes simultaneously, could well be more cognitively demanding than textual analysis on its own.

In the sample test ‘analysing genre types’ tested genre items, such as identifying the intended audience, and the purpose and register of articles used in the standardised test. Students had to identify different types of sentences and label them according to their purpose in the text, such as facts, opinions and statements. The data suggested that the kinds of genre identification within subjects would be very different from the textual genre questions of a standardised test, such as:

- How does the author feel about ...
- The purpose of paragraph 2 is ...

It would be highly unlikely, according to the data, that students in subjects ED2, ENG1, HWS1, and HWS2 would be asked to identify the purpose, the intended audience or provide reasons for an author’s intended meanings using particular words and expressions. The information for these subjects would be about extracting facts, conducting experiments or investigating observations. The nuances of language and authorial voice do not fit the kinds of information with which students in these subjects need to contend as part of their learning experience. The types of genre questions of the standardised test did not align with the kinds of practices applicable to visual literacy-dominant subjects. Features of genre were dominant in all subjects, but the line of questioning in standardised tests and application of genre in subjects was different or not foregrounded in practice. Only two

subjects, which were text-dominant and had a more language-sensitive bias, would align with the kinds of genre questions as presented in a standardised test of academic literacy.

Test specification 5: Analysing vocabulary as used in context

Although there is a corpus of 'universal academic vocabulary', Hyland and Tse (2007: 247) assert that this concept should be approached with caution as 'discourses of the academy do not form an undifferentiated, unitary mass ... but constitute a variety of subject-specific literacies. The findings of this study reinforce this view. This discussion is framed against the backdrop of the purpose of vocabulary in academia (i.e. colloquialisms, subject-specific terms, jargon) being to access meaning and understanding subject content mainly from reading texts. Words, however, only accrue meaning when used in particular contexts such as the subject-specific context on which this study is based. The ability to analyse vocabulary terms as used in context was considered important in all subjects, but knowing the terminology of the field of study was reported as very important. Jargon was applicable to all subjects, except ED1 and ENG2 where, according to the lecturers, vocabulary consisted of general English terms in use. Certain subjects had specific terms with Latin and medical etymology and could be viewed as a new discourse for first-year students. Participants claimed that it would be difficult to work out meanings from context, as jargon had to be learned for correct use. For subjects BUS2, ENG1, HWS1, HWS2 colloquialisms had different meanings when used within subject context and students would need to be able to distinguish between colloquial and vocational/professional application. As claimed by Hyland and Tse (2007: 247), the findings show that 'academic vocabulary can take on extended meanings in technical contexts, and in different disciplinary environments words may have quite different meanings'. The interview data revealed that using subject-specific terms was complex because of (1) nuances in meaning, lexical roots, and (2) the application of morphology and grammatical knowledge given the different forms of word usage as required in context. The necessity to know subject-specific terminology was emphasised in assessments where definitions of terms and content knowledge were reinforced. Definitions, explanations and differentiation between terms were common question types for the majority of subjects. Assessments focused on conceptual knowledge and understanding as concepts and terminology were either known or not. For example, the meanings of medical or scientific terms would often not be discernible from contextual use.

For standardised test purposes, this specification was described as the ability to determine meanings of words from context, testing known vocabulary and spelling as they influence meaning. The examples of vocabulary test items aligned with the description provided:

- In the context of paragraph 3, the word 'impose' means that ...
- In paragraph 8, the author uses the word 'technically'. He makes use of this word because ...
- In paragraph 5, we read of the 'evolution of ...'. In this context, 'evolution' means ...

The purpose of testing subject-specific vocabulary was to reinforce understandings and meanings of subject-specific terms, without which students might not gain access to subject knowledge. The nature of subject terminology was that students either knew and understood the terms or did not as it was not always possible to establish meanings from the contexts in which they were used. The ability to establish meanings from context might apply to the use of colloquialisms that had a different connotation in subject-specific contexts. The purpose and types of vocabulary questions of a standardised test were not the same as for subject-specific tests. The latter would require students to explain meanings of subject-specific terms and to demonstrate knowledge of terms and concepts in a factual objective way. Standardised tests focus on how vocabulary adds value or nuances meanings in different contexts. Vocabulary items for a standardised test were context dependent, while for summative assessments questions on terminology were often devoid of context, testing definitions and content knowledge. Subject-specific terms had specific meanings, were often factual and not open to interpretation. Given the different purposes and applications of vocabulary and terminology, a conclusion may be drawn that there was a misalignment between the application of vocabulary for standardised tests and requirements for subject-specific purposes based on the factual and subject-specific contexts in which terms were used. Within the context of subjects, knowing subject terminology provided access to content knowledge and as such had to be learnt as subject and disciplinary jargon. Since standardised tests had generic content to which all candidates should be able to relate, vocabulary could be considered English terms sometimes used colloquially. The commonality between a standardised test and subjects, however, was the importance of word recognition, identifying meanings embedded in colloquialisms and terminology, how these terms were used in context, and how their use conveyed meaning and understanding.

Test specification 6: Drawing conclusions from textual /visual representations

All subject lecturers indicated the need for students to be able to draw conclusions from textual and other content representations. Drawing conclusions for visual literacy-dominant subjects was explained as evaluating information with the purpose of forming opinions or providing explanations for phenomena that might have occurred in experiments or observations. The focus for lecturers was on the ability to draw conclusions from observable or evidence-based information as well as textual analysis. When asked about the use of inferencing, only one lecturer (BUS2) alluded to it while other respondents did not consider inferencing a necessary specification for their subjects at first-year

level. It was noted that drawing conclusions is complex and incorporates a host of embedded specifications requiring simultaneous engagement such as understanding vocabulary, separating main ideas from supporting ideas, discourse analysis, syntax, genre, and using literacy devices to arrive at a conclusion or a personal opinion. This specification did not feature prominently in assessments, but was more applicable to research assignments for the text-dominant subjects. There seemed to be a discrepancy between the interview data and assessment requirements: lecturers' interview responses did not seem to align with assessment practices. Although lecturers were emphatic about the need to be able to draw conclusions irrespective of the genre from which the conclusions were drawn, this was not reflected in assessment questions.

Questions on drawing conclusions for a standardised test would typically be based on what was stated in the test article, or what was implied but not overtly stated (i.e. inferencing), such as: *In paragraph 1, we read that ... What does the text imply is the reason for this action?*

The incongruence between the interview data and assessments, and the lack of evidence of this specification in assessments, would render this specification not applicable to all subjects. Drawing conclusions as part of a standardised test would be from a purely textual basis as would be the case for text-dominant subjects, whereas the same specification for the more practical subjects would be applied to experiments or other observable phenomena. One could argue that the reasoning processes for drawing conclusions in a standardised test and for subjects are aligned but that disciplinary literacies dictate the manner in which conclusions and inferences are drawn. The procedures to arrive at a conclusion might be the same for texts and other literacy sources, but the setting and the contexts in which conclusions are drawn could be very different.

Test Specification 7: Identifying and analysing metaphorical expressions

All lecturers were of the opinion that metaphors did not form a noteworthy part of their subjects. The reasons provided were that subject content was *mostly factual* or that metaphors were not applicable, with no metaphorical implications in analysing terms and phrases, ambiguities or word play. The extent of using metaphors, according to the interview data, was the reference to headings being metaphorical and that cartoons were used in ED2. The comments about metaphors were largely not a true reflection as the data sketched a different picture. For example, lecturers did not seem to associate visual representations of subject content with metaphorical expressions. Lecturers seemed to equate metaphor with figurative language use as opposed to factual information presented in a limited, reductionist way. Their understanding of how language is used analogously

for illustrative purposes or in non-literal ways, did not emerge in spite of these representations being common to visual literacy-dominant subjects. As reported by lecturers in the interview data, subject information was factual; questions were stated simply and clearly in terms of what was required. Evidence of metaphors in assessments related to visual representations and figurative interpretations. For example, a scenario for BUS1 included the expression, *hailing a false dawn*, amongst others, although this was not noted by the lecturer. The absence of explanations on metaphors could be attributed to the tacit understandings that lecturers assume students acquire in a course of study.

The line of questioning regarding metaphors in a standardised test included questions on identifying metaphors and explaining words used in a figurative sense. An example includes:

In a metaphor, two things are indirectly compared. One example is 'workhorses' in paragraph 7 that are compared to machines. In what two ways are workhorses like machines in factories?

The types of questions that featured in the standardised test analysed for this study resembled questions from an English language test paper. When comparing the description of metaphors as a test specification with the types of question set in the test, and the interview and assessment data, there seemed to be a misalliance between the description, test items and the use of metaphors in the various subjects. For example, while terms might have had different connotations within subject contexts (e.g. 'project' or 'risk'), they were not used in a metaphorical sense. The data suggest that metaphors per se were present in various forms in subjects, but when compared with the types of metaphor questions of a standardised test, there seemed to be a complete misalliance as ambiguity, word play and cultural references did not form part of the technical, factual content across most subjects.

The similarities of test specifications across subjects foreground the commonality in the types of specifications applicable to the subjects analysed for this study. However, that is where the similarity and commonality ends. The findings show that the different disciplinary and subject differences dictate the manner in which academic literacies (plural) are used and applied, for knowledge acquisition and composition. In other words, 'there are particular literacy tools that better serve particular content areas' (Johnson and Watson 2011: 100), that suggests a need to 'move beyond generalist notions' (Johnson and Watson 2011: 107) of how literacy is perceived in higher education. The application of 'language ability' (Bachman and Palmer 1996) CALP (Cummins 1984; 1996),

Discourse (Gee 2009; 2012) and academic socialisation (Lea and Street 1998; 2000; 2006) requires adaptation according to disciplinary literacies into which students need to be socialised as participants of a discourse community. While lecturers' perceptions of academic literacy may suggest common specifications across subjects of study, the ability to use literacies for accessing and producing meaning has distinctive disciplinary features. The next sub-section presents the *differences* of reading practices across subjects.

5.2.4.3 Differences of reading practices across subjects and their relevance to a test of academic literacy

Difference 1: Genre modes

The discussion on genre modes above focused on the commonality of genre analysis as applicable to all subjects, the differences in genre analysis and genre shifts. This section focuses on the different genres and genre modes that feature in each of the subjects of this study. When considering the description in Table 3.1, this specification brought to the fore the different literacies and disciplinary differences to be found in diploma subjects. The genre modes regarding the presentation of subject content were significantly different when comparing the text- and visual literacy-dominant subjects. The distinction was mainly between content presentations, i.e. predominantly texts and a range of visual representations such as drawings, illustrations, tables, charts, images and observations where textual information supported data. Each information source has a particular purpose in each subject with some sources vocation specific. While the processes might be the same, the application thereof would be very different: a diagram is structurally different from information presented in a table; information in a text is structured differently from that in a picture. Standardised tests are predominantly text based, with articles forming the basis from which questions are analysed. While standardised tests include visual representations, these would be considered minimal to the focus of visual literacy-dominant subjects. The nub of the argument is, therefore, whether a distinction should preferably not be made to include more visual types of analyses in standardised tests to accommodate the more visual and practical oriented subjects at first-year level.

Difference 2: Analysing and interpreting visual representations

The ability to analyse and interpret visual representations in relation to text was important to a greater or lesser degree for six of the eight subjects. This specification was not a requirement for ED1 and ENG2. Four subjects relied on the ability of students to analyse visual representations and images to create meaning and demonstrate understanding of subject content. This required the

ability to analyse, extract information and draw inferences from different types of visual representations such as graphs, tables, diagrams, pictures, maps and/or flowcharts. When this specification was compared with subject practices, four subjects used most examples regularly, while two subjects used visuals occasionally and two subjects minimally.

An example of a test question taken from a standardised test illustrates the integration of text and visual representations:

Read through the following statements based on the bar graph, and decide which of them is false ...

While this question could well align with subject requirements, the latter required intensive engagement of analysis and evaluation of visual artefacts. Tables, graphs, charts and diagrams each had their own purpose and meaning, and included details that contributed to knowledge building and conceptual understanding of content. Analysing and interpreting visual representations was predominant in practice-based subjects, which did not align with the minimal visual literacy questions and text-dominant nature of a standardised test.

Difference 3: Application of numeracy

The ability to complete and apply numerical equations, ratios and fractions to text or other visual artefacts was important for six of the eight subjects. ED1 and ENG2 had no numerical requirements. The numeracy requirements for subjects included analysing texts and using formulae to arrive at an answer. Consider the differences in the line of questioning regarding numeracy for (1a and 1b), taken from subjects ENG1 and BUS1, and (2a and 2b), taken from the sample standardised test.

Subject assessment questions:

(1a) The City of Cape Town intends to lay a stormwater pipe between stake values 00 and 120. The natural ground levels have been determined at intervals of 20m and are given in Table 1. The pipe is to be laid at a falling gradient of 1:500 from SV00. Given that the invert level of the pipe is 50:20m, the formation width is 2.5m and the side slopes are 1:1 ...

(1b) Eben, Herchelle and Unathi start a small business selling swimsuits. Eben and Herchelle each own 30% of the business and Unathi the remainder. The selling price of the swimsuits is cost plus 115%. You sold 512 units in February.
[A table is given with expenses for February.]

- Calculate the direct costs
- Calculate the total cost of production
- Calculate Herchelle's profit, and Unathi's profit

Standardised test questions:

(2a) Based on the distractors below, students were required to select one to answer a question:

- One-and-a-half times the number for 2000
- Double the number they were in 1990
- Double the number they were in 2000
- Three times the number for 2000

(2b) The percentages of craftspeople based in KwaZulu-Natal were:

- exactly ten times those based in the Northern Cape;
- exactly three times those based in the Eastern Cape;
- approximately half those based in the Western Cape;
- approximately eight times those based in the Free State.

While all the questions related to numeracy, the line of questioning and the level of textual and numerical engagement were more demanding in subject-specific examples that were pre-empted by knowledge of the subject as well as knowledge of numerical processes to arrive at an answer. The examples of numeracy as indicated in a standardised test represent the skills-based model of decontextualised manipulation of numbers. The examples suggest that questions of numeracy formulated in a standardised test when compared with subject-specific questions do not align in terms of purpose, level of analysis and the requisite knowledge base for subject-based numeracy.

5.2.4.4 Discussion of reading practices and the specifications of a standardised test

The interview data revealed that lecturers placed a high premium on the ability to read by using specific skills to extract information by engaging with texts; asking questions of texts; dialoguing with the author; forming opinions of the textual content; and in so doing acquiring knowledge of the field of study. While the data suggest that the ability to read with understanding and extract meaning are the cornerstones of learning and knowledge acquisition, students were simultaneously introduced to discourse as applied in the subject, field and vocation. The kinds of textual engagement noted by lecturers would require 'language knowledge' (Bachman and Palmer 1996) to access subject-specific knowledge as well as the kinds of 'strategic' and 'pragmatic competences' (Bachman and Palmer 1996) to relate to the vocational aspects of knowledge acquisition. Reading expectations, according to the data, were not about extracting knowledge arbitrarily, but focused on how knowledge created understanding within the context of the subject content.

The commonalities across subjects regarding the reading specifications as explained by the lecturers far outweighed the differences that related more to academic literacy in relation to the forms of knowledge representation and subject content. A conclusion could be drawn that the nature of the subject content undoubtedly impacts on the kinds of academic literacy specifications required to interpret the different genres in which information is presented. The analysis foregrounds the different literacies prevalent across different subjects. Based on the data it could be claimed that adequate evidence has been garnered to suggest that: (1) academic literacy specifications required for reading were fairly standard across the various subject areas selected for this study, and (2) that the differences were the result of disciplinary differences which required nuanced applications of practices in academic literacies.

When comparing the interview data across subjects with the assessment data across subjects, evidence suggests that all but two of the specifications discussed above were not incorporated in assessments. The majority of specifications identified during the interviews formed part of reading practices for assessments. The relationship between the interview data and assessment data underscored the importance of these specifications across the spectrum of teaching, learning and assessment. The caveat here is that no assumptions should be made that all specifications might be equally important for all subjects or that the alignment of specifications described during the interviews was reflected with the same importance in assessments. The objective of this study was not to explore equal representation of test specifications within each subject, but to determine the extent to which the specifications of a standardised test were applied in each subject and whether they actually aligned with the kinds of specifications required for reading across the subject areas. It is to this discussion that I now turn.

All the specifications included in a standardised test were applicable to reading for all subjects of this study except, according to the lecturers, the use of metaphor. However, although the test specifications were *applicable* [my emphasis] to all subjects, the *use and intensity* in subjects did not narrowly align with the specification descriptions (see Table 3.1). No individual case study incorporated all the specifications as tested in a standardised test of academic literacy. The major differences in the application of specifications were the textual–visual literacy subject bias, the textual–visual content representations, and the sources of information that could be separate or a combination of textual–visual–empirical–observational. The data showed that the nature of the subject content determined the kinds of literacy skills and practices applied. Disciplinary differences require particular disciplinary literacies. For example, ‘the cognitive processes for understanding

text are not the same across all subject matter ... reading within the disciplines requires far more specificity' (Carney and Indrisano 2013: 45). It should be noted that although disciplinary literacies is a growing area of research, the focus of much research is on writing in particular subject areas with limited references to reading. [Refer to Chapter 2, subsection 2.9.]

