

**Critiquing representation: the case of an academic literacy
course in an Engineering Faculty in a South African
University**

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Education

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Declaration

I, Annah Vimbai Bengesai declare that:

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Abstract

What does it mean to be academically literate? Responses to this question have led to an explosion of research in the field of applied linguistics, yet the diversity of definitions proposed in the literature for the concept of literacy per se indicate that it continues to defy consensus. Literacy, and specifically by extension academic literacy, must thus be recognised as a contested field, with different meanings for different people and inevitable tensions between those taking positions on or affected by its practical implications. Accepting its contested status, this study sought to explore student representations of academic literacy, academic staff representations of academic literacy and associated academic staff representations of students insofar as these touch on specific concerns of academic literacy in an engineering faculty. The purpose of this exploration was to determine how these representations permeate academic practice and inform pedagogical practice and attitudes to learning. This led to the research thesis, that dominant discourses produce certain practices which can lead to social exclusion/inclusion of students. Such a thesis, allows for an examination of institutional practices of teaching and learning. To do this, I employed a multidisciplinary approach drawn from applied linguistics, sociology and philosophy. Consequently, I drew on theories from James Paul Gee, Pierre Bourdieu, Basil Bernstein and Jean Lave and Etienne Wenger to understand the socio-cultural context where representation occurs. An understanding of these discourses and epistemologies also necessitated an approach that probed participants' versions of reality. Consequently, this research was premised within a Critical Realist ontology whose central tenet is the recognition of tripartite framework of reality. Within this framework, reality is comprised of the domains of the real, actual and the empirical. The domain of the empirical relates to perceptions of experiences, while the actual is concerned with events that produce these experiences. The real is the domain of generative mechanisms, which if activated, produce the events and experiences in the other domains. Data was collected to correspond to these domains, with critical focus on the analysis of underlying mechanisms which reproduce social reality. To establish how the real relates to the other domains, Fairclough's critical discourse analysis was adopted.

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Ebenezer, Jehovah Nissi!

Dedication

For my girls;
daughter, Ruvimbo
and nieces
Danielle and Matipa
and many more to come.

Table of contents

Declaration	ii
Abstract	iii
Acknowledgements	iv
Dedication	v
Table of contents.....	vi
List of figures	ix
List of acronyms	ix
Chapter 1 Of representation and academic literacy	1
1.1 Introduction to the research problem	1
1.2 The nature of academic literacy	4
1.3 Understanding social exclusion	6
1.3.1 Objectives of the study	9
1.3.2 Questions to be answered in the research	9
1.4 Significance of the study	9
1.5 Theoretical approach	10
1.6 Research methodology of the study	11
1.7 Philosophical stance	12
1.8 Data Collection and treatment	12
1.8.1 Classroom observations.....	13
1.8.2 Interviews	14
1.8.3 Documents	14
1.9 Data analysis.....	15
1.10 Validity.....	15
1.11 Organisation of the thesis	16
Chapter 2 Of discourses, semiosis and representation	18
2.1 Introduction	18
2.2 Organisation of the literature.....	18
2.3 The nature of discourses	19
2.3.1 Discourse as a social practice	20
2.3.2 Engineering as a Discourse	27
2.4 Introducing semiosis	29
2.4.1 Bhaskar's semiotic triangle	31
2.4.2 Pierce's semiotic paradigm	33
2.5 Semiosis and representation in general.....	37
2.5.1 Semiotic aspects of social structure, practices and events	38
2.6 Semiosis and the representation of engineering knowledge	40
2.7 Concluding remarks	42
Chapter 3 Shaping influence of discourses	44
3.1 Introduction	44
3.2 Organising the literature.....	44
3.3 Representing literacy in higher education	45
3.4 Metaphors for literacy.....	46
3.4.1 Scribner's literacy metaphors.....	47
3.4.2 Barton's literacy metaphors.....	49
3.4.3 Literacy as a social practice	52
3.5 Tying together	55
3.6 Representing students	56
3.7 Tying together	63
3.8 Orientations to the teaching of literacy.....	64
3.8.1 The academic skills model	64
3.8.2 The academic socialisation model	68
3.8.3 The academic literacies approach	70
3.8.4 The socio-political discourse/critical literacy	73

3.9 Concluding remarks	76
Chapter 4 In dialogue with, Gee, Bourdieu, Lave and Wenger and Bernstein	77
4.1 Introduction	77
4.2 Gee's identity framework.....	78
4.3 Bourdieu.....	82
4.3.1 Habitus and cultural capital	82
4.4 Bernstein's pedagogic device	85
4.5 Lave and Wenger's situated learning.....	88
4.5.1 Key features of situated learning: Participation.....	88
4.5.2 Communities of practice.....	89
4.6 Power, difference and representation	90
4.7 Relevance of theories to the South African context	92
4.8 Conclusion	94
Chapter 5 Exploring reality: a critical realist study	96
5.1 Introduction	96
5.2 Paradigm	97
5.2.1 Analytical framework of analysis	99
5.2.2 Stratified reality and contingent causality/ epistemological stance	99
5.3 A critical realist research design	103
5.3.1 Research objectives	104
5.3.2 Research approach.....	105
5.3.3 The research sample	106
5.4 Data collection.....	107
5.4.1 Data collection at the empirical level.....	108
5.4.2 Data collection at the actual level	111
5.5 Data analysis.....	114
5.6 Validity.....	118
5.7 Limitations of the study	119
5.8 Ethical issues	119
5.9 Concluding remarks	120
Chapter 6 Empirical Experiences of academic literacy.....	121
6.1 Introduction	121
6.2 History of the <i>Technical Communication</i> course: Documentary Evidence	122
6.2.1 English for Engineers (2008)	123
6.3 <i>Technical Communication for Engineers (ENCH1TC)</i> : 2009 to date	125
6.3.1 Course reader: 2009 version	126
6.3.2 Course reader: 2010 version	129
6.3.3 Course reader: 2011 version	130
6.3.4 Course reader: 2012 version	131
6.4 Discourse that reduces academic literacies to English language proficiency	133
6.5 Interview data	136
6.5.1 Tutors' perceptions of technical report writing	136
6.5.2 Tutors' perceptions of students.....	137
6.5.3 Students' perceptions of Technical Report Writing	140
6.5.4 Students' representations of the self.....	143
6.5.5 Engineering academics' understanding of Technical Report Writing	145
6.6 Perceptions of the <i>Technical Communication</i> course.....	147
6.6.1 Students' perspectives	147
6.6.2 Tutors' perceptions of the adequacy of the course	150
6.7 The deficit discourse	154
6.8 Assigning the agency to learn to students	158
6.9 Technical communication as entrée to the Engineering profession	160
6.10 Conclusion	162
Chapter 7 Actual Experiences of the <i>Technical Communication</i> course for Engineering	163
7.1 Introduction	163
7.2 Overview of the chapter	164
7.3 How students represent themselves in technical report writing.....	164
7.4 Feedback as a form of representation	176
7.5 Classroom observations.....	182