While certain principles and processes might have been similar for text- and practice-based subjects, for example, separating essential from non-essential information, the units of analysis (i.e. words, numbers, subject-specific artefacts, observable phenomena or trends in graphs and pie charts) were very different for different subjects. Although standardised tests included questions on visual literacy and numeracy that might align with subject requirements, the difference was that standardised tests were predominantly text based with more questions focusing on students' abilities to use language from a textual dimension. The subjects ED2, ENG1, HWS1, HWS2, in contrast, focused on the ability to use language within the context of visual analysis predominantly, with texts supplementary. Subjects BUS1 and BUS2 required a combination of text and visual analysis, and ED1 and ENG2 were predominantly text based. It could be argued that the ability to analyse texts would be tantamount (and paramount) to understanding content knowledge, to follow instructions and analyse assessment questions, irrespective of the nature of the subject content. This study has shown that the manner in which certain questions were set in the sample standardised test were not in alignment with how questions were formulated for subjects, implying that literacy practices for the standardised test and for subjects might be different.

Lecturers' understanding of and approach to reading practices were primarily about creating understanding and extracting meaning using discourse analysis, asking questions of the text, engaging with the author and separating essential from non-essential information. This was evident in the majority of lecturers' explanations that reading would be followed by writing summaries to demonstrate understanding of texts. In other words, reading skills for lecturers alluded to analysis in 'broad-brush strokes' rather than the fine-grained analysis that typified a standardised test. Students' ability to identify and use discourse markers and anaphoric references which were tested in a standardised test, for example, were seen to be incorporated in recognising coherence, logical order and the flow of information in lecturers' responses and were not separate entities that informed coherence. The objective of reading for lecturers was to establish meaning and gain understanding. This view of reading could be attributed to the context of first year of higher education where entrenching core concepts and core knowledge was important to lecturers.

Within the context of the case studies of this research, the findings of this study suggest:

- Academic literacy for reading to extract information is fundamental to success in higher education.
- Academic literacy skills for reading are guided by the nature of the subject and disciplinary content; for example, text dominant and visual dominant subjects might require similar types of reading skills but applied very differently in different contexts.
- Reading is viewed as a process of procedures to be followed, with the focus on textual engagement and knowing *how* to read to access information.
- The purpose for reading determines the reading approach. For example, textual analysis would be in-depth should an own opinion be required, whereas extracting numerals from a table or graph would require a different approach for accessing information.
- Reading is multi-componential, and applies a range of reading skills simultaneously to different representations of information sources.
- Lecturers have their conceptions of reading processes and procedures for their subjects which may (or may not) have been taught, given that in certain cases there is a misalliance between the kinds of reading required for assessments and the interview data.
- The specifications of a test of academic literacy may be considered guidelines for procedures to be followed, that is, engaging with the specifications will elicit the kinds of information required for knowledge acquisition.
- The specifications of a standardised test are all not tested in the same way as in the subject assessments.
- The reading skills required for a standardised test suggest that academic literacy for first year higher education is homogeneous across the university sector, both for degree and diploma studies.
- The approach to testing academic literacy for reading using fine-grained analysis is not a requirement in any subject that formed part of this study.
- Reading requirements for subjects are largely at the behest of what lecturers think are important and what they expect of students based on their understanding of what academic literacy for reading entails.

Given the discussion above one could be led to believe that a generic standardised test of academic literacy might not be appropriate for all subjects in diploma programmes. The approach to reading for different subjects was different from how academic literacy was presented in standardised tests. Since standardised tests are meant to identify students who might be at risk of

under-performing academically as a result of low academic literacy scores, the question to be asked regarding a fair response would be, 'To what extent was there an overlap between the specifications of the standardised test and the *actual* specifications as applied in subject contexts?' Are test specifications tested and applied in the same way that subjects require them to be used? The response, according to the findings indicated here, would not be in the affirmative. If inferences for appropriate placements were made based on performance on standardised tests, then I would argue that the latter should mirror the kinds of academic literacy practices for subjects and disciplinary areas of study. A mismatch between the way that specifications are tested in a standardised test and the way that they are applied for subject purposes could signal a caveat that comparisons may not be equal or fair, and may skew decisions on academic literacy proficiency.

This discussion suggests revisiting the purpose of standardised tests, that is, to determine the academic literacy proficiency of first-year students in respect of their ability to meet the academic demands of university study. If a general overview of language testing and academic proficiency were deemed adequate to draw such inferences, the sample standardised test would be useful. If plausible and authentic comparisons were required for a valid assessment, then the sample test would fall short in a number of areas.

The cycle of standardised testing does not end with providing an academic literacy score and identifying students at risk who will be placed in classes with lecturers such as the research participants. The kinds of academic literacy practices for teaching and learning, for support and interventions, do not focus on promoting and supporting the specifications that relate to a fine-grained analysis of text. Academic support rarely focuses on reading skills and practices – writing as the sole demonstration of learning and knowledge acquisition is always afforded primary attention. The purpose of foregrounding misaligned academic support initiatives is that there is a tacit assumption by higher education that students will inadvertently learn how to read as they are immersed into, and traverse the higher education terrain irrespective of a test score.

5.2.4.5 Writing practices across subjects

As explicated in Chapter 2, a compelling argument could be made that academic literacy is equally applicable to reading and writing, which are both products and manifestations of the academic learning environment. Reading and writing are closely aligned, with the latter usually the product of the former, and as such, the language in use, skills and practices of one should ideally mirror the other. Given that academic literacy skills and practices for reading are not overt and are more a

matter of literacy cognition, productive texts are viewed as the tangible demonstration of understanding where language ability and language in use become evident.

Although a standardised test of academic literacy is mainly reading based, the narrow alignment between reading and writing for academia and the emphasis placed on writing in the learning environment could render the analysis of academic literacy for writing purposes equally relevant to this study. In addition, the focus of the different models of NLS predominantly resides within writing in the discipline and the challenges that are embedded in writing for academic contexts.

The specifications noted below were based on the test specifications of an academic literacy test, and were extrapolated from summative assessments as part of data analysis. The summative assessments were evaluated to determine the presence and application of test specifications and alignment between the interview and assessment data. The discussion relates to Appendix L: Summary of interview data for writing, and Appendix M: Summary of assessment data for writing.

The specifications in Appendix L reveal the commonly noted requirements for writing across the subject areas as extracted from the interview data, while Appendix M represents those specifications identified from the analysis of the test questions for the summative assessments.

5.2.4.6 A comparison of writing requirements across subjects and their relevance to a test of academic literacy

The discussion below represents summaries of the various test specifications as explained by lecturers and/or as required for assessments. The summaries present an overview of the application of test specifications across the subjects of study.

Summary Writing: The ability to summarise and paraphrase texts was mainly explained in terms of reading skills, such as separating main ideas from supporting ideas. Written summaries were equated with paragraph structuring and alluded to: (1) the ability to write succinctly and accurately, (2) structuring texts coherently around topic sentences and thesis statements, and (3) the ability to use own words in summaries and paraphrases. The ability to structure summaries and paraphrases was a key feature of assessments for most subjects, predominantly for assignment writing. Of importance here is that summaries and paraphrases are composed of existing text that include task demands such as reading skills for textual comprehension, evaluating textual content to extrapolate the main ideas or for developing an own opinion, establishing text structure for the

logical coherence of ideas and using appropriate language structures (grammar and syntax) to formulate a succinct summary or paraphrase. Hidi and Anderson (1986: 480) view each operation for summary writing as a 'selection process in which information is consciously evaluated ... [for] concise and accurate representation'. These task demands for writing commence with reading texts and would therefore, mirror the kinds of tasks required for discourse analysis.

Regarding the use of vocabulary respondents for practice-based subjects indicated that the factual nature of the subject required the use of subject terminology and jargon in explaining subject content. Terminology was of paramount importance to access disciplinary knowledge and to engage in the discourse of the discipline. Terminology was equated with jargon and was unique to the subjects of study. A strong focus on terminology was evident in all assessments, requiring descriptions, explanations and conceptual differences. The focus of terminology in assessment was to reinforce knowledge and was commonly questioned without any contextual support.

Respondents' replies were very similar with textual organisational skills paramount. The ability to structure a sentence, introduce paragraphs, structure an essay, develop an argument and pay attention to coherence and cohesion were important skills in composition. The use of templates with content headings in certain subjects limited independent cognition and development of ideas. Structuring text was equally applicable to visual representations, the latter being another version of text. The writing requirements for assessments varied to a greater or lesser degree from phrases, to sentences, to paragraphs; in two subjects students were required to write essays. This specification was applicable to numeracy as well where data had to be ordered in a specific sequence for numerical manipulation. Using correct syntax and grammar for writing was acknowledged as important but was not a focus of attention for any respondent. For certain subjects, the use of full sentences with correct sentence structure was required while in others the message was more important than the medium, irrespective of how it was conveyed.

Respondents noted that opinions or motivations were required either in response to textual analysis or to visual analysis by six subjects. This specification was applicable to assessments, in some subjects more than others, in response to different sources of information. The ability to develop an argument ranged from providing well thought-out discussions, arguments and justifications, to *'I've never explored arguing a point...'*. This specification was applicable to research assignments as required for subjects ED1, ENG2 and BUS2. However, drawing conclusions was a common specification albeit from different sources of analysis such as texts, visual and numerical

analysis. This specification was applicable to all subjects in reading and writing across all genres of content representation ranging from simple to more complex understandings based on textual comparisons and own opinions. The appropriate use genre in terms of style, sentence types and content representation was a significant feature of academic literacy according to all respondents. The focus for assessments was more on genre shifts between text, visual and numerical content. The requirement to use different sentence types was not relevant to assessments.

Numeracy was *a big deal*, quite critical, and the basis of the subject for four subjects and was not required for the other four subjects. Manipulation of numbers for ratios and percentages in relation to graphs, tables and pie charts was a definite requirement for six subjects. Similarly visual representations were common to all subjects ranging from an occasional picture or diagram to *it's very big ... drawings, flowcharts, diagrams, graphs, tables* This was particularly relevant to all practice-based subjects regarding experiments, observations, and analysis of subject-specific artefacts, as well as to visual representations as they related to accompanying text.

Two lecturers alluded to the use of figurative language, the use of cartoons and the analysis of headings. Although respondents claimed that an analysis of figurative language was not a requirement for their subjects, texts taken from articles with their accompanying headings included figurative use of vocabulary that students had to analyse to understand the context. Similarly, visual representations of texts were also figurative in terms of one genre's being re-contextualised into another.

5.2.4.7 Summary of Writing Practices

The test specifications identified for writing were applicable to most subjects to a greater or lesser degree. The reading and writing practices of interview data and assessments were aligned in most subjects (BUS1, ED1, ENG1 and ENG2) although in certain cases the interview data did not align with assessment practices.

Although the standardised test was reading based, there were noteworthy similarities between the reading and writing practices of the subjects of study and the application of test specifications. For example, the same test specifications for reading are applicable to sentence composition: grammar, syntax, vocabulary and sentence cohesion. However, for the standardised test, assumptions were made about language knowledge, in that appropriate procedures for textual analysis were applied, whereas for subjects, writing was a tangible demonstration of language knowledge and textual synthesis.

In summary, all test specifications related to writing tasks for all subjects (except numeracy) to a greater or lesser degree. The frequency of use and application of test specifications for various subjects were based on how information was presented, how literacy practices were applied and the kinds of writing tasks required. Different writing requirements were evident across the subjects of study and aligned with participants' conceptions and expectations of literacy practices for higher education within their particular subject areas. Access to knowledge is dependent on the different ways that information is presented. It is incumbent on academics to be cognisant of the kinds of appropriate academic literacies practices to ensure that students apply reading and writing as befit the subject of study. These distinctions should, it is argued, be incorporated into standardised tests as well.

5.2.5 Participants' academic literacy practices and alignment with test specifications

There was a direct link between the way that lecturers explained the kinds of skills and practices for reading and writing in their subjects and the way that this was enacted for each subject. The analysis of data suggested that lecturers inadvertently controlled and limited the kinds of academic literacy practices based on their conceptions of academic literacy and the kinds of practices they thought students should apply at first-year level. In one case in particular, the lecturer's lack of understanding of what academic literacy meant for teaching and learning as well as for the subject, translated into acquiring and reinforcing content with limited scope for reasoning and literacy cognition. The skills model and BICS were prevalent in certain subjects with limited application of language knowledge and language ability, especially where templates were prescriptive in the structure and content of tasks. It may be argued that lecturers' conceptions of academic literacy and their concomitant practices translated into either constraints or enablements regarding students' academic literacy practices and academic literacy development. For example, for certain subjects limited opportunities were provided to access information for assignment purposes thereby limiting discourse analysis and appraisal skills, or limited opportunities were provided for writing and discourse development. Lecturers, by virtue of disciplinary and positional authority, could determine what students learned, how they learned (i.e. what academic literacy skills and practices would be applicable) and what knowledge, skills and practices would be privileged. The suggestion is not that these deficit literacies practices were intentional by lecturers. On the contrary, lecturers viewed their practices as supportive, nurturing and providing guidance for the benefit of students' academic success, perhaps not realising the possible consequences.

Consider the case of subject ED2: (1) summaries, paragraphs and essays were not required at first-year level; (2) notes were compiled by the lecturer for students; (3) an essay was structured according to headings and sub-headings from which students could not deviate, and (4) language use and correct syntax were secondary to a comprehensible answer. For this lecturer, the message, however it was constructed, was more important than the medium. By implication, for ED2, students were not required to apply interactive reading strategies to compile their own class notes, yet students were required to use academic texts for assignments and analyse texts for assessments. Written tasks where paragraph structure was key to developing skills of coherence and cohesion were not included. The lecturer's understanding of what was permissible and acceptable would become the norm for students. The lecturer for HWS2 assisted students with writing a case report by providing a template with detailed guidelines for each heading and sub-heading and explained that ... *in the instructions, I tell them what to do ... and everything is given to them*. The references to ... *one idea per sentence ... and the paragraphs that they write for my tests are straight from the books ...*, suggest a skills-based approach to academic literacy. While the subject content might indeed have been factual and procedural, the recommended responses were provided by the lecturer. The assessments for HWS2 did not include reasoning and reflection, but required factual responses to simply formulated knowledge-based questions.

The debate raised here is that there seemed to be a mismatch between the less than challenging literacies expectations of lecturers when compared with the more demanding requirements of a standardised test that represented academic literacy proficiency for higher education. When considering the examples of ED2 and HWS2 above, a test of academic literacy might hold minimal value, given the mismatch between the test specifications that purported to represent the academic demands of higher education, and the practices with which students were required to engage during their first year of study. The textual reading demands of a standardised test (for example, extracting main ideas, discourse analysis, identifying anaphoric references) were misaligned with the limited academic literacy skills and practices required of students as a result of lecturers' facilitation and support for students. The misalignment was evident in the test demands of what students should be able to know and do on entry to higher education, and what they were actually required to do in the subject. Ultimately, the test scores could present a skewed picture of students' academic literacy abilities if subject literacy requirements are less demanding than test specifications.

All the research participants claimed that students were under prepared for higher education. Yet it was ironic that lecturers provided limited opportunities for academic literacies in practice, which could well constrain academic development and success. The role of lecturers in providing epistemic access to knowledge through language should not be downplayed. The lecturer's role is extremely profound, especially at first-year level where students use lecturers' academic literacy practices and expectations as benchmarks for practice that did not always reflect standardised test levels of cognitive challenge.

In contrast to ED2 and HWS2, the kinds of academic literacy practices for subjects ED1, ENG2 and BUS1 compared favourably with the specifications and cognitive levels of a standardised test. Students were required to read extensively using interactive reading strategies, write extensively based on what they had read, develop arguments, draw conclusions and substantiate own opinions on textual content. For ED1, students were presented with guidelines on how to engage with text by asking questions about what was being communicated, by whom and why, classifying and categorising sentences, and by thinking and reasoning in a critical way. The expectations revealed by these lecturers in the interview data aligned closely with what was required for subject assessments, as well as the academic literacy specifications of a standardised test.

A general comment from interviewees at the end of the interview was that they had not thought about language use for their subjects in this way before. The interview served as a reflection of how students use language to make meaning and gain access to knowledge in their particular subjects. This could account for the reticence of five lecturers to provide detailed explanations of what was meant by interactive reading skills or to describe the procedures that students could follow to analyse or interrogate text for their subjects. Requirements for subject-specific reading and writing could be explained in broad brush strokes, but the more in-depth questions of discourse markers, drawing inferences and metaphorical language drew comments of, 'not applicable in my subject' in spite of probing and further explanations provided. Lecturers' guidance of academic practices for their subjects is therefore not only dependent on their own language knowledge and language ability, but is also largely dependent on what they do not know in terms of how appropriate language use adds value to textual analysis and creation. Alternatively, the 'expert blind spot' may account for the tacit understandings of lecturers' language ability that are not made overt owing to years of teaching and assuming that language knowledge is acquired by subject immersion. In addition, not all lecturers are language and literacy sensitive, with their focus rather on developing conceptual understanding of subject content. The focus of academic literacy practices of five

participants was mainly on extracting main ideas, demonstrating understanding and reinforcing content knowledge. All lecturers required students to be able to extract main ideas from supporting ideas but only two lecturers expected students to know why texts were structured in a particular way and how the text structure contributed to meaning. Furthermore, explanations were more forthcoming for writing requirements than for reading, the assumption being reading is a tacit skill which will be developed by means of immersion in higher education.

5.2.6 Is a 'reading only' test appropriate for the purposes of a standardised test?

It could be argued that the pedagogy of reading forms part of the hidden curriculum of higher education. Although some lecturers could explicate detailed reading patterns and schema to understand a text and extract meaning, reading was largely assumed to be something that students should be able to do on entry to higher education. Academic literacy programmes support writing, but few (if any at this institution) have a reading focus. According to the data, beyond providing reading lists, lecturers did not focus on whether students were applying their schema of reading as explicated in the interview. It seemed as if lecturers could explain their understanding of academic reading processes, yet they did not allude to incorporating these reading strategies in terms of socialising students into the field of study. The tacit expectation of lecturers is that students should be able to engage with interactive reading strategies, and as such, reading was not overtly taught by lecturers or support staff. Writing on the other hand, had a much more prominent focus in the data since academic success was determined by how students used language to articulate knowledge and understanding.

Although the standardised test focused on academic literacy within the context of reading abilities using generic content texts, in practice (i.e. in subject application) students were given what the lecturers considered privileged and legitimate information in simplified form. As such, test specifications for reading were not always dominant for all subjects. The most demanding reading in some term tests was short scenarios and analysis of questions. The argument made here is that while the standardised test is reading intensive, the focus in class, as explained by the lecturers, was writing intensive with academic support designed to improve writing practices. Although certain lecturers explained reading procedures in detail, there was no evidence to suggest that students were taught and socialised into these reading practices, probably due to a full curriculum and time constraints. Students' academic literacy proficiency was judged on reading practices of a standardised test, while students' academic literacy ability was based on written texts. The question to be asked would be: 'Can a reading-intensive test of academic literacy be used to reflect

proficiency in writing where all evidence and demonstration of knowledge reside within the written, productive domain?’

The data revealed a strong bias of judging students’ knowledge acquisition and language usage ability by written submissions. Writing invariably emanates from reading, with both literacy domains used to convey meaning where discourse and structure relate to logic and coherence. An absence of academic literacy conventions in student writing could mean that (1) the conventions were not acquired because of minimal interactive reading, or that (2) their English language ability was not sufficiently developed to analyse texts accordingly. Either way, the results of a test of reading and reasoning ability would not provide a fair and appropriate reflection to 1 or 2 above. Such results would merely reflect what information students were able to extract, not necessarily how students engaged with text to extract the response. The assumption would be that certain procedural steps should have been followed to extract, for example, the main idea of a paragraph. Whether appropriate procedures were in fact applied to arrive at an answer could well be disputed. Writing, on the other hand, is more evidence based in terms of how students engage with language to express knowledge and understanding.

5.3 SUMMARY

With referenced to testing, the discussion above raises important distinctions between text-and practice-dominant subjects. If standardised test results are used to categorise students according to inferred academic ability, then by implication, predictions are being made as to their ability to deal with the demands of higher education. The suggested misalignment of certain test specifications with their application in subject practice could bring into question the predictive validity of a standardised test, especially in relation to practice-dominant subjects. If inferences based on textual discourse are used for predictions regarding predominantly visual subjects, an argument could be made that inferences might not be fair and valid about students’ actual literacies abilities. This study foregrounds the importance of characterising students’ academic literacy proficiency for higher education according to the predominant modes of accessing and producing information as required for subjects, rather than assuming that textual discourse is the *prima facie* modality for higher education.

The other emergent themes of lecturers’ perceptions of academic literacy and whether their practices align with the specifications of a standardised test, suggest that academic literacy for higher education should not be viewed as homogenous. The practices that are privileged by

lecturers, especially at first year level, could leave an indelible impression on students, which students adopt as 'best practice' for content analysis. Standardised tests present the academic literacy norms for higher educations, which this study shows do not necessarily align with lecturer expectations. The issue at stake here is not whether academic literacy norms of a standardised test align with lecturers' perceptions and practices, but that students who might be placed in certain benchmark categories according to test results (i.e. basic, intermediate or proficient), might well present differently in subject-specific literacies. For example, a student categorised as 'lower intermediate' on testing scores might be 'upper intermediate' or 'proficient' given the academic literacy tasks required; similarly, a student who is categorised as 'proficient' on test scores, might appear to be 'upper intermediate' should subject tasks be cognitively demanding as specified by the lecturer. The implication is that students might be placed onto inappropriate programmes of study (for example, extended programmes) when they might well have been able to cope given the basic skills required and the 'nurturing', 'supportive' approach of the lecturer, such as for ED2. In addition to the similarities and differences across subjects as presented by the data in Chapter 4, this study shows that disciplinary differences and lecturer roles could affect the differences between what is presented in a standardised test actual subject practices.

Any attempt of standardised tests to accommodate academic literacy perceptions and practices of lecturers would not be feasible. Given the purpose of standardised tests, they *should* present the norms for academic literacy as required in higher education contexts. The issues raised here are the implications of academic literacy expectations for higher education as presented in standardised tests and the misalignment of subject practices, where the expectations might not be applicable or appropriate.

Against the background of the discussions above, an iterative point in Chapter 4 and Chapter 5 relates to the use of academic literacy for testing and the different purposes and application in subject practice. Standardised tests, by their nature are not discipline specific and are not influenced by lecturer interpretations – two definitive sociocultural factors that influence academic literacy in practice. In addition, lecturer perceptions of academic literacy do not seem to factor in other genre modes other than reading and writing, although other genre modes may be more dominant than textual engagement. Lecturers seem more intent that students develop a conceptual understanding of underpinning knowledge, i.e. remembering and comprehension than on the finer details of discourse analysis. Possible reasons might be that at: (1) first year level concepts and terminology need to be reinforced to facilitate understanding for vertical progression, and (2) the content is so

comprehensive that time does not allow academic literacies to be made more overt. The assumption that academic literacy is a tacitly acquired is largely prevalent in the understandings of lecturers.

The various themes discussed in Chapter 5 were dominant themes that emerged from the data and were not intentionally selected to match the research objectives. Given the interview schedule that related to the objectives of this study, certain themes resonate with what this study attempted to achieve. It could be argued that if additional measures, such as standardised tests, are used to support appropriate placement of students onto selected programmes of study, they should be apposite for the qualification, (i.e. a first degree or a first diploma) as well as the field and discipline of study. It is believed that the discussions raised in this thesis could contribute to the continuing debates on testing in the quest to find ways to validate testing (or not) as a supporting mechanism for access to university.

CHAPTER 6: CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS

Standardised tests in South Africa have as their purpose to test students' language proficiency and to use the test results for placement of students onto appropriate programmes of study and/or for academic support. Since the use of standardised tests seems to be gaining momentum in South Africa with the NBTs currently in use, in spite of critique from certain constituencies, the validity of the academic literacy test is brought into focus. This study addresses concerns of content validity by drawing comparisons between the specifications of a standardised test of academic literacy and the kinds of reading and writing practices required for various subjects in diploma programmes. For example, is the sample standardised test considered valid in that it aligns with the target use setting? Can legitimate claims be made that the test has value in providing indicators of academic language proficiency for various subjects of study? Do the test specifications mirror the kinds of academic literacy skills and practices required for a range of subjects of study?

Given the literature review, the data analysis and discussion, the following conclusions may be drawn in response to the research objectives. Firstly, does the sample standardised test reflect the kinds of academic literacy specifications that are typically applied at first-year level across different fields of study? My contention based on the findings is that realistically speaking, there is no subject in this study where the academic literacy requirements align perfectly with those tested in a standard test. This is not the aim of standardised tests, that test specifications should match subject specifications perfectly to claim content validity. Standardised tests assess academic literacy proficiency for higher education to provide indicators of what students are able to know and do at a particular point in time. They are not designed to be programme or field specific. The purposes of academic literacy engagement for testing (i.e. testing language knowledge and ability to access information) are different from subject requirements (i.e. knowledge acquisition using language structures). Although the purposes of standardised testing and subjects of study are different, this study shows that there are commonalities in specifications, but that there is a mismatch in application and focus of specifications for standardised tests and subjects analysed. Furthermore, academic literacies' specifications and practices for subjects were informed by lecturers' conceptions of academic literacy, the nature of the subject content and their genre presentations. This could account for certain literacy practices being privileged over others in different subjects.

The issue of alignment, however, raises further questions: (1) should there be a perfect comparison between the test specifications and the target language use? (2) what percentage of overlap in test

specifications and target language use would be acceptable to approve content validity? and (3) which test specifications and target language use should align?

The intention of standardised tests is not to establish a perfect match between the test specifications and the target language use. The test specifications relate to the *typical* [my emphasis] academic literacy requirements of any or all disciplines and should be 'based on inputs from inter-disciplinary panels of expertise to ensure that they have high face validity' (Cliff and Yeld 2006: 23). Furthermore, according to the principles of test design, what is assessed should bear 'direct relation to what is *likely* [my emphasis] to be required (in a generic sense) of test takers in any higher education context' (Cliff and Yeld 2006: 23).

Within the context of '*typical* academic literacy requirements' and specifications that would '*likely* be required of test takers' (Cliff and Yeld 2006: 23), one should concede that in the four text-based subjects the alignment between the test specifications and the target language use could be considered adequate to render the test appropriate. There is sufficient evidence to suggest that a standardised test would present a plausible reflection of academic literacy proficiency for these subjects. Although the academic literacy specifications that represented a fine-grained analysis of texts were not evident in the subject data, an argument could be made that this was not significant, as the test questions relating to these specifications were minimal when viewed in the broader context of the overall test items. For the more practice-based subjects, I would argue, there seemed to be incongruence between the kinds of academic literacy specifications of the test and subject specifications on two levels. The first level related to the kinds of engagement with test specifications. For example, even though the same test specifications might be applicable to the more practice-based subjects, their application was different. Separating essential from non-essential information from a table, graph, observation or an image required a different approach from perusing texts that were much more reading and language ability intensive. On the second level, the more detailed specifics of language use were not considered important in practice-based subjects. Texts were complementary to visual literacy and numeracy and used mainly for explanations, instructions and descriptions. The ability to analyse and synthesise visual and empirical representations accrued greater currency than reading or producing texts. Paragraph writing, essays and discourse structure for practical subjects were minimal in favour of templates, structured headings and instructions for content to be included. The findings suggest that the sample standardised test would not provide a plausible result to draw reasonable inferences of students' academic literacy proficiency for practice-based subjects based on the textual–visual difference, that is, the test being predominantly textually oriented, and the subjects being predominantly visually oriented. Regardless of the broad, overarching terms that describe such

tests in an attempt to accommodate all subjects in all disciplines (i.e. 'generic', 'standardised', 'typical academic literacy requirements'), the findings show that the incongruence between what is tested and the target language use for practice-based subjects does not augur well for drawing the kinds of inferences as intended for placement purposes.

In response to the second research objective, whether the specifications of a standardised test of academic literacy were appropriate to gauge students' academic literacy proficiency in order to make judgements about suitable placements, the findings showed that not all test specifications would be relevant to all subjects. Consider the frequency of test items in the sample test in Table 6.1 below.

The frequency of items in the sample test related primarily to textual engagement and analysis. The 'language knowledge' (Bachman and Palmer 1996) focused on organisational knowledge, grammatical knowledge, textual knowledge and functional knowledge, which, according to the respondents, were not significant components of language use for practice-based subjects. The specifications relating to visual literacy-dominant subjects were minimal (visual literacy and numeracy had two items respectively) and constituted less than half the test. The data showed that the specifications of the sample standardised test did not foreground the major specifications of the target language use for practice-based subjects. This brings into question the content validity of such a test, where inferences about language ability will be skewed in terms of textual engagement although the subjects are visually and numerically intensive. Furthermore, students who were categorised as 'basic' might be placed on inappropriate text-intensive academic literacy support programmes based on their performance in the various test areas. A more balanced test with text-based and visual–numerical test items would present a more authentic portrayal of academic literacies proficiency for visual literacy-dominant subjects.

This does not imply that the specifications were not applicable to other visual literacy-dominant subjects in other diploma offerings not included in this study. The findings are limited to the data generated from these subjects in particular and are not generalisable to other subjects. While the frequency of test items and their comparison with requirements for specific subjects were not considered absolute, there is a case to be made for considering alternative questions to accommodate the more visual literacy-dominant subjects.

Table 6.1: Academic literacy test specifications of the sample standardised test

Skill Area	Number of items testing this specification
Detailed reading for meaning: <ul style="list-style-type: none"> At sentence level At discourse level 	General coverage
Skimming and scanning	Nearly all items
Vocabulary <ul style="list-style-type: none"> Deriving meaning from context 'Known' vocabulary (i.e. no context provided) Spelling as it impacts meaning 	9
Understanding metaphorical expressions	6
Extrapolation and application (drawing conclusions or applying insights derived from text)	No items tested this skill
Inferencing (understanding ideas and information in a text, implied but not explicitly stated)	9
Understanding relations between parts of text through devices of cohesion, e.g. pronoun reference, particularly demonstratives referring to statements or propositions	7
Understanding the communicative function of sentences with or without explicit indicators such as definition, exemplification, argument, persuasion	No items tested this skill
Understanding the relations between parts of text by recognising indicators in discourse, especially for developing transition and conclusion of ideas, signalling relations between phenomena	9
Understanding the grammatical, syntactical basis of the English language	No items tested this skill
Understanding text genre (including audience, purpose etc.)	4
Understanding information presented visually (graphs, pictures, diagrams, maps, flowcharts, etc.)	2
Separating essential from non-essential: <ul style="list-style-type: none"> Main idea from supporting idea Statement from example Fact from opinion Proposition from its argument Classifying and categorising 	18
Understanding basic numerical concepts and/or information used in text, plus basic numerical manipulations <ul style="list-style-type: none"> Estimations Comparisons, greater than, smaller than Percentages, basic fractions Basic chronological references, sequencing Basic computations 	2
Understanding the importance of 'own voice' (including ownership of ideas and/or creativity of thought and expression)	1
Number of Test Items: Note: Some test items tested more than one specification.	67

The responses to the two objectives above provide a backdrop to the third objective: whether one generic standardised test should be used to test academic literacy proficiency of first-year students across all diplomas at a university of technology. The discussion of data revealed two types of subject orientations, text dominant and visual literacy dominant. They have different genres of content representation with different literacy requirements for reading, writing, analysis and productive communication. In vocational education, the focus is on academic literacy practices for knowledge acquisition and application for both academia and the world of work. In three diplomas that formed part of this study, students were immersed in the practical work environment from the first year of study. Situational learning has its own literacies where texts are not the sole domain of knowledge engagement. From the first term of study, visual sources of learning predominate in certain subjects, with texts being complementary. The data suggest that one generic standardised test would not be considered appropriate for all subjects and that inferences made about students' language proficiency might not be reliable within the context of the course of study. This does not imply that inferences about language proficiency are not reliable for the test itself, only that such test results do not represent the kinds of specifications salient to subjects of study. Inaccurate inferences could ultimately compromise placements onto appropriate programmes.

The comparative analysis of test specifications of a sample standardised test and reading and writing practices of various subjects has shown that academic literacy is but one of many disciplinary literacies. This study foregrounds the importance of disciplinary literacies and calls for a broader conception of academic literacy for higher education that incorporates other literacy skills in future tests. To this end, the following recommendations are made:

- Test specifications should be revisited to validate their legitimacy in determining academic literacy proficiency of students specifically for vocationally oriented diploma programmes.
- As is current practice, the test should include a section with a reading passage and contextual questions which should be compulsory, as all subjects draw on textual reading and writing, some more than others.
- Given the definitive differences in text-dominant and visual literacy-dominant subjects, separate test section(s) with more visual literacy and numeracy that resemble the kinds of multi-modal literacies of visual literacy-dominant subjects should be compulsory for students registering for certain fields of study, for example, engineering, health and wellness sciences and/or design.
- The visual/numeracy type questions should include texts that encourage reasoning and procedural analysis that relate texts to drawings, tables, graphs, and pictures, and that test the ability to reason across genres of knowledge representations.

- The fine-grained textual analysis such as explaining anaphoric references and identifying textual discourse markers should be reconsidered for diploma programmes. The emphasis on linguistics and discourse structure at this depth seems an anomaly where students are trying to make sense of an additional language for knowledge acquisition and application, not for linguistic analysis. None of the lecturers alluded to the elements that relate to analysing texts from a purely linguistic perspective.
- Although the test is meant to be criterion-referenced, the test scores and benchmarks are used as normative criteria for placements for a cohort of students. In the absence of a written component, the test scores should provide detailed information on student performance related to specific specifications to ensure that appropriate support is provided for academic success.
- The possibility of discipline-specific tests for diploma programmes should be explored.

This study could be viewed as an impetus to review and revise generic standardised tests to render the inferences more valid and reliable for use within vocational diploma programmes. Since standardised tests have been entrenched as part of the higher education landscape in South Africa, the quest should always be to offer students a fair opportunity for appropriate placement and concomitant academic success.

This study explored academic literacy practices within certain subjects and in a sample test that closely resembled the NBTs. No assumptions are made that the findings of this study are generalisable to other subjects in similar fields of study or to other standardised tests of academic literacy used in South Africa. Further replication studies could shed light on other subject domains. However, what this study does purport to achieve, is an understanding of how academic literacy plays itself out in different subject types in different fields of study for diploma programmes. The data, analysis and findings were contingent on lecturers' understandings. If their understanding of academic literacy was limited given their content lecturer bias, this might have limited a comprehensive understanding of what was required for the subject. The HWS2 lecturer was a case in point. What this limitation foregrounds is that not all lecturers are familiar with academic literacy as a construct and a field of study in higher education and that this has certain implications for academic literacy practices. The purpose was not to establish linear relationships between lecturers' understandings of academic literacy and a standardised test, but to explore their perceptions of reading and writing practices required for their subjects. The findings were therefore arrived at within the context of the following parameters:

- Diploma programmes at one institution
- Purposively selected subjects in selected programmes

- Lecturer understandings of academic literacy
- Lecturer perceptions of reading and writing practices for their subjects
- A sample standardised test

These limitations are acknowledged and present a caveat for the generalizability of the findings. However, this study provides insight into diploma subjects and covers research terrain that has not been traversed before at this institution. If standardised testing is gaining prominence, it is incumbent on academics to engage in empirical research to determine improvements to be effected.