7.5.1 The lectures	183
7.5.2 The tutorials	185
7.6 Conclusion	191
Chapter 8 Real experiences of academic literacy in a <i>Technical Communication course</i>	192
8.1 Introduction	192
8.2 Organisation of the Chapter	194
8.3 Design as participation in a discourse	195
8.4 What are students excluded from?	199
8.4.1 Exclusion from epistemological access	199
8.4.2 Packaging of academic literacy into a course as an exclusionary pathway	207
8.5 Tutors: outsiders looking in	211
8.6 Concluding remarks	213
Chapter 9 Conclusion	215
9.1 Introduction	215
9.2 Revisiting the research problem	215
9.3 Methodological Considerations	217
9.4 Representation of academic literacy/Technical Communication	220
9.4.1 Representation of students	221
9.5 Representations of self	222
9.6 Conclusions of the study	223
9.7 Future Directions	224
9.8 Concluding remarks	225
References	227
Appendix A Participant Consent Form	250
Appendix B Interview schedule with the tutors for the <i>Technical Communication for Engineers course</i>	251
Appendix C Interview schedule with students	252
Appendix D Interview schedule with academics in the engineering faculty	253
Appendix E Interview with Tutor 3	254
Appendix F Interview with Student 4	258
Appendix G Interview with Lecturer 1	260
Appendix H Lecture 4	263
Appendix I Tutorial 4	269

List of figures

Figure 1-1 Explanatory variables.....	13
Figure 2-1 Bhaskar's semiotic triangle	31
Figure 3-1 Discourses framing academic literacy	47
Figure 4-1 Summary of theoretical framework.....	94
Figure 5-1 Bhaskar's domains of reality	102
Figure 5-2 Document analysis schedule	109
Figure 5-3 Classroom observation schedule	112
Figure 5-4 Summary of the documents sample	113
Figure 5-5 Analytical framework for analysing students' texts	113
Figure 5-6 Summary of the critical realist tripartite framework	113
Figure 5-7 Analytical framework.....	117
Figure 6-1 Analysis of course readers.....	132
Figure 6-2 Profiles of students interviewed.....	141
Figure 6-3 Summary: perceptions of technical report writing and of students.....	147
Figure 7-1 Student texts with first-person pronouns	165
Figure 7-2 Frequency of first-person pronouns across corpora	166
Figure 7-3 Examples of first-person pronoun use.....	166
Figure 7-4 Other forms of representation	173
Figure 7-5 Summary of self- representation in students' texts.....	176
Figure 7-6 Types of feedback.....	178
Figure 7-7 Focus of comments.....	179
Figure 7-8 Biographical details of the tutors	185
Figure 9-1 Summary of research design	216
Figure 9-2 Summary of findings	218
Figure 9-3 The context of a first year Engineering student at UKZN.....	219

List of acronyms

CDA	Critical discourse analysis
COP	Communities of practice
CR	Critical realism
ECSA	Engineering Council of South Africa
EFL	English foreign language
ESL	English second language
TESOL	Teaching English to speakers of other languages
UKZN	University of KwaZulu-Natal

Chapter 1

Of representation and academic literacy

*The practices of representation always implicate the positions from which we speak-
the positions of enunciation (Stuart Hall, 1996 p. 210)*

1.1 Introduction to the research problem

My interest in discourses that frame the teaching and learning of academic literacy is a culmination of a number of interrelated events. In the first instance, it is informed by my own experiences as a postgraduate student. I attempted to reveal how these experiences have helped shape the researcher that I am in my Masters dissertation. Of particular note is how I often felt inadequate, when the weaknesses in my writing were highlighted, mainly because I was unaware of how redundant my writing was (Bengesai, 2010). Oftentimes, I felt like giving up and that I did not fit. I did not belong in this 'elite' society. Thus, I felt socially and academically excluded because, to borrow from McKenna (2004a), I just could not 'crack the code'. Fortunately for me, a unique feature of the Project on Postgraduate Educational Research, the project through which I did my Masters degree, was the mentorship programme that resulted in a community of practice (CoP) made up of experienced academics and the student research team.

Lave and Wenger (1991) advance the concept of communities of practice (CoP), which underscore mentorship/apprenticeship of the novice into the academic community. Within this CoP, 'newcomers' are initiated into the academic community through a process of legitimate peripheral participation, a process through which 'newcomers' to a discourse community perform authentic (legitimate) activities, though peripheral at first, and gradually are entrusted with more significant ones (Lave and Wenger, 1991). Although, I had two supervisors for my particular research project, I also gained much from interactions within this CoP. Through legitimate peripheral participation, I had the opportunity to co-author papers with experienced academics and also present research findings at conferences. This broadened my understanding of the context of academic literacy (see Bengesai, 2010). Hence, my

development of advanced academic literacy occurred through this participation in the socio-cultural practices of the CoP (Lave and Wenger, 1991). Effectively, the situated context in which I developed my advanced academic literacy reveals that the way teaching and learning is constructed has implications for the success of a student (ibid).