Since this study foregrounds claims that disciplinary literacies have different ways of cognition, analysis and synthesis, further research could explore how testing might be adapted to accommodate disciplinary literacies and whether such revised tests would indeed bring about different results from those of the current generic tests. It would be illuminating to compare the results of a generic test with the results of a test designed for visual literacy-dominant subjects as expounded on in this study to determine whether disciplinary literacy should, in fact, gain the recognition which this study claims it should.

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APPENDIX A: Interview schedule

The following questions formed part of the semi-structured interview to lecturers who agreed to be research participants. A core set of questions were included in the interview schedule, from which further probing questions emerged. The list and descriptions of academic literacy test specifications as noted in Chapter 3, Table 3.1, was used as part of the interview.

1. For the record, kindly state your department and the subject that you teach.
2. At which level of the diploma is this subject taught?
3. How long have you been teaching this subject at first year level?
4. What is your understanding of academic literacy for higher education?
5. In your opinion, how important is academic literacy for academic success in higher education?
6. What kinds of academic literacy skills should students be able to apply on entry to higher education?
7. When you give students an article to read in your subject, explain the reading process(es) that you would expect a student to follow to extract meaning and understanding.
8. What reading skills and processes are required in your subject for students to understand what they are reading?
9. What kinds of written pieces would students be required to write in your subject at first year level?
10. What writing processes should students be able to apply when writing these written pieces for your subject?
11. What is your opinion on the need to teach reading and writing practices in the course of teaching and learning?
12. With reference to the academic literacy test specifications, which specifications are considered 'very important' for your subject?
13. Explain why each of these specifications would be considered 'very important'?
14. How and where would these 'very important' specifications be applicable for your subject?
15. Which test specifications are important but might not be used often in your subject?
16. When and where would these specifications be applied?
17. Which test specifications are 'least important' for your subject?
18. Explain why these specifications are considered 'least important' for your subject.
19. How important is visual literacy for your subject?
20. Explain how and where visual literacy would be applicable for your subject.
21. How important is the ability to apply numerical equations for your subject?
22. Explain how and where numeracy would be applicable for your subject.

23. How important is the use or analysis of metaphor for your subject?
24. Do you think that it is necessary to unpack vocabulary terms / jargon as part of teaching practice? Explain your approach to acquainting students with terms of the discipline.
25. Explain if and how reading and writing processes as required for your subject are assessed or whether this forms part of the content being assessed?
26. How could academic literacy specifications be included in assessments?

APPENDIX B: Assessment – BUS1

QUESTION 1(10 MARKS)

Write down in your answer book next to the relevant number only “T” for TRUE or “F” for FALSE for each of the statements below.

- 1.1 The South African (SA) Post Office is run on business principles, meaning that its income should cover its expenses.
- 1.2 Postbank forms part of the SA Post Office and its main aim is to serve people in remote areas where there are no commercial banking services.
- 1.3 POSTNET is a business undertaking that operates as a franchise.
- 1.4 The imprest system in the petty cash is where payments are replenished in the middle of the month.
- 1.5 A courier company’s service may include an overnight service where the items should not weigh more than 10 kg.
- 1.6 It is compulsory for all government departments to pay their staff overtime.
- 1.7 A contract worker, working for less than 40 hours a week does not have to contribute to the Unemployment Insurance Fund (UIF).
- 1.8 The total UIF contribution paid to the fund is 2%.
- 1.9 If you are a permanent employee of a private company you are entitled to medical aid and pension.
- 1.10 The tasks of a supervisor in a mailroom do not include recruiting, placing and training of mail clerks to do the job.

QUESTION 2(20 MARKS)

SPEEDY SERVICES CC is a company your aunt will be opening to the public at the end of June, although she already has three staff members working for her in the opening stages of the business. The company will offer various services to the public, including photocopying, typing, laminating, binding, local deliveries, etc. Your aunt has asked you to work for the company during your June/July holidays as she knows that you are studying Office Management and Technology (OMT). There are a number of issues and problems that still have to be sorted before the official opening to the public. She feels you would be able to help.

SPEEDY SERVICES does not yet have a proper filing system; this means that documents can get lost, which will be frustrating and time consuming for staff.

The documentation that will be filed is invoices addressed to specific people and correspondence received from clients.

REQUIRED:

- 2.1 Identify and discuss what method of classification of files you would suggest. (2)

- 2.2 Explain to your aunt the requirements of a good filing system. (7)
- 2.3 SPEEDY SERVICES will also have to purchase a photocopy machine. Discuss the factors you would take into consideration before purchasing a machine. (5)
- 2.4 Discuss how your aunt's staff can contribute towards the protection of the environment. (3)
- 2.5 There will be occasions where documents may go missing due to a number of factors. Explain **THREE** means of finding the missing documents (3)

QUESTION 3(15 MARKS)

SPEEDY SERVICES CC has been in operation for a number of weeks, but not to the public. There have been a number of petty expenses. You have been asked to draw-up a petty cash statement for the month of April. This will be the first petty cash for the company. You will make provision for the following columns: stationery, tea/coffee/milk/sugar, postage and sundry.

REQUIRED:

Draw-up a petty cash statement for SPEEDY SERVICES CC for the month-ending April 2010. Use the template in the answer book for your solution.

	R
1 Advance in petty cash	350.00
1 Purchase milk	15.99
6 Pay for stamps	35.50
8 Purchase flowers	59.99
9 Purchase files	65.00
10 Pay for parking	25.75
13 Purchase coffee	60.00
15 Receive a cheque to replenish the advance	
20 Purchase first aid kit	220.00
22 Donation to SPCA	50.00
23 Purchase pens and pencils	44.50
29 Receive a cheque to replenish the advance	

QUESTION 4(20 MARKS)

Milly Jones, Tembelana Sito and Tammy Smyth are employed by SPEEDY SERVICES CC. Use the following information to draw-up the wage sheet.

Working week	40 hours
Rate per hour	R35.50 for Tembelana and Tammy R40.00 for Milly
PAYE	19%
UIF	Required deduction
Medical aid	R700 per month
Pension	6.5%

Milly and Tembelana both worked five (5) hours overtime on Tuesday. Tembelana worked four (4) hours overtime on Sunday. Tammy took off Tuesday and worked 3½ hours overtime on Saturday.

REQUIRED:

Draw-up a wage sheet for SPEEDY SERVICES CC for the weekending 14 May 2010. Use the template in the answer book for your solution.

QUESTION 5(15 MARKS)

The staff at SPEEDY SERVICES CC will need to know how the record cycle works. Your aunt has again asked you to help explain a number of factors regarding records to her staff.

REQUIRED:

- 5.1 Explain the records cycle to the staff. Draw the diagram. (18x½=9)
- 5.2 The staff does not know the difference between a centralised filing system and decentralised filing system. Explain the difference, giving an example of each. (4)
- 5.3 Discuss why is it not possible to keep all records electronically? (2)

APPENDIX C: Assessment – BUS2

Case Study: The Campus Wedding

Instructions

Read the following Case and answer the questions that follow in your groups of four.

(NB: This is part A of the Case Study; Part B will be coming soon.)

PART A

On 31 March of last year, Mary Jackson burst into the family living room and announced that she and Larry Adams (her college boyfriend) were going to married. After recovering from shock, her mother hugged her and asked, "When?" The following conversation resulted:

Mary: April 22

Mother: What!

Father: The Adams- Jackson wedding will be the social bit of the year. Why so soon?

Mary: Because on April 22 the cherry blossoms on campus are always in full bloom! The wedding pictures will be beautiful.

Mother: But honey, we can't possibly finish all the things that need to be done by then. Remember all the details that were involved in your sister's wedding? Even if we start tomorrow, it takes a day to reserve the church and the reception hall and they need at least 17 days ' notice. That has to be done before we start decorating the church, which takes three days. An extra R100 contribution on Sunday would probably cut that 17- day notice to 10 days, though.

Father: Ugh!

Mary: I want Jane Summers to be my Maid of Honour.

Father: But she's in the peace corps, in Guatemala, isn't she? It would take her 10 days to get ready and drive up here.

Mary: But we could fly her up in two days, and it would only cost R500. She would have to be here in time to have her dress fitted.

Father: Ugh!

Mother: And catering? It takes two days to choose the cake and table decorations, and Jack's catering want at least 10 days' notice prior to the rehearsal dinner (the night before the wedding) .

Mary: Can I wear your wedding dress, mom?

Mother: Well, we'd have to replace some lace, but you could wear it, yes. We could order the lace from New York when we order the materials for the bridesmaids' dresses. It takes up to eight days to order and receive the material. The pattern needs to be chosen first, and would take three days.

Father: We could get the material here in five days if we paid an extra R25 to airfreight it.

Mary: I want Mrs. Watson to work on the dresses.

Father: But she charges R120 a day!

Mother: If we did all the sewing, we could finish the sewing in 11 days. If Mrs. Watson helped, we could cut that down to six days, at a cost of R120 for each day less than 11 days.

Mary: I don't want anyone but her.

Mother: It would take another two days to do the final fitting. It normally takes two to three days to clean and press the dresses, but that new cleaner downtown could do them in one day if we pay the R30 charge for the express service.

Father: Everything should be completed by rehearsal night, and that's only 21 days from now. I bet that will be a busy day.

Mother: We've forgotten something; the invitations.

Father: We should order the invitations from Bob's printing shop, and that usually takes 12 days. I'll bet he would do it in five days if we slipped him an extra R35.

Mother: It would take us three days to choose the invitation style before we could order them, and we want the envelopes printed with our return address.

Mary: Oh! That will be elegant.

Mother: The invitations should go out at least 10 days before the wedding. If we let them go any later, some of the relatives would get theirs too late to come, and that would make them mad. I'll bet that if we "didn't get them out until eight days before the wedding, Aunt Ethel couldn't make it, and she would reduce her wedding gift by R200.

Father: Ugh!

Mother: We'd have to take them to the post office to mail them, and that takes a day. Addressing would take four days unless we hired some part-time help, and we can't start until the printer is finished. If we hired someone, we would probably save two days by spending R25 for each day saved.

Mary: We need to get gifts to give to the bridesmaids at the rehearsal dinner. I can spend a day to do that.

Mother: Before we can even start to write out those invitations, we need a guest list. Heaven, that will take four days to get in order and only I can understand our address file.

Mary: Oh, mother, I'm so excited. We can start each of the relatives on a different job.

Mother: Honey, I don't see how we can do that.

Why, we've got to choose the invitation and patterns and reserve the church and

Father: Why don't you just take R1,500 and elope.

Your sister's wedding cost me R1,200 and she didn't have to fly people from Guatemala, hire extra people, use airfreight, or anything like that.

QUESTIONS

1. Given the activities and precedence relationships described in the (A) case, develop a network diagram for the wedding
2. Identify the paths. Which are critical?
3. What is the minimum cost plan that meets the April 22 date?

Any project is a risky venture. Write an essay on Project Risk Management.

In your write up, highlight the following concepts with regards to the 'Campus Wedding' assignment:

- What is Risk and Risk Analysis?
- Risk Management
- Risk Assessment
- Risk and Hazard Analysis
- What are the sources of Risk in Projects?
- How do you deal with Risk?
- Classification of risk (Risk Categories).

APPENDIX D: Assessment – ED1

The Portfolio

- Collect 10 educational newspaper articles which interest you over the next 2 months.
- Cut each article out and paste it onto A4-size bond-paper.
- On a separate page, type out the reference of the article (i.e. Author's surname, initial. Year of publication. Title of article. Title of newspaper: page number, issue date.)

Below this reference, write a brief summary (a single paragraph) of what the article is about. Also write (in a separate paragraph) what your personal opinion/s is/are regarding the story (i.e. critique the article).

When all ten articles have been collected and written about, arrange them in the order of the issue dates of the newspapers. Place your typed page opposite the sample/cutting page for all ten articles (i.e. article on the left page and the write-up on the right page). Number only the typed pages.

- Prepare a Cover Page with your names, course details, and your student number.
- Also prepare a contents page with article titles and write-up page numbers.
- Lastly, prepare a full list of references at the end, and attach a plagiarism disclaimer/declaration.

APPENDIX E: Assessment – ED2

QUESTION 1

1.1 What are the four main ideas of the cell theory? [4]

1.2 What does a nucleosome consist of? [3]

1.3 The diagrams below represent the different protein fibres that are found in the cytoskeleton of eukaryotic cells. Study the diagrams and then answer the questions that follow. Use the letters A, B and C in your answers.



Which of the protein fibres:

1.3.1 is the longest? (1)

1.3.2 move materials inside the cell? (1)

1.3.3 is stable and the most durable? (1)

1.3.4 forms cellular extensions such as pseudopodia in Amoeba? (1)

1.3.5 spontaneously form filaments even in a test tube? (1)

[5]

1.4 Copy the table below in your answer book. Place an X in the box that show characteristics of life that are true for each item numbered 1 to 5.

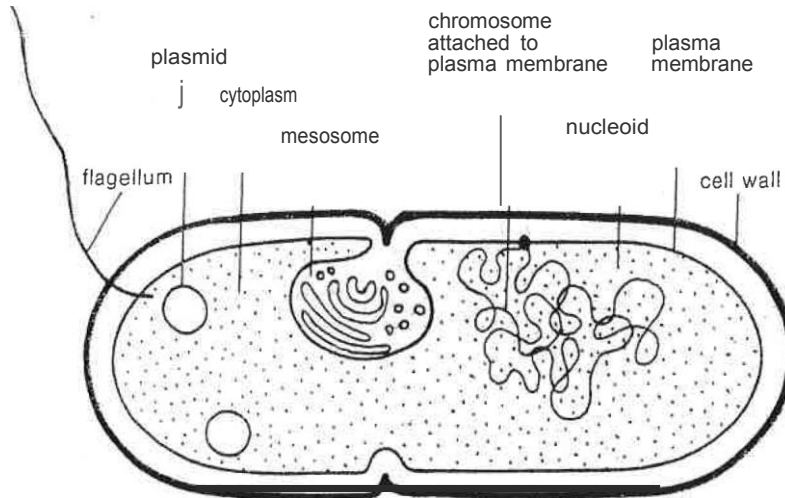
	Made of cell (s)	Move	Respond to the environment	Reproduce	Have a metabolism	Grow and develop
1. Worm						
2. Virus						
3. Rock						
4. Bacteria						
5. Tree						

[10]

QUESTION 2

2.1 Discuss the hierarchical organization of living systems by referring to different levels of organization found in a fresh water pond. [16]

2.2 Study the diagram below and then answer the questions that follow.



2.2.1 Bacteria is said to be prokaryotic. Name FOUR reasons evident from the diagram that support this statement. (4)

2.2.2 What is meant by the 9+2 structure of the flagellum of a eukaryotic cell? (2)

2.2.3 List TWO differences between flagella and cilia. (4)

2.2.4 How is the genetic material (DNA) of a bacterium cell arranged? (2)
[12]

2.3 Answer the following questions on movement of substances in the cell by means of molecular motors.

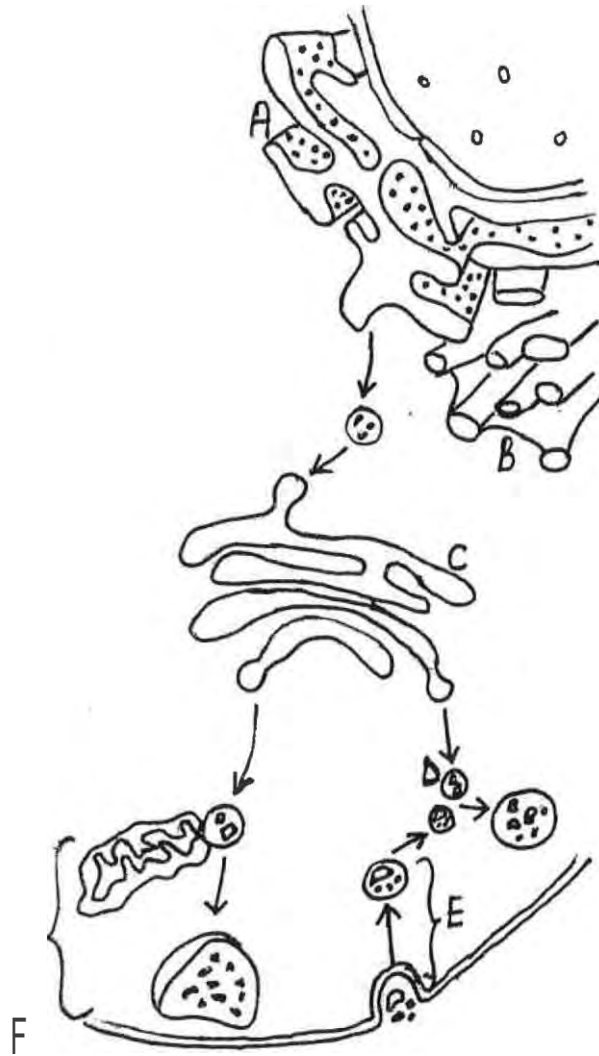
2.3.1 Name the four components that are required in order for movement to take place. (4)

2.3.2 Describe an example of movement in the cell where Kynein is involved. (5)
[9]

Total: 37 Marks

QUESTION 3

- 3.1 The diagram below illustrates the role of certain cell organelles involved in the transport of substances in the cell. Answer the questions that follow.