Thus, in essence, the research reported here is a 'step-up in taxonomy' from my Masters Dissertation, which also revealed a number of interesting issues with regard to the discursive construction of academic literacy in higher education. In a systematic literature review of postgraduate educational research written between 1995 and 2004, I found out that there was a disconnection between the literacies that students are expected to use in higher education and the ones they use outside. To emphasise this disconnection, a number of explanations were provided. Among these, the following featured strongly: inadequate teacher preparation (Esterhuizen, 2001); level of student motivation (Collett, 2002), the discourses of identity, motivation (McKenna, 2004a; Wroots, 2002; Collett, 2002; Hutchings, 2002; van Heerden, 2000), perceptions of academic literacy levels (Collett 2002; Esterhuizen, 2001), the understanding of the academic writing task (Oliver-Shaw, 1996; Moore, 1996), and linguistic-, gender- and degree-level contextual differences (Hutchings, 2002). Such understandings of academic literacy have also evoked terms such as 'disadvantaged', 'linguistic disadvantage' (Collett, 2002), 'underpreparedness', 'limited language proficiency' (Collett, 2002; Hugo, 1999), 'handicapped' (Esterhuizen, 2001), and 'educationally disadvantaged' (Yeld, 2001), to describe students. These various perspectives of the student experience of academic literacy teaching and learning are very compelling and point to multifaceted causality. In essence, they all draw

on the socio-economic context in order to argue that failures in learning are due to the inferior educational experiences available to the majority of students and which have resulted in their failure to develop i) their cognitive capacities to the full, ii) the learning skills and approaches necessary to succeed in higher education or iii) the understandings of the behaviours needed to succeed and which drive motivation" Boughey, 2009, p.2).

Whilst these explanations, evident in the postgraduate research reviewed in my Masters dissertation, reveal that South African universities, as a result of the legacy of apartheid and as sites of the massification of higher education, have brought

about diverse ways of thinking and acting about teaching and learning (Boughey, 2000), the dominant perception of the student experience is informed by a 'deficit' model which locates ability in the individual. Boughey (2009) further explains:

In spite of this tendency to draw on context to explain poor learning and what, in liberal terms, is constructed as 'disadvantage' or 'underpreparedness', what remains is essentially an autonomous model which locates capacity (including will) to learn within individuals" (p. 2).

Thus, when I completed my Masters, I had a new set of questions. How do these representations of the student and of academic literacy impact on the teaching and learning context? What is the effect of these discourses on the teaching and learning context? When I thought about these questions critically, I came to a realisation. I came to realise that as academics, we have created an image of the ideal student through which, unfortunately, we identify all students. In other words, we see students who do not fit our criteria as the 'other', and we represent them as thus. I have also come to realise that the way we define students and academic literacy, are punctuated by our understanding (or lack of understanding) of discourses in our academic communities. These actions, though not always intentional, are salient pointers of social and academic exclusion in the academy. This calls into question the need for a research project which examines the relationship between academic literacy, institutional orders and student experiences. Such a model brings about contrasting ways of thinking and acting about academic literacy teaching and learning which favours social factors. Within this framework, all students who enter higher education have the capacity to learn. This capacity is however, mediated by access to forms of knowledge which have been termed Discourses (see Gee, 1996) or cultural capital (Bourdieu and Passeron, 1977/1990); hence, some students manage to access and construct the forms of knowledge such as academic writing which are desired in the university. These forms of knowledge are mediated through discourse communities; thus, access is furthermore a result of the CoPs in which students engage. These CoPs include among them the academic and social interactions in the university as well as familial connections. I have shown in my introductory paragraph, how participation in a CoP helped me in my development of advanced academic literacy. Such an understanding captures the social situatedness and identity issues which frame academic literacy discourse.

By choosing my research topic, I have represented myself as a critic of the academic literacy teaching and learning context. Specifically, I propose to examine discourse as a phenomenon that can be used in the representation of students and of academic literacy. To effectively achieve my goal, I will appropriate socio-cultural-historical and critical theories to my understanding of academic literacy as will be revealed in this discussion. In particular, I wish to focus on the way difference is mediated in the discursive construction of academic literacy as well as in the representation of students in an Engineering Faculty. Thus, I explore the ways in which academic literacy is both a construct of social reality and itself helps in turn to further reshape this social reality.

1.2 The nature of academic literacy

Although the concept of 'academic literacy' is not a new one in higher education, defining it is problematic. Notwithstanding the explosion of research in the field of applied linguistics, the diversity of definitions proposed in the literature for the concept of literacy and of academic literacy indicates that it continues to defy consensus. In the South African context, the problematic nature of the concept of academic literacy is heightened by the perpetual and escalating attrition rates that seem to be a scourge of higher education. Hence the persistent question: why do students continually fail in spite of the various interventions? In an attempt to answer this question, "considerable fluidity- and at time confusion" (Lillis and Scott, 2007 p. 6) has emerged in the use of the term. For instance, the term has been used to refer to courses designed to assist students meet the writing demands of higher education by focusing on instrumentalised skills such as the organisation of paragraphs, setting out of references or how to write a dissertation or as in the context of this study, a technical report. Whilst these courses are a common practice in higher education, there is literature (see for instance Lillis, 2003; Boughey, 2000; Ivanic, 1998; Gee, 1996) that has located academic literacy both as a field of inquiry and a practice with a specific epistemological and ideological stance towards academic communication (Lillis and Scott, 2007).

Discussing Gee's (1996) work, Boughey (2000) states that "academic literacy involves knowing how to speak and act in academic discourses" (p. 4). A similar interpretation is provided by Ivanic (1998) who posits that academic literacy involves language, yet it must be conceived as both less and more than language. In its less-than-language characteristic, it is derived from language, while in its more-than-language characteristic; it is rooted in socio-cultural, cognitive and disciplinary nuances. Lillis (2003) suggests that academic literac[ies] "emphasises the socially situated and ideological nature of student academic writing" (p. 194). Therefore, to understand academic literacy to explore the way in which linguistic, socio-cultural, socio-historical and ideological practices impact on the teaching and learning context within disciplines. Such a view recognises that knowledge about academic literacy is simultaneously knowledge about the linguistic, cultural, social and historical nuances of a discourse community. It is important to note that this knowledge is fundamentally embedded and transmitted through discourses (Gee, 2010; 1996; Bernstein, 2000; 1999) hence there is need to understand the link between this knowledge and the development of discourses. Therefore, to be a member of a discourse community, a student has to appropriate an identity that is recognised and acceptable in by the discourse community (Gee, 1996). In other words, being academically literate suggests that "our discourses "contains a chorus of voices, the voices of significant others in our history" (Gutierrez, 1995 p. 24). Pedagogic practices in most higher education contexts, however, indicate that this link between context, historical, cultural expectations and ideological orientations implicit in the activities in which students and academics participate is not fully appreciated (Kubota, 2001). Conceptualising academic literacy as a socially constructed practice, forces us to see the acquisition thereof as a contested space, which involves negotiation of meaning between the different parties involved; students, institutions and academics. Moreover, it helps us realise that the term hides the diversity of literacies that exists in different social contexts. Accordingly, in this study, academic literacy is seen in its plurality, as a set of social practices that vary according to cultures, contexts, purposes (Barton and Hamilton, 2000). The implication is that, academic literacy cannot be achieved in a universal process.

1.3 Understanding social exclusion

My introductory remarks reveal that I am concerned with the way in which representation of academic literacy can be an enabling or limiting factor to students' learning. In other words, my concern is on the extent to which representation can lead to either social inclusion or exclusion of students. Taking this standpoint compels me to discuss the concept of social exclusion/inclusion. Historically, social exclusion has been used to explain disadvantage and has been a major area of discussion in development studies. Within the field of higher education, however, the concept of social exclusion has featured mainly in the work of scholars such as Bourdieu (see Bourdieu and Passeron, 1965/1994; 1983/1986) and Bernstein (1999; 2000). These scholars have linked the notion of exclusion to issues of success or failure in education. For instance Bourdieu addressed exclusion from the point of disparities in educational attainment between students of different classes as well as races (Robbins, 2005). He argued that cultural habits and dispositions inherited from the family are essential for academic success (Bourdieu and Passeron, 1977/1990; Bourdieu, 1977). Thus, for Bourdieu, knowledge is culturally and socially constructed. Bourdieu's position therefore, problematises knowledge itself, prompting questions such as 'what is knowledge, and who has access to this knowledge? These questions are central to the debate on differential achievement and identity, which are issues of contestation in the South African context. The groups that have the power to define these questions provide their members with cultural advantages: in this case academic literacy.

Bernstein (1990) explains social exclusion in terms of codes, which he believes are related to the transmission of knowledge and consequently social reproduction. He explains it as such:

[Class] relations generate, distribute, reproduce, and legitimate distinctive forms of communication, which transmit dominant and dominated codes, and that the subjects are differently positioned by these codes in the process of acquiring them. (Bernstein, 1990 p. 13)

Like Bourdieu, Bernstein is suggesting that students from the upper social class already possess the codes that mirror the ones necessary for success in school. As such these students are in a privileged position to acquire the valued codes. Consequently, the schooling system is implicated in the reproduction of cycles of

privilege (Ramphela, 1996) since it favours calls schooled literacy (Gee, 1996). Therefore, students from diverse social backgrounds are differently positioned to acquire the 'codes' that are valued in higher education.

In the South African context, access to 'codes' (Bernstein, 1990) or cultural capital (Bourdieu and Passeron, 1977/1990; Bourdieu, 1977) is further impacted by a history of disadvantage that has been characteristic of the education system since apartheid. Under the apartheid system, education was seriously fragmented, with the White minority enjoying the privilege of the highest quality of education, while the Blacks, Coloureds and Indians received an education that was inferior. It stands to reason that the quality of education under the apartheid system was differentiated according to perceived levels of racial purity. Boughey (2012a p. 143) notes that "although nearly twenty years have passed since the end of apartheid, the impact of the denial of education to black social groups continues to manifest itself". She maintains that this impact is manifested through the schooling system which has not improved since apartheid, therefore diminishing the "chances of a black child being able to access schooling which will allow her to acquire the secondary Discourse which will later facilitate the acquisition of academic Discourses" (ibid p. 143). Further evidence of the effect of apartheid is also provided in the study by Scott, Yeld and Hendry (2007) which found that there were gross disparities in throughput rates more than a decade after apartheid between black and white students in South Africa.

It is true that the demise of apartheid brought about change in both the political and the educational landscape. The new government was faced with challenges to

redress past inequalities and to transform the higher education system to serve a new order, to meet pressing national needs, and to respond to new realities and opportunities (Department of Education, Education White Paper 3, 1997 p. 7).