- 3.1.1 Identify organelles A, B, C and D. (4)
- 3.1.2 Name ONE difference in structure and ONE difference in function between A and B. (4)
- 3.1.3 Explain the role of C in the transport of substances inside the cell. (7)
- 3.1.4 Describe briefly the structure of D. (2)
- 3.1.5 Identify process E and state the importance of this process. (3)
- 3.1.6 Explain what happens during process F. (2)

[22]

- 3.2 Distinguish between coupled transport and counter transport by referring to:
- 3.2.1 an example in each case (2)
- 3.2.2 the movement of the molecules with respect to the concentration gradient (2)
- 3.2.3 the kind of transport protein used (2)
- 3.2.4 the use of ATP. (2)
- [8]
- 3.3 For questions 3.3.1 to 3.3.5 choose the correct answer A, B, C or D and write only the letter next to the corresponding question number.
- 3.3.1 Which of these statements about simple diffusion and active transport is true?
- A both are active methods of moving materials across the membrane;
 - B both use the concentration gradient for the direction of movement;
 - C simple diffusion requires energy input from the cell, while active transport does not;
 - D simple diffusion does not use transport proteins while active transport uses carrier proteins for transport.
- 3.3.2 Which one of the following processes occur when water diffuses across selectively permeable membrane?
- A Diffusion.
 - B Osmosis.
 - C Oxocytosis
 - D Endocytosis
- 3.3.3 A wrinkled plant cell was immersed in a solution . After 30 minutes the cell took on a turgid /swollen appearance. What was the nature of the solution?
- A Hypertonic.
 - B Isotonic.
 - C Hypotonic.
 - D Concentration gradient.
- 3.3.4 Which process does an organism use to remove metabolic waste from a cell?
- A Exocytosis
 - B Endocytosis
 - C Facilitated diffusion
 - D Simple diffusion
- 3.3.5 What is a phospholipid composed of?
- A Water, phosphates and a lipid layer
 - B Cholesterol and carbohydrates
 - C A glycerol backbone, two fatty acid chains and a phosphate group
 - D Amino acids, fatty acids and proteins [5x2=10]
- 3.4 Why was the model of the cell membrane used before the 1960s rejected in favour of the fluid mosaic model? [1]

APPENDIX F: Assessment – ENG1 and ENG2

Integrated Report: ENG 1 and ENG2

A. Introduction

Engineers are involved in a range of infrastructure and service delivery projects. Their roles vary from that of design and supervision to that of construction, job creation and project management.

B. Project Brief

Students will work in teams of 4 members (group work). Each group will be involved in a Technical Investigation of their allocated project. Each group will be required to produce a Project Report, make an Oral Presentation of their findings and produce a Project Poster for display. Finally, each group will be required to undergo a Service Learning Exercise as outlined as below for their project (refer to Item I). Students will be required to engage in one of the following projects.

C. Projects for Investigation:

Each project has been given in the form of a question:

- a. How are roads classified? Provide an example classification for a portion of MR27(R44)-
- b. What is the “Visual assessment Method” of roads?
- c. What are the top 3 problems facing roads engineers in the Western Cape? – Provide an Action plan for PGWC.
- d. Should we toll our national roads? – provide pros and cons for projects in the Western Cape – various web-sites and interviews with personnel at SANRAL and PGWC.

D. Focus Areas / Roles of Group Members

Member 1 - Make contact with professional role-players set up meetings and draw questionnaires.

Member 2 – Lead interviews with role-players, collate data and keep minutes of meetings with action items and contact data-base

Member 3 – Collect all additional reading materials and highlight issues relevant to the study; organise possible site visits.

Member 4 – Lead the data-analyses and report writing stages by organising team meetings and keeping notes of decisions made by the group in terms of individual responsibilities.

All members are responsible for the data-analyses, for report writing and for presenting the findings at the oral presentations. Each group should select a captain who will represent the group on visits to the Public Works Department.

Questions per team member

1. Problem identification – learners should draw up their own list of questions that will assist them to understand the topic being researched; why is it important to road engineers, and what issues they wish to address in their reports.
2. Data collection – learners must find out what resources they will need to understand the problem better, what data they will need to prove the problem exists, where to find the data, what methods can be used to analyse the data.
3. Data analyses – learners must use various tools and methods to analyse and compare data results.
4. Conclusion – learners must draw conclusions from their study and make recommendations.

All team members must identify suitable sites, plan dates to meet with role-players and develop their posters.

E. Objectives

1. To teach students professional and interpersonal communication.
2. To build team work (Together Everyone Achieves Much more)
3. To develop leadership skills (organizational skills, meeting deadlines, planning, communication.)
4. To build confidence levels.
5. To expose students to Engineering Construction Activities and Methods in the Western Cape.
6. To develop research abilities (data collection, analyses, interview skills.)
7. To expose groups to the Service Learning/community engagement opportunities afforded through their projects

APPENDIX G: Assessment – ENG1

Question 1

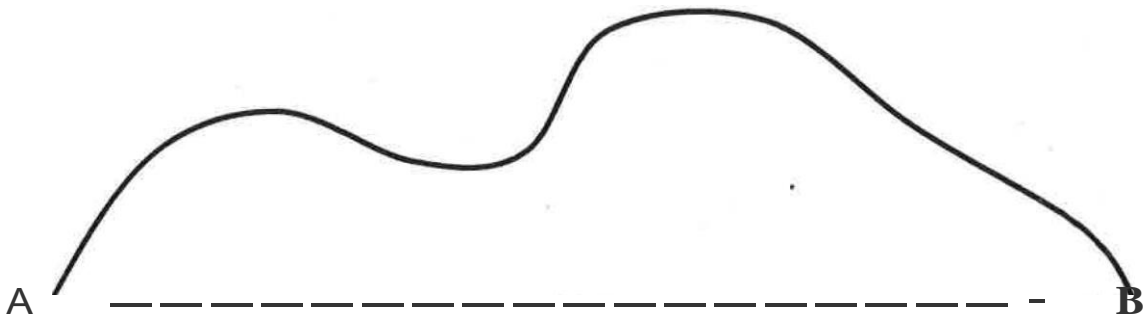
[16]

- a) What is levelling? (3)
- b) What is the role of the staff in levelling? (2)
- c) In Table 1 appended, is a field page of a survey that was undertaken by a technician to determine the reduced levels of the point A B, C, D, E, F and G. Use the Rise and Fall method to determine the reduced levels at these stations. Show COMPLETE checks. You may use the spaces provided at the foot of bottom of the table for this purpose. (11)

Question 2

[12]

The figure below drawn to a scale of 1: 100, shows a traverse line (dashed line) that passes close to an irregular boundary. The traverse stations A and B lie on this boundary.



- a) You are required to draw offsets from the traverse line to the boundary at intervals of 1m starting from A. (2)
- b) If the lengths of the offsets are 0; 1.5; 2.3; 2.5; 2.2; 1.8; 1.8; 3.0; 3.7; 3.7; 3.3; 2.5; 1.9; 1.3; 0.6; and 0 metres in the direction A to B . Calculate the area that is bound by the traverse line and the

irregular boundary using

- i. The trapezoidal rule (4)
 - ii. Simpson's rule (4)
- c) Which method is likely to yield a more accurate estimate of area and why? (2)
- d) Which method is likely to yield a more accurate estimate of area and why? (2)

Question 3 (10]

A trench of trapezoidal section is to be excavated to house the foundation of a dam wall. This trench is to be 50m long with side slopes of 1 :1.5. The bottom of the trench is designed to be level and 1.6m wide. After taking levels at 10m stake values, along the centre line length of the proposed trench, the natural ground levels are determined. These levels are given in Table 2 below. If the formation level of this excavation is to be constant at 78m:

- a) Use the Prismoidal rule to estimate the volume of material to be excavated. Clearly label the remaining columns that you have used. (9)

Table 2

Stake value	Natural ground levels	Formation levels
0	79.3	
10	79.5	
20	78.9	
30	80.7	
40	79.1	
50	78.9	

- b) Assuming that a T35 tipper truck of capacity 10m³ is to be used to remove the material, how many return trips would the truck have to do in order to haul off the entire volume to a dump site? (1)

Question 4

[13]

Use the coordinates given below to complete the Direction Sheet in Appendix 2.

Welgemoed South	+37 177.09	+50 205.85
Rietvlei Tower	+45 712.73	+44 423.20
Lug Res	+37 626.58	+59 872.25
Delft	+31 727.39	+61 437.33

Question 5

[16]

Use the traverse table provided in appendix 3 to answer this question.

A traverse survey is undertaken between the trigonometric beacons Tygerberg Hospital and Bont to fix the positions of the traverse stations Durbville; Q.T; and Lang R.

Given the rectangular coordinates:

	y	X
TygH	+ 35 731. 96	+53 512.57
Bont	+ 40 565.403	+57 259.298

Polar coordinates

Direction Tyg H – DV1	197° 23' 02"	Distance 7 706.145m
Direction DV1 – QT1	299° 00' 14"	Distance 8 113.704m
Direction QT1 – Land R	48° 01' 13"	Distance 11 005.049m
Direction Lang R – Bont	91° 50' 13"	Distance 6 054.182m

- i) Determine the final rectangular coordinates of the traverse stations DV1; QT1; and Lang R by using the Bowditch adjustment procedure. (12)
- ii) The linear misclosure of the survey. (1)
- iii) The accuracy and class of the survey. (3)

**Appendix 2
Direction Sheet**

Station	Observed Direction	Forward Direction	Provisional Correction	Back/Provisional Direction	Final Correction	Final Direction
@ Welgemoed South						
Rietvlie Tower	124°06'56"					
Morgester	257°51'52"					257°51'55"
DRC Goodwood	52°25'35"					52°25'36"
T1	336°23'34"					
@T1						
Welgemoed South	156°23'40"					
Glucose	267°51'55"					
@ Glucose						
T1	87°51'53"					
Kuils River	280°08'43"					
@ Kuils River						
Glucose	267°51'55"					
T2	65°38'56"					
@ T2						
Kuils River	245°39'00"					
Delft	32°49'56"					
@Delft						
T2	212°49'53"					
Lug Res	104°51'30"					
Blue Downs	291°15'05"					291°15'06"

Appendix 3: Traverse Calculation

Direction and Distance	Join Distance & Direction	.1Y	8X	Station	Y coordinates	X coordinates
				@TygH	+ 35 731. 96	+53 512.57
197° 23' 02"						
7 706.145m						
				DVI		
299° 00' 14"						
8113.704m						
				QTI		
48° 01' 13"						
11 005.049m						
				Lang Rug		
91° 50' 13"						
6 054.182m						
				Bont	+ 40 565.403	+57 259.298

APPENDIX H: Assessment - HWS1

Section 1

Circle the answer on your question paper.

1.1 Which of the following are S.I. base units

- 1) metre
- 2) volt
- 3) Henry

A) only 1

B) only 2

C) 1 and 2

D) 2 and 3

E) 1, 2 and 3

(1)

1.2 Which of the following are/is correct

- 1) the S I unit of energy is the joule
- 2) the S I unit of power is the watt
- 3) the S I unit of current is the coulomb

A) only 1

B) only 2

C) 1 and 2

D) 2 and 3

E) 1, 2 and 3

(1)

1.3 Force is equal to

- 1) work X time
- 2) work + distance
- 3) mass X acceleration

(1)

1.4 Energy is

- 1) Measured in the same unit as work
- 2) power X acceleration
- 3) measured in Newton's

A) only 1

B) only 2

C) 1 and 2

D) 2 and 3

E) 1, 2 and 3.

(1)

1.5 Kinetic Energy

- 1) is zero when a mass is at rest
- 2) is measured in joules
- 3) of a mass is independent of its velocity.

- A) only 1
- B) only 2
- C) 1 and 2
- D) 2 and 3
- E) 1, 2 and 3

(1)

1.6 The following are forms of energy

- 1) heat
- 2) light
- 3) radio waves

- A) only 1
- B) only 2
- C) 1 and 2
- D) 2 and 3
- E) 1, 2 and 3

(1)

1.7 A medium is required if heat is to be transferred by

- 1) convection
- 2) conduction
- 3) radiation

- A) only 1
- B) only 2
- C) 1 and 2
- D) 2 and 3
- E) 1, 2 and 3

(1)

1.8 The law of refraction (Snell's law) states that

- A) the angle of incidence is equal to the angle of refraction
- B) the sine of the angle of the angle of refraction is constant
- C) the ratio of the sines of the angles of incidence and refraction is constant
- D) the sine of the angle of incidence is equal to the sine of the angle of refraction

(1)

1.9 All incident rays parallel to the principal axis of a concave mirror will be reflected

- A) through the pole of the mirror
- B) through its focal point
- C) through the centre of curvature
- D) parallel to its axis.

(1)

1.10 If a lens acts as a magnifying glass

- 1) It must be concave
- 2) It must be convex
- 3) the image is real

A) only 1

B) only 2

C) 1 and 2

D) 2 and 3

E) 1, 2 and 3

(1)

Section 2

1. An object, with a height of 30mm, is placed 70 mm from a biconcave lens. The focal length of the lens is 35mm. Determine the magnification (use formula). (4)

$$\text{Magnification} = \frac{\text{Image size}}{\text{Object size}} = \frac{\text{Image distance}}{\text{Object distance}}$$

2. Give two examples of applications of the converging lens where a real and diminished image is produced. (2)

4. Define the following terms:

4.1 absolute zero (2)

4.2 melting point

5. An average diagnostic exposure is 75 kV and 40 rnA. Express these exposure factors using their base units. (2)

6. A patient is receiving treatment on a Linear Accelerator using 16 MV x-rays. How many volts are used to deliver this treatment? (1)

7. An injection is drawn up, using 0.05 liters of fluid. Convert this amount to milliliters. (1)

8. Your colleague weighs 75 kg. This is equal to ... newtons. (gravity= 9.8 m/s^2) (1)

9. An exposure of 5 mAs is set on the control panel. Calculate the time for this exposure if the rnA has a value of 200. (2)

10. Write short notes on the **three (3) methods of heat transfer**. Include examples. (6)

11. It is reported that the weather in Cape Town will be 75°F. Express this value in degrees Celsius and Kelvin. (4)

Explain the **three (3) methods** used to **electrify** an *object*. (6)

Coulomb's law gives an indication of the magnitude of the electrostatic force between charges.

- 11.1 Give the formula for the above law, indicating what each quantity represents (including the base unit). (5)
- 11.2 How does the magnitude of the charge on objects affect the electrostatic force between them? (1)
- 11.3 How does the distance between charges affect the electrostatic force between them? (1)
12. The potential difference between two points is 30V. How much energy is needed to move a charge of 5000J.C between the points? (3)
13. What is the power rating, in kilowatts, of an x-ray generator capable of 800 mA at 100 kV? (3)
14. Distinguish between conductors, insulators and semiconductors. Include examples and applications in your answer. (10)
15. If a mobile x-ray machine operates from a 110V wall socket and is rated at a total resistance of 12 .0, how much current does it draw during a 1s exposure? (3)
16. A circuit contains two resistors (with resistances of 3 .0 and 6 .0), connected in parallel to each other. The circuit also includes a 1.5V battery.
- 16.1 Draw and label this circuit (include the direction of current flow). (5)

APPENDIX I: Assessment - HWS2

1. What is the difference between a permanent and a temporary magnet? (2)
 - 1.1 Give an example of each. (2)
 - 1.2 Give an example of each of the four different types of magnetic material (include the type of material in your answer). (4)

2. In electromagnetism, the direction of the magnetic field lines can be determined by using the "right hand rule".
What does your thumb (2.1) and curled fingers (2.2) represent? (2)

3. Draw the magnetic field surrounding a current carrying conductor. (2)
 - a. Indicate the direction of the magnetic field. (1)
 - b. Describe what would happen if this conductor is placed midway between the North and South poles of a permanent magnet. (2)

4. What is an electromagnet? (1)
 - a. Give three (3) applications of electromagnets. (3)

5. Explain, with the aid of a labelled graph, 3 phase voltage supply. (4)

6. Complete the statement below:
3-phase voltage supply=6.1_V, while single phase voltage supply=6.2_V. (2)

7. Briefly explain three methods to generate electricity. Your explanation should include the method and how electricity is generated. (6)

8. Faraday's Law states: "An electric current will be induced to flow in a circuit if some part of that circuit is in a changing magnetic field."
 - 8.1 What does the amount of induced current depend on? (4)
 - 8.2 When can electromagnetic induction occur? (3)
 - 8.3 What is the main difference between a generator and a motor? (2)

9. If 110V is applied to the primary side of an ideal transformer, and the turns ratio is 500:1, what is the voltage supplied by the secondary side? (4)
 - 9.1 What type of transformer is demonstrated in 9.1? (1)

- 9.2 What is meant with an "ideal" transformer? (2)
- 9.3 Define transformer regulation. Give an example. (2)
10. Define rectification. (2)
11. Draw a labelled graph of a single phase, rectified wave. (4)
12. Explain the phenomenon of "thermionic emission".
Define "space charge" in your explanation. (4)
13. Choose the correct answer:
Modem x-ray units use (13.1 diode valves OR 13.1 solid-state rectifiers). (1)
Give four (4) reasons for your answer. (4)
14. Give two examples of semiconductor materials used in x-ray equipment. (2)
15. What is the main difference between a stationary and a rotating x-ray tube?(2)
a. Give one clinical application of each tube. (2)