The major change in higher education related to the opening up of access to students who had been systematically excluded from higher education (Jansen, 2003; Chisholm, 2002). Consequently, current debates on student success have tended to focus on the massification of higher education, suggesting that perhaps there is more of social inclusion than exclusion. Seemingly, this would make the

relevance of a study that prioritises exclusion questionable. Indeed, the doors of access have been opened to all students from diverse educational and social backgrounds. Yet the question that remains is “Are these doors open enough?” Morrow (1993) argues that physical access to the university does not necessarily translate into what he has termed ‘epistemological access’, that is, “learning how to become a successful participant in an academic practice” (Morrow, 1993/2009 p. 77). In this manner, epistemological access can be seen as access to the valued knowledge (Bernstein’s codes and Bourdieu’s cultural capital) within the university, “to the discursive, linguistic and textual practices of the discipline that afford [students] the capacity and ability to effectively function and successfully perform academically in their specific disciplines” (Rambe and Mawere, 2011 p. 6). This study suggests that a course on academic literacy in the form of technical communication for engineering students is a valued form of knowledge for engineering students. Epistemological access therefore, draws attention to issues of knowledge acquisition as well as assumptions about the manner in which teaching and learning takes place (Lange, 2010). Yet, literature from South African scholars suggests there is a tendency to assume that “by virtue of having access to higher education, students should autonomously actualise their potential by making the most of the opportunities offered to them” (Lange, 2010 p. iv). Such a view fails to acknowledge the fact that “true access to the institution is dependent on the possibility of converting embodied cultural capital into symbolic capital that is capital that will earn recognition in a field” (Nomdo, 2006 p. 192). In short, while it is acknowledged that students are underprepared for learning, no-one questions the way in which teaching and learning takes place.

Whilst accepting that apartheid has been instrumental in academic under-preparedness of African students, and consequently in academic literacy development, this view has not been unproblematic in South Africa, since it lends itself to a narrow and racialised view that academic literacy is only a problem for the certain groups of students (Thesen and van Pletzen, 2006). Hence, some scholars (McKenna, 2010; Leibowitz, 2004; Greenbaum and Mbali 2002) have been cautious in accepting this view. Instead, these authors cite the notion that “academic language..... is no-one’s mother tongue” (Bourdieu and Passeron, 1965/1994 p. 8).

For this reason, Leibowitz states that “to make statements about language and race could be essentialising, and extremely dangerous, or at least, let us say, simplistic” (personal communication, February 8, 2009). The history of disadvantage notwithstanding, difficulties and confusion arise, when academic literacy is racialised, because such a view indeed misrepresents both epistemological and ideological aspects of the phenomenon.

1.3.1 Objectives of the study

This study sought to explore students’ representations of academic literacy, academic staff’s representations of academic literacy and academic staff’s representations of students in relation to academic literacy in an Engineering Faculty. The purpose of this exploration was to determine how these representations permeate into academic practice, inform pedagogical practice and in turn acquisition of disciplinary knowledge. While this influence is not necessarily negative, some discourses that arise from these representations can potentially exclude social agents (both students and academics) from effectively participating in the teaching and or learning of academic literacy.

1.3.2 Questions to be answered in the research

The following research questions guided this study.

1. What are the dominant discourses framing the representation of academic literacy in a *Technical Communication course* a course on academic literacy in an Engineering Faculty?
 - a. What dominant practices do these discourses give rise to?
 - b. How do these practices serve to include or exclude students from the Engineering discourse community?

1.4 Significance of the study

I anticipated that the study would provide a research-based perspective of the context of teaching and learning in an Engineering Faculty that can be used to improve on pedagogical practice. The data that was collected brought to light the

dominant discourses that have been used to support pedagogical practices and the causal mechanisms behind such discourses. Furthermore, the data showed how these discourses and practices result in the exclusion or inclusion of social agents in the Faculty. It is hoped that these findings will contribute to an understanding of the effects of these causal mechanisms on the participation of students in a discourse community such as engineering.

1.5 Theoretical approach

Socio-cultural and socio-historical understandings of knowledge production and the relationship with power in the social construction of discourses and ideology provided the basis for the theoretical framework that was adopted in this study. The main goal was to examine how the different actors in the engineering teaching and learning context enacted the discursive spaces they found themselves in. Hence, the framework that I used allowed for an examination of the practices of teaching and learning in the context of academic literacy. To do this, I employed a multidisciplinary approach drawn from applied linguistics, sociology, sociology of education and philosophy. In particular, I used James Paul Gee's (2001; 1996) theoretical constructs of discursive identity, Bourdieu's cultural capital and habitus (see Bourdieu and Passeron, 1977/1990; Bourdieu, 1977), Bernstein's (2000; 1990) pedagogic device and Lave and Wenger's (1991) situated learning. Essentially, these theorists see knowledge as socially constructed in social institutions. This knowledge is transmitted through language and discourses. This process makes those discourses emanating from powerful institutions to become dominant and the ones from the less powerful ones to be less dominant. Whilst this construction is not a linear process, in the sense that all social agents (from dominant and less dominant institutions are at the same time involved in the process of constructing their social spaces), the various discourses emerging from the process are usually in collision with each other. Consequently, the collision results in the inclusion and or exclusion of some social agents. In section 1.2, I indicated that universities require that students possess a certain cultural capital/ or knowledge in the form of academic literacy yet as Gee (1996) suggests, some students have different dispositions from those valued in the university. If that is the case, then there is dissonance between institutional expectations and students' discursive resources

(Collins, 2000). This dissonance makes it difficult for students who do not possess the cultural capital that is recognised in the discourse community to gain epistemological access (Mgqwashu, 2011; Nomdo, 2006).

1.6 Research methodology of the study

In order to understand the academic literacy context in an Engineering Faculty, I adopted a Critical Realist (CR) methodology which was both exploratory and descriptive of the phenomenon under investigation and allowed for an analysis of context. Critical realists use the terms *intensive approach* and *extensive approaches* to refer to research methods as opposed to qualitative and quantitative methods (Sayer, 2000). The reason for this distinction is to refrain from arguments that position qualitative and quantitative methods on opposite sides of the continuum. Rather, realists see these methods as complimentary in the sense that they allow for a multidimensional data collection and analysis (ibid). Extensive approaches test empirical regularities and typically utilise quantitative methods while intensive approaches seek to explain mechanisms relevant in particular cases (Miller and Tsang, 2010). Both methods have their merits and the researcher should use the best approach because not all methods are equally appropriate (Danermark, Ekstrom, Jakobsen and Karlsson, 2002). The nature of this study required that one make use of both methods, what Danermark *et al.* calls 'critical methodological pluralism'.

This study was primarily concerned with the discursive construction of teaching and learning. As such, its locus of interest was Higher Education Institutions (HEIs). Consequently, the population for this study had to be the HEIs in South Africa. However, a complete analysis of representations of students in all the 21 public HEIs in South Africa was not feasible. Cohen, Manion and Morrison (2000) argue that, to make the research manageable there is need to work with a smaller group or subset of the population, often referred to as the sample. For the purposes of this study, purposive sampling was used. As a result, the study focused on one institution, the University of KwaZulu-Natal. Given the multiple data sources that formed part of this study, it was further not feasible to do a survey of all the Faculties. Hence, the focus

was on one Faculty, while recognising that issues of representation and identity explored within this context can potentially apply to all students. More specifically, the *Technical Communication for Engineers* course in the Faculty of Engineering was considered a typical academic literacy module and was the sample for this study.

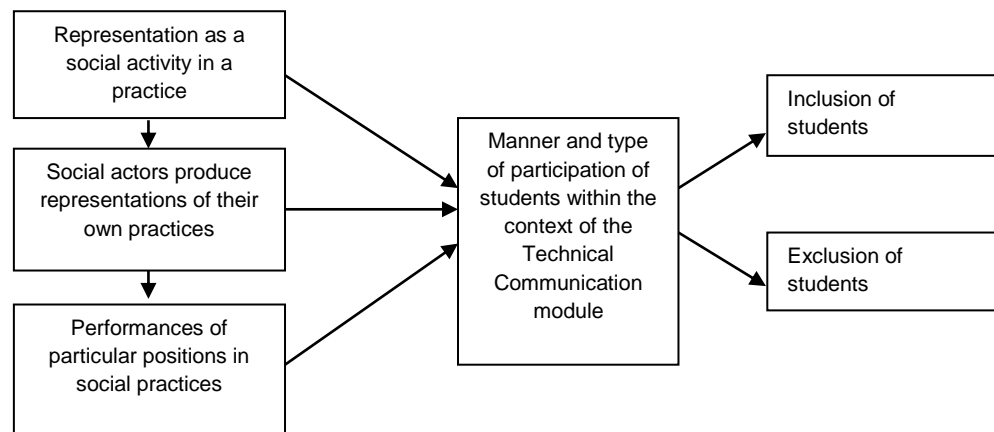
1.7 Philosophical stance

The philosophical position that was adopted in this study was Bhaskar's (1978) account of stratified reality and contingent causality. Assuming that knowledge and discourses are socially constructed, suggests that there cannot be a singular reality. In this case, reality is multidimensional and the way in which social agents represent their reality is contingent on the dominant discourses in their social spaces. Reality is therefore stratified and differentiated (Sayer, 2000). Bhaskar (2008; 1978) identifies three layers of this reality as relating to the empirical, actual and real domain. The empirical domain relates to our experiences and perceptions of events while the actual relates to the occurrence of events. The last domain, that of the real, relates to the structures and mechanism that produce the events and experiences observed in the domains of the empirical and the actual. This understanding of reality guided the process of data collection and analysis. This is discussed in more detail in **Chapter 5, section 5.2.2.**

1.8 Data Collection and treatment

Data collection was guided by the explanatory variables reflected in Figure 1-1 which were derived from the literature reviewed:

Figure 1-1 Explanatory variables



The main focus of data collection was to explore the way in which students were afforded with opportunities to participate in the Engineering discourse community. My working assumption was that this participation was mediated by dominant representations of academic literacy in the Engineering Faculty. These representations were also deemed to influence social actors (students and their educators) to perform certain positions. Both the representation and the performance were directly linked to participation and ultimately the inclusion or exclusion of students. These variables gave rise to the analysis of the following data sources: the interviews for verbal data; documentary evidence such as minutes from meetings, Faculty handbooks, course packs for textual data; and classroom observations. Further discussion of data collection and treatment is provided in **Chapter 5, section 5. 4.**

1.8.1 Classroom observations

Given that the focus is on how students are represented and institutional identities that are constructed as a result of such representations, the main data source was the teaching and learning context. Within this context, issues of power and difference are illuminated as both students and academics try to negotiate the discursive spaces they find themselves in. Hence, class observations were done as they have the potential to provide evidence of “tacit understandings and ‘theory in use’” (Maxwell, 2005 p. 94).

1.8.2 Interviews

The politics of representation that frames my study also prompted me to analyse academic's conceptions of the teaching and learning context. Interviews are an "efficient and valid way of understanding someone's perspective and can provide additional information that was missed in observation" (Maxwell, 2005 p. 94). Following from this understanding, I chose to use interviews because in my view representations of students come principally from their educators, and these representations are also a reflection of the educators' worldviews. These interviews were carried out with academics who teach the *Technical Communication for Engineers course* or were responsible for the administration of the course. Representation as part of a social activity suggests that all social actors in a practice engage in some form of representation. In light of this, I also sought students' understandings of academic literacy, the nature of the engineering discourse and their views about the nature of the academic literacy module through interviews. More specifically, through these interviews, I endeavoured to gather information about students' identities, guided by Gee's (2001) identity constructs as well as Bourdieu's (1977) theorisation on cultural capital.