APPENDIX J: Summary of interview data for reading

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<u>Specifications for reading requirements as described by lecturers for their particular subjects.</u>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
1. Summarise texts by separating the main ideas from supporting ideas	<i>... get the main idea of what the text is about.</i>	<i>... pinpoint what the whole article is about... pick up the essential components and highlight them and be able to grasp the overall theme of the topic ...</i>	<i>Students should have the 'ability to paraphrase using their own words ... pick out the salient points...</i>	<i>Students should be able to 'summarise and pick out the main ideas... be able to tell one story from different texts.</i>	<i>Extracting meaning from text was about 'being able to summarise ... extract what's important...</i>	<i>... summarising, seeing what information is relevant, irrelevant, what can be used...</i>	<i>...they must be able to read the text, understand the text ...find relevant information ... take out the important bits</i>	<i>Read and tell me what they understand about it. That's all unless there's anything else ... I haven't been here for so long...</i>
2. Analyse discourse structure from sentence to paragraph level	<i>What should the heading tell you, what is the introductory paragraph about...'</i>	<i>... when students read a text they should be able to understand and interpret ... how the text is constructed</i>	<i>... the first level would be ... to understand the words ... the meaning of what they are reading and analyse it ...</i>	<i>First 'single out words ... [find] the main ideas in paragraphs ... [was] the correct conclusion made ... even draw inferences'.</i>	<i>Starting with the heading, 'students should anticipate what is going to follow in the text ...</i>	<i>... when you start reading you look for ... the writer's preview, what is the thesis statement ... topic sentence ... main ideas...</i>	<i>...unpack and pull the article apart ... know that this paragraph introduces the article ... underline words that are new ... writing key words and phrases they</i>	<i>In my subject only content. Later on in the year I look at structure because we give them a case report. I coach them until we get to the case report ... what is</i>

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<u>Specifications for reading requirements as described by lecturers for their particular subjects.</u>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
							would then make meaning	an introduction ... That's basically all.
3. Genre: Differentiate sentence types for different purposes (argumentation, motivation, persuasion) Genre: Register and Style	<i>Are there definitions, explanations, statements ...</i>	<i>... if you are writing a request for financial additions for a budget ... that will be different from reporting on the progress of the project. So those writing techniques... motivational ... persuasive would be relevant depending on the kind of writing...</i>	<i>Is the language usage alarmist, persuasive, controversial?</i>	Identify hypothesis statements and their conclusions.	<i>... there is a style of writing? Yes, there is ... how they write reports ...</i>	<i>... needs to know the audience ... the purpose of that writing...</i>	<i>Most of the time it is factual, it's either right or wrong.</i>	<i>... scientifically you must speak in the third person ... so if we say style and tone did you use academic kind of language ... academic HWS2 and terminology'.</i>

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<u>Specifications for reading requirements as described by lecturers for their particular subjects.</u>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
4. Analyse vocabulary, terminology of the subject in context	<i>if there's a concept in the article ... how would you use it in your business</i>	<i>It's critical that ... terminology is explained in the context of the subject matter.</i>	<i>There are technical terms, technical jargon that they have to use ...show understanding of them in writing.</i>	<i>Terminology impacts meaning. They have to use the correct terminology... terms have a Latin base so they can't ... work out meaning in context.</i>	<i>There's a lot of jargon that is discipline specific ... the text is not very easy to read and understand particularly as a result of the terminology used there.</i>	<i>... must have the necessary vocabulary... needs to know how to work out the meanings of words... concepts in context ... very often you can't work it out from context .. you're lost.</i>	<i>In the department they use jargon, in class I teach technical terminology and when they talk to the patient they use layman's terms ... three different words for one object. ... have to use the terms in the right context.</i>	<i>... there's terminology that only pertains to [HWS2]so they need to be familiar with those kinds of words. So if you don't know the meaning of the words you won't be able to apply it.</i>
5. Draw conclusions from texts or visual representations	<i>Implying and using insight and making their own conclusions</i>	<i>... and in conclusion... show that they are tying up the whole argument ...'</i>	<i>... say what it is that they agree with out of the reading... what they don't agree with and why.</i>	<i>With hypothesis writing we have to look at results and the conclusions that a scientist has to come to.</i>	<i>On Inferencing, 'students should be able to see what's not given. Inferencing is very important.</i>	<i>they need to find relevant conclusions in order to find solutions to the problems that they have been investigating.</i>	<i>Students need to draw conclusions from artefacts, whether the patient was properly prepared, if the procedure would need to be repeated... identify what's wrong,</i>	<i><u>TEXTS:</u> Not in [HWS2] ... not 1st-year level. <u>ARTEFACTS:</u> 'They have to know what the normal is... what is acceptable...</i>

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<u>Specifications for reading requirements as described by lecturers for their particular subjects.</u>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
						<i>They must be able to make inferences</i>	<i>being able to say how it could have been prevented ...</i>	<i>why is it unacceptable ... they have to know the norm and then apply their knowledge...</i>
6. Analyse visual literacy: Extracting information; Relating text to visual representations such as charts, graphs or drawings; illustrate text to visual representations	<i>Extract information from a pie chart.</i>	Comments featured in writing requirements.	This was not identified as a dominant feature of reading and writing.	Comments featured in writing requirements.	<i>... we have a strong practical side ... it's about visualisation ... they will work from data to sketch... do a survey, collect data in a table ...</i>	Not a requirement for this subject.	<i>In my subject it's very important ... this is a definite requirement. ... draw a graph of two quantities that's inversely proportional.</i>	<u>ARTEFACTS:</u> <i>So to me that is a visual, then they have to look at it and see oh but this isn't normal. [Artefacts need to be analysed and explained.]</i>
7. Apply numerical calculations: ratios, percentages, fractions in relation to text	<i>Analyse pie charts... like 50% of the company goes towards ...</i>	Comment related to writing requirements.	Not required for this subject.	Comments featured in writing requirements.	<i>It's very numerical this subject.</i>	Not a requirement for this subject.	<i>It's the basis of the subject. They need numerical skills ...need to use fractions and percentages.</i>	Numeracy was important.

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<u>Specifications for reading requirements as described by lecturers for their particular subjects.</u>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
8. Identify and interpret metaphor and figurative meanings	Not noted in reading for this subject.	Not noted in reading for this subject.	Comment is indicated in writing requirements.	The subject was 'mostly factual because of the science in it'. An example of metaphor was interpreting cartoons in assessments.	Not noted in reading for this subject.	Not noted in reading for this subject.	<i>It's much more factual.</i>	<i>From my side, mostly factual.</i>

APPENDIX K: Summary of assessment data for reading

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<u>Specifications for reading requirements based on the analysis of summative assessments for each subject.</u>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
<u>Students were required to:</u>								
1. Analyse vocabulary in context and use terminology of the fields of study correctly and in correct contexts	Subject specific terminology and known vocabulary were required to understand the questions.	Assessments required the use and explanation of concepts within context.	Assessments required the use and explanation of concepts within context.	Assessments required the use and explanation of concepts within context.	Questions included subject related-terminology and jargon, which impacted understanding of what was required.	The ' <i>discourse is all about disciplinary terms, a lot of it is plain English</i> '. The vocabulary in all assessments was mainly 'plain English'.	Analysing terminology in context was important to understand and respond to questions. Students would have to either know the terms to understand the context, or work out meanings based on suffixes and prefixes.	The ability to use subject-specific terms was a definite requirement for all assessments. Students would have to either know the terms to understand the context, or work out meanings based on suffixes and prefixes.
2. Analyse sentences, paragraphs and texts in order to understand	The questions were scenario-based which required analysis of text.	Analysis included case studies, scenarios, a data table, and	This specification was particularly pertinent for this subject,	One summative assessment included an article for analysis. The	Each test included scenarios with a setting, context, measurement	Each term test included a reading passage and scenarios to be analysed.	The term test questions included MCQs testing knowledge, i.e.	The interview excerpt below presented a precise summary of actual reading required for

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<u>Specifications for reading requirements based on the analysis of summative assessments for each subject.</u>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
<u>Students were required to:</u> scenarios, case studies and research sources		a network diagram.	especially summarising reading articles and comparing theories of learning.	majority of questions consisted of one sentence knowledge-type questions.	and distances from which students had to extract data to write a response or complete calculations.	The research required for the report required critical appraisal of texts in selecting appropriate information.	a brief sentence from which content knowledge answers were selected. Brief scenario-type questions were included. No case studies were included but the analysis of reading texts for the assignment was required.	assessments: ... <i>we don't have any long things. It's just simple answers but it's introduction to new words. There's no long sentences yet... Maybe a couple ... explanations and the explanation is short enough.</i>
3. Apply numerical calculations to find solutions to numeracy type questions	Calculations were required from given data, e.g. Calculate the 'total profit', 'direct costs'	The tests included tables and representations which required calculations;	Not required for this subject.	Calculations, ratios and basic numeracy was a requirement for this subject.	This was a primary focus of the subject, the ability to understand ratios, percentages and fractions.	Not required for this subject.	Numeracy questions for assessments were common and included: ratios; algebraic equations; science formulae such as weights, resistance, force and energy.	Not required for this subject.

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<p><u>Specifications for reading requirements based on the analysis of summative assessments for each subject.</u></p> <p><u>Students were required to:</u></p>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
<p>4. Analyse text in relation to visual representations; analyse visual interpretations of text</p>	Analysing graphs in relation to calculations.	Network diagrams representing the flow of project goals are integral to the subject.	Visual presentations did not relate to textual analysis.	Visual literacy was an important requirement. Each question had a diagram or illustration on which questions were based.	Diagrams, graphs, tables with accompanying text and data featured prominently. Formed a core component of this subject.	Not required for this subject	Assessments included diagrams for labelling, analysis and evaluation of artefacts to provide specific information	Assessments included diagrams for labelling, analysis and evaluation of artefacts to provide specific information, and a table had to be completed.
<p>5. Separate essential from non-essential information for texts and/or calculations</p>	Extract details from scenarios relevant to the individually scaffolded questions.	Extract numerical data for tables; extract information from case studies.	Summary writing was a particular requirement for this subject.	This specification was prominent for visual illustrations as well as for sentence analysis.	This specification was true for text as well as visual literacy, where data had to be extracted to understand the context.	This specification was applicable to all assessments and assignments.	The questions for the term tests were presented in short sentences with details (either textual or numerical) provided. Selection of main points or numbers from texts was limited. For the essay, however, reading texts would have	As noted in 2 above the questions were mainly simple sentences and statements. The most intensive reading was short scenarios. While main ideas had to be extracted to answer the questions, not all questions related to the scenario.

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<p><u>Specifications for reading requirements based on the analysis of summative assessments for each subject.</u></p> <p><u>Students were required to:</u></p>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
							required this specification.	
<p>6. Reading and interpreting different genres of textual or visual representations</p>	News articles; Textbook.	News articles; case studies in narratives and dialogues format; articles for assignments.	News articles Evaluate and compare texts ; Present PowerPoint presentations; mainly text-based.	The ability to interpret textual and visual genres was equally significant for this subject.	The different genres included textual information, dialogues and graphs, tables and sketches.	This subject was mainly text-based. Limited visual analysis or visual literacy was required.	Assessments were interspersed with genre shifts between texts, diagrams, and calculations.	Genre shifts were required between text and diagrams.

APPENDIX L: Summary of interview data for writing

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<u>Specifications for writing requirements as described by lecturers for their particular subjects.</u>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
<u>Students should demonstrate the ability to:</u>								
1. Summarise and paraphrase	Comment related to reading requirements	<i>... can they pick up the crucial points and put them down in a short summarised way' ... they need to separate essential from non-essential because not everything is important.</i>	<i>... summarise an article ... interpret and provide their own perspective.</i>	<i>At first year level I provide them with prepared notes ... The rare instances where they have to make their own notes they need to be able to distinguish between essential and non-essential.</i>	<i>They should be able to pick out what's important ... they must be concise ... I don't want paragraphs of nothing ... they must hit the nail on the head.</i>	<i>... pick out your topic sentences ... If you have ten paragraphs, you have ten main ideas, that's your summary.</i>	<i>For a paragraph ... they must introduce me to a topic ... points about that topic, draw the topic to a close ... lead me to the next paragraph ...</i>	<i>You see the paragraphs that they do write in my tests are straight from the books. So they can't even put it in their own words ...</i>

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<u>Specifications for writing requirements as described by lecturers for their particular subjects.</u>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
<u>Students should demonstrate the ability to:</u>								
2. Demonstrate understanding by using own words	<i>not necessarily rewrite [the text] as they see it ... but in their own understanding ... their own words.</i>	Although this was not mentioned pertinently, it was implied given the essay writing based on the case study.	<i>I require them to summarise an article so that I know they have basic understanding of what it is all about.</i>	<i>... it's very factual ... it's more the facts.</i>	The use of subject terminology and jargon was required.	This was alluded to in providing evidence for presenting an argument..	<i>... in the introduction and the conclusion that's where their voice is supposed to come out. The information is factual, it's either right or wrong.</i>	<i>... paragraphs that they do write in my tests are straight from the books. So they can't even put it in their own words ... word for word, not verbatim.</i>
3. Structure written text by demonstrating coherence and logical progression of ideas	<i>There should be a beginning... the middle ... and the ending... is there a logical progression...</i>	<i>Structure is a basic writing skill ... how you introduce, build the body and conclude ...</i>	<i>Academic writing is about how you do an introduction, how you develop an argument ...</i>	<i>'I give them sub-headings ... structure is given ... it should be in that structure.</i>	<i>They have to show order of events ... it has to flow ... There's a specific order ... outline the procedure ... from A to B to C to D. You cannot</i>	<i>... there must be an introductory paragraph, ... a body of content, ... a conclusion ... for coherence the content in the body of the essay must relate to the</i>	<i>... academic writing competencies ... the ability to write sentences ... arrange my words in a cohesive sentence. Making up a</i>	<i>Same kind of idea in one. I do know I do always stress that one idea per sentence. what is an introduction ... see that you have all these</i>

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<u>Specifications for writing requirements as described by lecturers for their particular subjects.</u> <u>Students should demonstrate the ability to:</u>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
					<i>get to C before you've done B.</i>	<i>thesis statement ... do they give examples and illustrations ...</i>	<i>cohesive paragraph. Introduction, how they introduce the topic, the body with headings and sub-headings ... with appendices and diagrams ... then the conclusion ...the flow is important.</i>	<i>things in your introduction... I actually tell them what to do. that's your introduction that is your first paragraph give them the headings ... everything is given to them.</i>
4. Structure sentences using correct grammar and syntax	<i>... obviously sentence structure comes into being ... if the sentence does not make sense, the logical</i>	<i>The basic sentence construction... I'm looking at language use, sentence construction ...</i>	<i>I indicate grammar and spelling errors. For assessment purposes we don't over-emphasise the language issues</i>	<i>... address as many issues as we can but not too much on language and grammar ... or syntax. I do</i>	<i>... if one cannot communicate effectively in terms of grammar ... the way they construct their sentences, it</i>	<i>... they must know the appropriate language to use ...</i>	<i>... know where to put the verb in the sentence ... does it make sense ... they need to ... express themselves</i>	<i>... at 1st-year level short answers, not paragraphs...' What do you mean by word order? [Like getting the verb</i>

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<u>Specifications for writing requirements as described by lecturers for their particular subjects.</u> <u>Students should demonstrate the ability to:</u>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
	<i>progression will not captivate the reader.</i>		<i>although they are important.</i>	<i>think it's a focus area.</i>	<i>becomes a problem.</i>		<i>clearly using proper grammar and sentence structures.</i>	<i>in the right place.] I must admit I haven't done that.</i>
5. Use terminology correctly in context	<i>Instead of saying 'location' they use the word 'premises' and deviate from the sentence meaning</i>	<i>... using the right terminology that has to do with BUS2;</i>	<i>'there are concepts that they have to use when they are writing academically.</i>	<i>ED2 'has a language of its own ... and if you don't know the language ... you don't know the content.</i>	<i>... they must use the correct terminology. I must be able to know exactly what they're doing ...</i>	<i>... must have the necessary vocabulary. If he hasn't then he needs to know how to work out the meanings of words, not only words, but concepts in contexts...</i>	<i>... in the department they use jargon, in class I teach technical terminology and when they talk to the patient they use layman's terms ... three different words for one object.</i>	<i>Terminology is very important because only [these professionals] use a certain kind of terminology... so they need to be familiar with those words.</i>
6. Provide an opinion and substantiate an answer	<i>Students should be able to say, 'In my opinion ... I disagree with</i>	<i>Noted in reading requirements for this subject.</i>	<i>Academic writing is about ...how you take a position in an academic</i>	<i>The factual nature and structured format did not require students</i>	<i>The factual nature of the subject required motivations based on</i>	<i>... they can never give an opinion without giving reasons and</i>	<i>In the first year they don't have enough knowledge in order to make</i>	<i><u>With reference to artefacts:</u> ... they have to start off by saying, no it's</i>

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<p><u>Specifications for writing requirements as described by lecturers for their particular subjects.</u></p> <p><u>Students should demonstrate the ability to:</u></p>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
	<i>the statement because ...</i>		<i>argument... present your own opinions.</i>	to provide an opinion.	evidence or calculations.	<i>evidence for that opinion.</i>	<i>that type of comment in relation to the critical analysis of artefacts.</i>	<i>not right. Then the following thing must be why they say it's not right....</i>
7. Present a logical argument	Not mentioned by the lecturer.	<i>... can they really put down an argument against a question ...</i>	<i>Academic writing is about ... how you develop an argument ... how you take a position in an academic argument.</i>	Structure was given, students had to fill in facts – presenting a logical argument in narrative format was not required.	<i>What I want is well thought out discussions or arguments ... or justification'. Reports were structured templates.</i>	<i>... they must be able to produce an argument ... not just making claims, but producing evidence for those claims...</i>	<i>I've never explored arguing a point ... like giving them a scenario where they need to argue [a point]. I have never scaffolded the information to the point where they need to substantiate or argue a point.</i>	<i>... the questions are so structured ... it's very structured the case report ... No cohesion or logical paragraph development was required. Structure and prompts for information was provided.</i>

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<u>Specifications for writing requirements as described by lecturers for their particular subjects.</u>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
<u>Students should demonstrate the ability to:</u>								
8. Draw conclusions relevant to the text or information presented	<i>This specification was explained in reading requirements.</i>	<i>... can they draw a conclusion which is relevant for that particular situation.</i>	<i>I require them to ... synthesise information from different readings ...</i>	<i>... they need to make certain deductions ... how the numbers have declined or increased... because of environmental factors.</i>	<i>Students had to explain or justify using that particular technique over the other ... choose whatever you want and support it with reasons.</i>	<i>... they must be looking for solutions to particular problems ... draw relevant conclusions in order to find solutions to the problems that they have been investigating.</i>	<i>Conclusions were drawn from text and visual artefacts.</i>	<i>... not 1st-year level. ARTEFACTS: 'They have to know what the normal is... what is acceptable... why is it unacceptable... they have to know the norm and then apply their knowledge.'</i>
9. Recognise and use different genre types to illustrate an answer Genre/ style	<i>This specification was explained in reading requirements</i>	<i>Different writing skills are required ... a report ...[is] different from a request for finance ...</i>	<i>we do try to insist on them writing formally ... [rather than] informal language and slangy phrases.</i>	<i>Formal writing ... academic writing ... how to use references, tenses ... that is more or less formal writing ...</i>	<i>Textual, visual, numerical, factual content representations were included. Mainly visual.</i>	<i>' they need to write reports, and so they need to know the tone, they need to know about the kind of language use... whether</i>	<i>Textual and visual.</i>	<i>... there is a certain language that we speak in ... different kinds of language they'll be exposed to ...</i>

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<p><u>Specifications for writing requirements as described by lecturers for their particular subjects.</u></p> <p><u>Students should demonstrate the ability to:</u></p>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
						that report is a formal or informal one, whether they can use a personal or impersonal tone.'		Style and tone ... did you use academic language ... like in the third person... formal style of writing ... no slang
10. Apply numeracy skills to calculate percentages or ratios	This specification was explained in reading requirements	Numeracy is quite critical ... they would need to do calculations ...	Not required for this subject.	... work out percentages, maybe ratios... fractions ... do simple mathematics.	numeracy is a big deal ... to work out values, distances, directions ... plot these on maps...	Not required for this subject.	It's the basis of the subject. They need numerical skills ...need to use fractions and percentages.	Not required for this subject.
11. Analyse visual representations	This specification was explained in reading requirements	They would need to draw a simple graph and then explain the trends in the graph.	You come across the occasional picture or diagram ... mostly text.	It's very, very big ... Scientific literacy ... it's either in the form of text or drawings, diagrams, flowcharts,	The subject had a visual focus where students had to analyse data based on sketches or draw sketches based on data.	Not required for this subject.	In my subject it's very important ... this is a definite requirement. ... draw a graph of two quantities that's inversely proportional.	... they have to look at the images and explain what is wrong with it. What do they see ...

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<p><u>Specifications for writing requirements as described by lecturers for their particular subjects.</u></p> <p><u>Students should demonstrate the ability to:</u></p>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
				<i>graphs and tables ...</i>				
12. Use metaphor appropriately in text and visual representations	Headings need to be analysed ...	Not required for this subject.	<i>'It's plain straightforward language ... I haven't seen the space for it .</i>	Cartoons and visual representations are used extensively .	<i>no metaphors</i> were applied, according to the lecturer.	Not required for this subject.	<i>'It's much more factual'.</i>	<i>'From my side, mostly factual.'</i>
13. Use own voice and provide own interpretation and perspective	<i>... if this is the article ... if this is the problem how would you provide a solution.</i>	Comment related to writing requirements.	<i>They need to be able to add their own voice to what the author is saying.</i>	Providing conclusions based on the hypothesis, using own interpretation.	For case studies and practicals, students <i>should be able to give an explanation as to what is happening without being told why it is happening.</i>	<i>... so they can never give an opinion without giving reasons and evidence for that opinion.</i>	An own interpretation was required when evaluating artefacts, i.e. applying content knowledge to explain phenomena in artefacts.	An own interpretation was required when evaluating artefacts, i.e. applying content knowledge to explain phenomena in artefacts.

APPENDIX M: Summary of assessment data for writing

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<u>Specifications required for writing as analysed from summative assessments</u>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
<u>Students were required to:</u>								
1. Provide answers using full sentences and paragraphs; construct sentences and paragraphs using the correct grammar and syntax	Questions were to be answered in full sentences, not phrases.	Discourse structure for writing included sentences, paragraphs and essays.	Assessments were either in paragraph or essay format, but grammar was not a priority.	Answers were mainly at sentence level.	The lecturer <i>normally asked for explanations [and gave] the leeway to explain things...</i>	All assessments were based on the ability to write sentences, paragraphs and essays.	<i>They need to express themselves in order to succeed... if they are not going to write properly they are not going to get the mark.</i>	Responses ranged from one-word answers to sentences providing explanations of terms. No paragraph was required for any assessment.
2. Write coherent, logically structured paragraphs	Paragraphs were limited to explanatory answers	Besides essay writing which was prominent, explanations in narrative form were required for network diagrams.	Assessments were either in paragraph or essay format,	No paragraphs required.	Short paragraphs by way of explanations were required.	Brief paragraphs, essays and reports required evidence of this specification.	An assignment required a three-page essay on an evaluation of an artefact using reference articles.	Paragraphs and summaries were required for a case report. Answers were in template format

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<u>Specifications required for writing as analysed from summative assessments</u> <u>Students were required to:</u>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
3. Use the appropriate genre for writing purposes	Writing had to conform to the conventions of the subject.	Writing had to conform to the conventions of the subject.	<i>We insist on them writing formally because it's academic work.</i>	<i>Scientific literacy ... like using the scientific method, hypothesis writing...</i>	<i>There's a specific order' of information, procedural, and providing justification. For evidence presented.</i>	The emphasis was on report writing.	Responses were factual, with information relating to the knowledge of the subject and procedures to be followed for practicals.	The writing was factual, with information relating to the context of patient details and procedures to be followed for practicals.
4. Use subject-related terminology correctly in context	Terms of the field of study had to be known to understand the questions and provide appropriate answers.	The use of the correct terms in context, not the 'layman's' understanding of commonly used terms was important.	There are terms of the field of study to be used in written responses.	Terminology of the field was specific to this subject. Students had to know definitions of terms and how they related to one another.	Understanding and use of terminology was paramount to reading and writing for assessment purposes.	The integration of subjects required subject terminology and English vocabulary.	Terminology formed a significant part of analysing and answering assessment questions. A limited knowledge of vocabulary would place students at a disadvantage to comprehend and respond to questions.	Terminology formed a significant part of analysing and answering assessment questions. A limited knowledge of vocabulary would place students at a disadvantage to comprehend and respond to questions.

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<u>Specifications required for writing as analysed from summative assessments</u>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
<u>Students were required to:</u>								
5. Present numerical data using visual representations, graphs, charts, diagrams.	Students had to complete a timesheet using data from a scenario	Numerical data had to be selected from a table, requiring analysis and interpretation to select the correct data.	Not required.	Students were required to explain differences in phenomena using numerical calculations.	This subject was about visualising theory by being able to sketch and illustrate text and data.	Not required.	This specification was required for reading and analysis but not for drawing or presentation for assessments	This specification was required for reading and analysis but not for drawing or presentation for assessments.
6. Present own voice and interpretation in presenting answers to questions	Opportunities for students to express their opinions in the term assessments were limited.	Interpretation of text and related data required personal perspectives.	Students were required to summarise ten articles and provide their own opinion on each one.	Not required. Factual nature of the subject did not allow for individual interpretation and own voice.	Own voice not required. Interpretation of data substantiating claims was a necessity.	This specification was important when presenting evidence for argumentation.	Explanations had to be provided for certain phenomena.	Explanations had to be provided for certain phenomena .
7. Draw visual representations, illustrations of text	Students had to complete data	Drawing flowcharts,	Visual formats were required,	Visual representations	Sketches, diagrams, tables	Not required for this subject.	Assessments required	No drawings were required..

	Business Studies		Education		Engineering		Health & Wellness Sciences	
<u>Specifications required for writing as analysed from summative assessments</u>	<u>BUS1</u>	<u>BUS2</u>	<u>ED1</u>	<u>ED2</u>	<u>ENG1</u>	<u>ENG2</u>	<u>HWS1</u>	<u>HWS2</u>
<u>Students were required to:</u>								
Present an answer in a visual format such as a PowerPoint presentation or flowcharts	in tables and graphs.	network diagrams and tables were required,	such as PowerPoint presentations, which did not require analysis of accompanying text.	formed a significant part of this subject.	and charts formed part of every assessment.		drawings of different subject components. The assignment required ' <i>hand-drawn diagrams ... to be included as appendices</i> '.	Labels had to be provided for diagrams. Tables requiring information from memory were included.
8. Write summaries of articles, (such as for research assignments) using summary writing skills	Not required for assessments	Summarising information from textual sources to be included in the essay.	Students were required to summarise ten articles as part of a compiling a portfolio.	Not required for assessments	Not a requirement. Explanations based on data were required.	Summaries and paragraph writing was evident in all assessments.	Not required for term tests but references had to be summarised for the assignment.	Not required for assessments.

APPENDIX N: Extract from an interview transcript

The questions I'm going to ask will be related to your specific subject and I'm going to be asking you about the kinds of reading and writing practices for your subject. So to start off, what kinds of reading are your students required to do for this subject? Is it like text books? Are they required to read for assignment writing? What kind of reading is required generally?

We have a prescribed text book and – which is quite expensive and it's not every student can afford it, but we do advise them to buy the book since it can be used up to Honours level. So they are required to get the text book and then read from it – read it in preparation for you know, a particular topic that we're dealing with. They are advised to read newspaper articles on current issues like for instance, nowadays would be on the rhino poaching, on invasive alien plants specifically that – that makes the newspapers.

Okay.

Those kinds of articles. They are also advised to read up in terms of do some searches on the Internet for specific assignments. Right, if they have to do something about renosterveld or the fynbos bio [Indistinct] then they have to do and reading about those - those topics.

And so they're not required to read journals or anything?

If they are required to read journals that is the internet search might lead them to a journal and so yes, that is also a – you know requested of them or required because that's where they can get real sort of factual information from, ja.

That's actually my next question. What kinds of text genres do students have to engage with? Is it more factual, is it metaphorical?

Mostly factual. Mostly factual because of the Science in the Biology but then also we would encourage them also to read just the general kind of say metaphorical reading, texts to engage with them in order to develop their critical thinking skills because that's also an aspect that we, that I deal with in first year because from second to fourth year they do a model in argumentation and that is where critical thinking comes in, ja.

And so when they – of these texts would they be able – would they need to draw conclusions, extrapolate, what kinds of practices would they have to engage in?

Yes they would have to be able to – they must be able to summarize to pick out main ideas, to compare. Even in the printed hand outs, the notes that I give them, I point out, I give them like an informal exercise to compare to structures in terms of their functions and in terms of their characteristics, you know look at similarities look at the [Inaudible] and thereby help them to engage meaningful with the text, yes. So that's – ja – and then inference is not so – not as much because you find that in the – the average student first year student, their higher order thinking skills are not well developed. If it does exist it's not – they're not even aware of it.

Okay. But they would be required to draw conclusions from what they read in any way?

They would be yes and then draw, of course draw up conclusions for instance we look at something with respect to scientific, the scientific method. Look at hypothesis writing and is the scientific method followed in a particular scenario and then the conclusion that was made, does it relate does it answer – you know – how does it address the hypothesis. Yes, so that is also a...

A reading skill.

A reading skill. The other reading skill that I also and it's actually an assessment activity. In subject didactics where they have to – a set of instructions is given to them. They need to read those instructions. I explain – there is sort of a glossary, a vocabulary given with and then they have to again in say in groups of two, read the

instructions, follow the instructions, read and draw and in that way a whole couple of things are assessed. Their reading skills, their – can they follow instructions – their drawing skills, for instance, which is very important in Biology.

Now when you give students a text do you give them something to read in class?

Yes.

Can you talk me through what are the kinds of processes you would expect them to follow to extract meaning from their text?

Yes. Of course because there are – there are what we call Pre-Service Teachers, I would always try and play the role of the teacher and if I give them a text I will tell them look this is how you do it in class. You first read through it and make sure that all the instructions, everything is clear for instance when it is a – its part of an assessment activity, in class. You make sure that everything is clear that there's no printing errors or typos or those kinds of things and then I would expect them to single out the – like for instance words that they find difficult – that they have difficulty in understanding, you know the terminology is strange to them. So then we look at vocabulary, use your dictionary. You see that is important and then of course after that now you look at paragraphs, what is the main idea in this paragraph? What is the meaning of – would that be the correct conclusion that was made, something like that. So I even draw on, you know, touch on inferences. Right, but just very – you know very, very superficially, ja.

And would students need to engage with the text– would they be required to look at discourse structure in terms of how – of sentences and discourse structure of a paragraph? Do you go into that as well?

Not to a large – not to a very large extent you know, because of time, you know. I really I have a module in subject didactics Biology 1, Scientific Literacy that I deal with in the first term because for me that will form the – it will help in providing a base for them for what happens, you know, the rest of the first year and second and

third year. And I always tell them that these are skills for life that I'm trying to teach you because I find that the communication that's done in Education, does not really – I don't know – but it just comes across like what's being taught in the Communication Classes they don't transfer that to the content of Biology for instance when we deal with content ja.

Okay.

So in the sense you know, we – we try and address you know, as many issues as we can but not too much on language for instance and grammar – not language – grammar for instance and the syntaxes or syntactical aspect, ja.

Is syntax not really a focus area?

It's not a focus area. I would like to make it – I do regard – think it is important but I cannot pay too much attention. I would address it you know when, especially when it comes to answering questions and they do you know, give feedback say in a written form and that sentence is written in such a way that I cannot make meaning or understand what it is that they're trying to say. Then I realized it's the, for instance, it's the grammar, it's the sentence structure or syntaxes, whatever you call it and then I will address it at that point.

Okay.

But it's not really that it's, you know, I can – that I can make it really a separate or a part of the module and that is where I strongly feel that is what the Communications Lecturers or class...

Should focus on.

Should focus on. How – if how they focus on it and if they do I'm not sure. I'm trying to address that also and that is what I addressed in my Dissertation, ja.

Tell me, I'm interested to know about the Scientific Literacy, what is that about?

Scientific Literacy well you know, it's probably what one would also call Academic Literacy. Scientific Literacy, Scientific Writing, you know? Really, like using the

scientific method, hypothesis writing, you know, how to write a hypothesis, which is the very first, right at the beginning of following the scientific method and ja, so I call it Scientific Literacy, you know, because of the and you said you will later address the visual representation. How does science speak to us? It's either in the form of text or drawings, diagrams, flow charts, graphs and tables and things. How to...

So is that all part of the Scientific Literacy?

Scientific Literacy, that's all part of Scientific Literacy.

Okay but we're going to come to writing part now.

Ja.

So in terms of extrapolating meaning, can you talk me through how students should extrapolate meaning from a text?

What do you think students should do to get to the actual meaning of the text?

Well first of all you know, like I say, should it be about for instance the cell, you know, that they should, they should first of all understand the terminology that's used. And many a time you cannot just assume that they're supposed to know this because they – it formed part of their High School or the Life Sciences Curriculum. It's not always the case you know. So what you have to do is to again make sure that they understand the terminology and then if they understand and know the terminology of course then when they read any texts - they then can make meaning, you see. But if they don't know the terminology that's when you refer them to things like dictionaries and other aids in terms of helping them to – to understand you know what is written there what does the word – let me think of a word – it's something as simple as...

The nucleus or metabolism you know, what does that mean, you know? Or if I talk about the negative feedback mechanism, they're supposed to have dealt with that at school but you will still find that they come – I don't know what is the shift that's taking

place in their minds, you know, because it's like something when they and I don't know if it is the language that really puts them, you know at a disadvantage, you know. Because you might find that some terms are completely different – the Afrikaans term or the English term is completely different from the English term. So they have difficulty in you know in making a connection ja.

How important is reading practices? How important is it for Biology?

It is of course very important. They need to be able to read. They must be able to read with meaning, you know. One of the things that I always do with them right at the beginning of the year, is I give them a questionnaire titled Introducing myself to Biology 1 and starting off with what was their symbol in Biology and Matric you know, at matric level. Favourite topics and so on. But eventually I address the issue of the medium of instruction that's English, you see? And how would they – are they comfortable and they must say yes or no and if they're not comfortable how would they help themselves to improve their English, you know, their command of English language. So in that way you get answers like, I will use the dictionary. I will have conversations. I will read a lot you know.

Okay.

Which I encourage them to do all the time. Not just by the mere fact that they – for Biology but you being a teacher and really at tertiary level you know you must read a lot. That's the only way how you can really also broaden your knowledge base, ja.

Are they required to critically evaluate text? You know where they have to read a text and give their opinion and motivate and you know, take a text and analyse it as such?

No, no. Ideally I would love to do that but I don't have the time, yes.

Okay.

And that's why I find that this first term where you do Scientific Literacy that it's really sort of like a drop in the ocean, it's really...

So in actual fact if they're not asked to analyse then are you saying that they are supposed to – whatever they read – that's what they're meant to use?

Ja, ja.

They don't have to analyse and give their opinion?

Not in a – ja – no not at...

At first year level?

Not really at first year level. A slight little [Indistinct] thing on hypothesis writing we have to look at the results and the – the results and the conclusions that a Scientist has come to and then they have to motivate you know. Do they agree with that?

Okay.

They have to make up their own hypothesis or look at the hypothesis that this person has made, look at the results, look at the conclusion, you know. Do they match you know, does the...

Okay.