1.8.3 Documents

My focus on dominant discourses also necessitated the examination of Faculty documents related to the *Technical Communication for Engineers course*. In particular, I examined minutes from meetings that led to the introduction of this module in 2008. This was complemented by curriculum documents such as the course outline and course readers. These documents provided me with empirical data concerning the Faculty's understanding of the rationale for offering a course on academic literacy and the debates around the way academic literacy is understood in the Faculty. Moreover, these documents highlighted the dominant representations of academic literacy and students given that they contain multiple voices of different academics in the Faculty. The second set of documents that I examined was the students' technical reports. I believe that this data set is a culmination of students' conceptions of appropriate ways of participation in the discourse as well as the socio-historical, socio-cultural contexts that confront them in and out of school.

1.9 Data analysis

The socio-linguist Gee (2001; 1996) has suggested the use of discourse analysis when researching literacy, in particular, where representation or identity is centre stage. This is because discourse analysis indicates underlying assumptions, or “tacit theories” in a discourse community, like Engineering. Given that the proposed study is framed within a critical paradigm, critical discourse analysis (CDA) was used. In particular, I used the CDA framework that was proposed by Fairclough (2001; 1995). CDA see language as a form of social practice which is constituted in and constitutes socio-cultural and historic contexts (Fairclough, 1995). As a social practice, language therefore produces and reproduces social relations and thus plays a role in positioning social agents. The purpose of CDA therefore, is to interrogate this positioning by asking the critical question ‘whose interests are being served’ (McGregor, 2003). Such a method is quite relevant to academic literacy, which is dominated with competing and conflicting definitions or semiotic interpretations, which in turn result in diverse representations of students. These representations obviously produce social dominance; and by logical extension, can serve to include or exclude some students from higher education.

1.10 Validity

The importance of validity and reliability in any research project can never be overemphasized. These are the criteria that justify the study’s claim to attention. The method that was adopted in this study was triangulation to ensure control of bias and establish confidence in the findings. Patton (2002) recommends triangulation as a procedure to strengthen the study by using multiple methods of data collection and or analysis. As already stated in section 1.8, in this study I made use of a number of approaches for data collection, namely class observations; interviews, and documents. Observations provided evidence of behaviour or actions in the contexts in which they occur, that is, in the teaching and learning of academic literacy. Interviews, supplied my analysis with evidence for justifications for certain actions and more so evidence of past events or to ‘which I cannot gain observational access’ (Maxwell, 2005 p. 94). Furthermore, through interviews I managed to get the students’ perspectives of the academic literacy teaching and learning context.

Documents on the other hand, offered some insight into the nature of performances that arise as a result of the representation of both academic literacy as well as the students.

1.11 Organisation of the thesis

The study begins with a background account which outlines the way in which the study was conducted as well as motivations for the study. This is followed by a review of literature which is done in three discrete sections. The first section, **Chapter 2**, introduces the notions of discourse and semiosis and argues that these are at the centre of the process of representation. The second section, **Chapter 3**, provides a theoretical understanding of how academic literacy *per se*, academic literacy teaching and students have been represented in literature. This chapter, in its different subsections, identifies the negative discourses that have been used to talk about these issues and concludes by providing alternative representations that are sensitive to students' needs. **Chapter four** presents the theories which have informed the way this study was conducted. Specifically, I discuss the Bourdieu's concepts of habitus and cultural capital, Gee's identity framework, Bernstein's pedagogic device and Lave and Wenger's situated learning. This chapter provides a theorised understanding of the teaching and learning context that draws from a multidisciplinary perspective. **Chapters, 2, 3 and 4** provide a basis for the discussion of the findings in this study. **Chapter 5** presents the methods and analytical tools that were used to explore the way in which academic literacy and or students have been conceptualised and represented in the Engineering Faculty. The current study works within a CR paradigm and sees knowledge, language and literacy as socially constructed, allowing society members to adopt certain positions. The presentation and analysis of findings is done in three chapters, guided by the CR tripartite framework of reality. **Chapter 6** presents findings from interview data as well as Faculty documents. This data is located in the empirical domain and represents participants' impressions or perceptions of events that take place at the level of the actual. The chapter ends with an identification of dominant discourses which in this study are considered as causal mechanisms. **Chapter 7** presents findings from classroom observations and students technical reports. This data is located in the

domain of events and is a culmination of practices that social actors engage in as they interact with each other. This analysis relates to the second research question. **Chapter 8** seeks to answer the third research question by bringing together findings located in the empirical and actual domain in a discourse analysis to ascertain the extent to which they lead to social exclusion or inclusion. The final chapter, **Chapter 9**, concludes and synthesises the findings. In the same chapter, recommendations and suggestions for future research are also made.

Chapter 2

Of discourses, semiosis and representation

Discourses do not just reflect or represent social entities and relations; they construct and constitute them (Norman Fairclough, 1992 p. 3)

2.1 Introduction

Chapter 1 provided a summary and background of whole study. In this background, I pointed out that my study is characterised by a linked phenomenon. The main concern of this study is with the way academic literacy as a discourse is represented in an Engineering Faculty, and how this representation produces discourses that are used to legitimise particular practices in the context of technical communication for engineering students. As a result of the linked phenomenon, and as suggested by the opening citation, this chapter explores the notion of representation. It does this by addressing questions such as how does representation figure in semiotic signs, accordingly, producing discourses and how these discourses have produced practices as evidenced in orientations to the teaching and learning of academic literacy.

The chapter begins with a discussion of the nature of discourses and goes on to present Engineering as discourse. The notion of semiosis is then introduced, drawing on the work of Pierce (1960) in Deledalle (2000) and Bhaskar (1993). The purpose is to show how discourses are semiotic ways of constructing the world (Fairclough, 2009). This understanding permits the analysis of discourses beyond language to consider ways of being, (that is, identity) and issues of positionality, (that is; how social actors are positioned within fields or organisations). In the next section, I provide a brief outline of how the literature in this chapter is organised.