And then they have to make up their hypothesis. Does the – the results – does that address that or the conclusion, does it answer their hypothesis, you know?

So there is in terms of what they read and practice?

Ja there is...

There is room for them to...

There is ja.

To have to analyse text and give their opinion based on what they read?

Yes, yes there is. We do cater for it but not really in a very how could I say – explicit way sort of that there is this section on...

Okay.

And today we are just going to do that.

It's sort of implicit part, embedded in their assessment activities for instance.

Okay, so they have to give their own opinion and motivate?

They do, they do yes.

And in a way evaluate what they read?

Yes – yes they do have to ja.

Okay how important is vocabulary to your subject, terminology?

It's very important. It's very important because Biology like any other discipline has a language of its own and if you don't know the language I mean you don't know the content and that is where you will fall short you know in terms of getting good marks for instance.

In terms of the terminology are there many words that students will be able to work out from context or do they have to learn the terms? Is it known? Can they work it out or are many of the words new to them?

Many words are very new to them. Very new to them.

Oh okay.

And this is actually a huge we put it like that in inverted commas a deterrent. Because they struggle with the language, you know. It's not so much – they love the subject – but when it comes to studying for instance, for tests and so on they admit that they struggle with the terminology because it's words that they hear for the first time and you know many of the terms in Biology has either a Latin base or some other base. So they cannot even really sort of... Work out a meaning, ja.

So are you saying that students need to know the term in order to understand what they're reading? Does it impact on the meaning?

It does impact on the meaning, many a case. In many cases it does impact on the meaning, you know. If for instance if they have to describe a process you know then the meaning, the vocabulary comes into play, the terminology. They have to use the correct terminology but sometimes if you just ask then the functions of this or that, that's fine you know. But when it comes to really writing about for instance the hierarchical organisation of the levels of life then they have to know, you know atom molecule organ and if I like – like I would instruct them to define each one of those levels then they must know the meaning, you know. So it does, it does come into play.

I'm going to move to writing practices now.

Yes, yes.

What kinds of writing do students need to do besides assessments? Do they need to do assignments, portfolios, what kinds of writing?

They do assignments mostly. Besides tests they do assignments, yes. They do – I don't if – would a tutorial count as part of their writing?

Ja if it's a tutorial exercise.

A tutorial exercise which will help them actually to prepare for the test, right and actually in the tutorial we might flesh up [Indistinct] certain things that they are not very clear on.

Okay.

You know and so that helps. So ja that is mostly – we have and then we have the practical. We have practical activities where they have to write up, maybe not write up – ja they have to draw what they see from the microscope, under the microscope.

Okay.

So what kinds of assignments do they have to do? Is it like major research assignments? What would they be expected to do for an assignment?

In first year I make the assignments fairly sort of easy if you can call it that, where they have to look at something like maybe fynbos or renosterveld, look at the distribution

then I give them specific you know, aspects or sub-headings that they have to look at and do a – more descriptive than anything and not really sort of comparative and you know and make an evaluation and so on. They it's really more so that they can – to broaden their knowledge base because in second year we go deeper into say fynbos for instance, so...

And then do they have to do a literature search and use references for their research?

Yes it is encouraged although it's very – it's an aspect that needs a lot of attention, referencing, you know and I do try to address it also.

But I mean they need to do reading for the assignments?

They need to do reading for the assignment. They need to reference. They need to have the bibliography and I do give marks for the bibliography you know.

So they would be required to for example have – I'm thinking of discourse structure for the essays? Would they need to have an introduction and a body and the conclusion? Is that kind of...

Ja not – because if I give them the sub-headings then I mostly would want you know because very just factual, it's really not...

So it's a structured?

It's a structured, ja. It's like a structured essay if you want to call it that but it's not really in a conversation that they have. It's really more like I say descriptive, you know, facts here.

But in that do you – are they required to write in for example paragraphs? Do you expect then to be a topic sentence, with supporting sentences? Is that something that they need to be able to do?

Ja not again – really not explicitly. For me it's really if they can extract information from a number of sources. Ja, that is important. I want these facts. I want at least three examples of the plant – or three plant families with examples or in my rubric I will indicate if they have for instance and I'm just making an example, ten uses the fynbos you know economical, you know the economical importance.

So you don't specifically require them – it must be in a certain order in terms of paragraph writing?

Not but I would – I would because the structure is given. It should be in that structure, ja, you know and if they don't follow that.

And in terms of language and syntax, do you focus on that in their writing as well?

You know I don't want to really how can I put it? I always battle, grapple with it you know, to allocate marks because they're second language speakers and sometimes third language speakers and so I find it very difficult to penalize them but although it is – I realize it's important but I don't really. The language is not that big – a big thing for me, you know. It's more the facts, but ja.

But do you find that if they – that the syntax and the grammar impacts on making meaning?

Yes, of course and then I will of course, if they do write in a way where I cannot comprehend what they're trying to say then of course they will be penalized, you see. And so I always would advise them not to take and that is where plagiarism comes in you know, where they just take a piece of their – or a couple of sentences straight from the source and you know cut and paste it into their assignment and that's and then where you can see the difference in and they don't even know – they themselves don't even know what – they just see oh there's fynbos okay so I'm going to take that and put it in you know.#

To what extent do the reading practices relate to writing? Is it a lot of what they read do they have to put it into writing? Or is a lot of what they read just to broaden their knowledge?

No it's really – I also don't like to just give them something to read just to keep them occupied and I think for students many a time if you want them to realize the seriousness of the business, you must attach a mark to it, you know. There must be some, some...

They would have to write?

They have to write, ja.

Okay.

And because otherwise the reading might never be done, you know. The reading might just be oh okay it's optional so I don't have to read it, you know. So I try to really – to always link it to a, you know, to make a – to give them a mark for it, you know.

How big is summary writing for your subject?

It is it's actually quite big because they are supposed to – and now I'm just going to take you to second years'. In first years' – at first year level I will provide them with prepared notes. Notes that I have prepared myself. Not all of them can afford the text book as I've said. We have a prescribed text book, so I prepare the notes. But second year I give them a couple of hand outs and I give them a scheme and I say these are the issues that we are going to address or discuss in class and you need to make your own notes based on you know, following that scheme and then that's it you see. So it does. It, as, from second year onwards, ja summary – for them to be able to make summaries it becomes very important you know.

And so they would need to be able to know the steps in summary writing as well?

Ja they do but again I'm not as sure how well they perform.

No but...

In doing that ja.

required to do ja, okay.

So in terms of summary writing on would they – would they have to know the steps in writing a summary?

Ja.

Extracting the main ideas, you know having – using the same discourse structure for a paragraph?

Ja.

Is that a requirement?

That is required that would be from second year onwards, okay.

Okay.

But first year we you know we've, I think and that's my approach, you know. It's very sort of a nurtured approach you know and really just building their confidence in their first year reading skills.

Okay.

And then their writing skills because the writing is what I get mostly in terms of feedback, you know.

So do you but when you give them an article do you require them to be able to look at a paragraph and to be able to say okay this is what the structure of a paragraph should be like?

Not – not really.

Not really.

Ja. Ja I don't deny like I have said you know it always bothers me that I can't spend as much time on language. The language of you know, structure, the grammar, the structure of paragraphs.

But it's needed for your subject?

It's needed for my subject, yes of course it is.

Tell me the genre of what they write is it mostly formal, informal what kind of text should they be writing in terms of style, writing style? Style and tone and register or...

Ja mostly formal, mostly formal yes. Because of the – the nature of the assessments is mostly formal and again I would [Inaudible] because they write term tests, you know.

And so again I suppose this is where the scientific style comes in?

The scientific style comes in the scientific literacy comes in yes. So it's formal, I mean I think science if you look at science it's mostly formal, you know. The informal writing is – plays a very sort of minor role.

Just very briefly and I need to know but from your perspective, how would you describe formal writing? Formal scientific writing?

Well formal scientific writing according to me is again and now you will – I will maybe probably think of academic writing as such, you know. It's really a mixture of the two where you follow say for instance, the scientific method, right. But also keeping in mind the academic – what is required in academic writing. How to use abbreviations, referencing, tenses and so on you know. So that is – that is more or less the formal, formal writing for me, you know.

And the scientific writing – is it more than just using the terms of the discipline?

It's more than just using the terms of the discipline. It's also following a particular structure. It's following a particular structure...

So there's certain steps that need to be followed?

There are certain steps that need to be followed. For instance, how do you write a research report, you know and just again I took it up with the second years' again that these are the steps that you know this is the structure, introduction.

Okay and do they need to do a research report at first year level?

At first year level but that one like I said it's fairly...

Very structured, ja.

Okay so they just need to fill in the details.

Fill in ja the details.

But you'll tell them exactly what to write about?

Yes, yes, yes that is so.

Okay. Would students be required to separate essential from non-essential information?

Yes of course. Of course they would, they would. They are required to do that you know.

For assignment writing or?

For assignment writing even the – the rare instances where they have to make their own notes they need to be able to distinguish between essential and non-essential.

Okay. We spoke about syntax and grammar and all of that. I wanted to know visual literacy – how big is visual literacy in Biology?

And I suppose this is where you – you look at things like drawings and graphs?

Drawings, graphs, maps, anything visual that relates to text?

It is big, very big. Very, very big, ja. Very big because how can I say? If you teach Biology simply by means of text it becomes monotonous. It's laborious it's difficult for the students to connect to make meaning and so on. So well this is where your

visual practices come in. You do practicals where they use the microscope or they look at a life size specimen, right.

Do they actually need to draw?

They need to draw. They need to draw what they see under the microscope. They need to draw what they see in front of them. They need to be able from what they see make certain deductions to a certain amount even compare a shape of this one and the shape of that one or after you've added – coloured the slide – was there any change in the shape? Was there change in colour, you know? So their observation skills are also tested. Then also we go on excursions. We go to the for instance to the museum and they have to look at life size, for instance Paleontology [Indistinct] say dinosaurs, right and a worksheet. They have to complete a worksheet based on what they observed there, right and that worksheet is and it also again, meaning is made of. It's not just go and look at something and that's it. You need to look at it with a particular idea in mind. What is it that I understand? What is it that I see and so on.

And graphs?

Ja and then we go to the Tygerberg Nature Reserve again and then coming from there then they do the assignment on the renosterveld because now they've seen it and now they must ja. Okay and they must try and get as much information as possible, even take photos and so on and include that in their assignment and that. Graphs yes of course, right. Table okay, graphs and tables, flow charts and...

So when would they use flow charts and graphs and tables?

Well, for instance when we look at the distribution of a number of organisms, say a species.

Okay.

And how the numbers have declined or increased or decreased over time because of the environmental factors. They need to be able to read the graph, right. They need to be able to understand the variables with the independent and dependent, even in that thing of the hypothesis writing, there I also address variables. They need to understand a table you know. How to read a table and maybe fill in information, missing information in that table, or get information, you know and or I will give them...

Extracting.

Extract information or I will ask – instruct them to draw a table of difference, indicating the differences between two kinds of cells for instance, right.

Would they be required to take the visual and translate it into text, in other words right about it, explain or?

Yes. Yes, yes and actually a couple of years ago I don't know why I stopped doing that. That was one of my exercises that I gave them where I give them a flow chart a diagram of the carbon and oxygen cycle and they had to describe using just that information. Then I actually instruct them starting with the words and I start with the first block right there on top. Starting with the words oxygen in the atmosphere is and that's what they would write [Indistinct]. Explain to me the – or describe the oxygen cycle for instance right. And then another one that I used to give them also was for instance the process where – of how what is the – the beer, traditional beer is made, right using yeast, fermentation you know. So we look at anaerobic respiration or fermentation using yeast. So I give them the process and they must draw the flow chart. I give them the description of the process they must then draw a flow chart.

Okay. So in other words they need to be able to take visual, interpret it and put it into text?

And vice versa. That is ja...

Okay.

That is what they're supposed to do.

And it goes beyond drawing like you mentioned photos?

Ja it's beyond drawing.

Flow charts.

It's beyond drawing.

And is it used extensively?

It's used extensively yes because I mean Biology is all around you. So you cannot not use the visual as a stimulation.

And in terms of their readings, their literature – is there also lots of visuals in the literature?

Yes – yes – yes.

Where they need to be able to do vice versa?

Yes, yes.

And relate the visual to the text?

Ja. Ja because it's – many a time I think it's a – for one type of say phenomenon or event or process it's better to look at the diagram, the flow chart or the diagram will explain it better than the description because you can easily see how this step 1, step 2, step 3, step 4 – how they follow on each other, you know, so, so ja.

And numeracy – to what extent is numeracy important in Biology?

It's very important, they need to know how to work out percentages, maybe ratio you know. Even map reading as such, especially in second year when we – I do a

special tutorial or a map reading, you know, how to read – how to direction scale, how to use scales. The symbols.

But like at first year level do they need to?

First year level also, ja. They need to be able – they must be able to at least do the simple mathematics, you know. Like I said percentage, ratio...

Ratio.

Fractions, you know those things.

So they would have to manipulate numbers?

Numbers yes, yes or make more or less assume it's about – that's about 50% of it.

Oh okay and is that also quite a major part of being to understand and interpret information?

I would think so, yes because especially when it comes to practical. When it comes to, for instance when they study something like microscope they need to be able to see – to write and I require of them write a heading, indication – indicating the magnification used to study this object or the specimen. And then they know that the magnification is worked out by multiplying the number that's on the – what do you call it? The main objective that they look through, the lens, beyond the viewer [Indistinct] and to the smaller objectives right. Multiply that because it's maybe something like 4×10 .

Okay.

So it's 400 times that you – that this specimen is then enlarged you see.

Okay.

So that is – that's needed right from the beginning.

So that's a major requirement?

It is a major requirement yes.

And in terms of – I know that you mentioned that it's more factual but is there any need for figurative language use? Do they need to – have to interpret figurative language use or you? Or is everything just literal?

Well I think to a – I'm now trying to think now. I think it probably is, yes, yes, there is. There is.

Would there be a need for them to know the difference and to be able to identify the difference in text for example? You know like for example a heading that might be metaphorical?

Ja, ja, ja. There would be. There would be and I'm trying to think now of something where it's something that's sort of really quite humorous, but it's not really the proper scientific or the biological heading that you would give, ja.

Okay.

There is something like that ja. I do ja, I forgot about that. For instance I do cartoon with them in global warming.

Okay. Okay.

And I normally give them that also as a tutorial and even in their tests and they have to explain to me you know it's like a cow there you know the cows and at one stage they said okay the methane [Indistinct] that cows you know their – ja that is actually it contributes more to global warming than something else or you know so they have to ja, ja.

So they have to interpret cartoons?

They have to interpret the cartoon also.

Okay.

And that's not always literal?

That's not always literal ja, right, ja that's it.

Ja but it's probably not on a large scale but they need to be able to know the difference between the two?

Ja because I try and bring it across to them that there's humour in Biology too, you know. Global warming which is, everybody, you know it's written about in newspapers and all over. So somebody can take – you can see the funny side of it also. But that funny cartoon addresses quite a very... a major serious... serious issue yes.

One of the last questions – to what extent would students be required to know communication markers in text for example like however or this you know when they analyse text? Do you think that these discourse markers actually help them to understand? Do they need to know that?

They do need to know that. I can give you a simple example. You sometimes use the word hence in your notes or they read it in a text and they don't know what hence is. Or you would – there's the one question that always and I don't know why I don't take it out but then I don't know what else to put in there. The question in the practical is do all the cells have more or less the same shape? The answer would – many of them would write more or they would write less.

And I want yes or no. You know so I always to explain that question. The other one is the word numerous. They don't know what numerous means. Can you see where the vocabulary thing comes in? So when I give them any activity I read through it with them and explain words that I think they might not understand. And sometimes I miss it because I think – I assume that they would understand and then there's quite a number or few that would not you know, they have difficulty in understanding that, just a word like if I use – like I said – hence.

So is that the reason why you don't focus so much on paragraph structure and that in the writing?

Yes. Yes that is the reason.

It's a requirement but you don't focus so much because students have a problem in writing a proper paragraph?

Ja, a paragraph yes. Because the barrier is there, you know that it's this whole thing of its in – Biology it's all that content, you know in English that is – I just had a discussion earlier with a student, a mature student who matriculated in 1987 and he said he's – I asked him how did you write yesterday? Ja I know I will pass but oh but the English, you know and they fearful of the – being taught in English you know. So and normally I tell just to hold you know, to not to give up because by – I normally tell them by September everybody will only speak in English in this class, you know. You don't speak – you don't hear Afrikaans but that is the thing, you know, because over the years I've noticed how their confidence is eroded...

Ja because of the language. It's – I don't know but I and my class groups are as – this year's group is 130 first years in the Biology class. So I know and I suppose I cannot ignore what I've picked up over the years and so I really like I say I've got a very nurturing approach because it's not the subject as such. It's the English because many of them say I love Biology, it was my best subject at school and they come and so now the language and they totally freak out.

So all of the specifications are you suggesting or are you saying it's a requirement but you don't focus on it so much because you're adopting a soft approach?

Ja that is what I've – a soft approach. I'm adopting really that...

Do you feel then learning it incrementally?

Ja that is so, ja. I try, I really try and make it as easy for them to put it in a way you know, even showing them a movie like what is that? Inconvenient truth of Al Gore, right so they can see this is and I was thinking of asking them to write – not just like a review or something. I thought no, no, no that's a bit too much to ask you know. But just so that they can see this is all Biology really and also stimulating their interest. Because they – it's just the notes or just a text book and that's it, right.

And I want to prepare them as teachers. A teacher must read. A teacher must know a lot you know. You must actually brag about what you know. You must really be so full of knowledge and you know that so that when the learners question you, you can really just go off on a tangent of.