2.2 Organisation of the literature

Drawing from the opening citation at the beginning of this chapter, there are three fundamental concepts that deserve consideration in this study. These are the notions of discourse and representation, and how this representation occurs (in semiotic

signs). The purpose of this discussion is to show how these three concepts are interwoven and work together to produce social inclusion and exclusion of social agents (for instance students) in a discourse community. The discussion will also serve as a basis for the discussion in Chapters 3 which relies on the literature to show how discourses can influence representation and in turn be influenced by the same forms of representation. Using mainly conceptual and anecdotal literature, I will first expound on the notion of discourse. While there are many meanings attached to the notion, the Foucauldian conception of discourses as a social practice is favoured. Scholars such as Fairclough (1992) and Gee (1996) are mainly used to establish the driving meaning of discourse that will run throughout this study. Next, I will get into a discussion of the notions of semiosis and representation. My reading of literature, in particular Fairclough (2001; 1992), Gee (1996), Bhaskar (1993), revealed that the two concepts cannot be separated. This is because representation is a meaning-making process which occurs through semiosis. People use signs (semiosis) to convey their meaning. The chapter ends by tying together the three concepts and enunciating the link with the proceeding chapter. I will begin with an exposition of the nature of discourses.

2.3 The nature of discourses

The notion of discourse is critical in my study. I have interacted with Fairclough's (1992) work entitled *Discourse and social change*, as well as Gee's (1996) *Social linguistics and literacies: ideology in discourses*, in shaping the understanding of discourse that forms the basis of this study. This understanding, has been pivotal in shaping, not only my conception of the phenomenon under investigation, but has also provided the basis for the theoretical constructs that guide this study. In as much as I will also use literature from other scholars, Fairclough and Gee's work remains highly influential.

Scholars in discourse theory (see Gee, 2004; Kress, 2003; Fairclough, 1992) generally agree that discourse is a complex concept to define. This complexity is heightened by the fact that there are many conflicting, and at times, overlapping definitions arising from different disciplines (Gee, 2004; Fairclough, 1992). For instance, in linguistics, discourse can be used to refer to any form of interaction

between a speaker and an audience, or a writer and a reader (Arts and Buizer, 2009; Fairclough, 1992). In this case, discourse is the equivalent of communication and success of the communication event depends on the ability of the participants to understand each other. This meaning is common in the study of language where focus is placed upon the study of speech patterns and acceptable usage of language in a community. Discourse can also be used to refer to different social situations in which language is used (Fairclough, 1992). Thus, we talk of classroom discourse, newspaper discourse (ibid), or even Engineering discourse. This understanding of discourse is akin to conceptions of register and genre, and has resulted in teaching approaches which focus on the notion of appropriacy in writing (Ivanic, 2004; Burns, 2004). This is explored further in Chapter 3. In social theory, however, discourse means “different ways of structuring areas of knowledge and social practice” (Fairclough, 1992 p. 3). Although Michel Foucault championed the notion of discourse as a social practice; nonetheless, he is an indirect, albeit strong influence in this study. The scholars that I engage with most, particularly Gee, Fairclough and Bhaskar as already highlighted in the introductory section of this chapter, have interpreted and advanced Foucault’s work in ways that are in synch with my study.

2.3.1 Discourse as a social practice

Foucault saw discourses as a way of structuring knowledge and social practice, a view that places agents in particular relations with each other (Fairclough, 1992). In congruency with Foucault, Hall (1997) saw discourses as a system of representation, which is influenced by people’s experiences (history) and in turn influences these histories. Implicit in both views is the idea that discourses have the capacity to define communities, and in turn can be used to justify the existence of these communities. Simply put, “discourse is the domain in which socio-cultural knowledge and linguistic knowledge interface and organise each other” (Gutierrez, 1995 p. 23). An essential character of discourses in the Foucauldian sense is the notion of shared beliefs and ideas within a discourse community. These shared beliefs become the frame of reference that guides the way in which members participate in the discourse community. It is in this context that discourses have the potential to create differences in communities. This is the reason discourses tend to include those who

subscribe to them, while at the same time excluding those who do not ascribe, and therefore, do not possess these discourses. While Kress (2003) calls this the 'shaping influence of discourse', Fairclough (2007) uses the term orders of discourse. Orders of discourse are the "social structuring of semiotic difference, a particular social ordering of relationships between different ways of meaning-making, different genres, different discourses and styles" (Fairclough (2007 p. 165). They are "configurations of discursive practices which are particular to, and constitutive of different social domains (Lillis, 2001 p. 36). Hence, both Fairclough and Lillis, underscore the idea that the ideology of the discourse community determines what is said and done by its members, and it is in this manner that discourses are institutionalised (Foucault, 1994). Cast in this way, some discourses become more dominant than others.

This understanding of discourses as shaping social phenomena has also been termed framing (see Miller, 2000; Goffman, 1981; Bernstein, 1996). Miller (2000 p. 212) defines frames as "the perceptual lenses, worldviews or underlying assumptions that guide communal interpretations and definitions of particular issues". In this case, frames are assumptions about reality that are used to organise thoughts, perceptions and they give meaning and tangibility to lived experiences. Discourses thus remain a frame of reference, which is abstract and exists in peoples' minds as well as the social networks they participate in. Although this is not always a conscious activity, these discourse frames have the potential to conflate the reality with which people see the world. It is for this reason that they should be critically analysed. Within the context of education, Bernstein (1996 p. 12) points out that "framing is about *who* controls *what*?" This implies that framing has to do with the relationship between teachers and their students, where teachers have stronger control over practices deemed legitimate in school. This position raises a number of questions that are relevant to this study. For instance; would it make sense to represent students basing on any frame without subjecting that frame to critique? Is it ever possible to fairly represent students when they do not fit the dominant frame of reference, for example? Does it not follow that the frame that is used to talk about academic literacy in an Engineering Faculty is shaped by the dominant discourses in the Engineering community? Will it not hold that these discourses also generate certain practices? What is the effect of this shaping influence of discourse on

students, in particular engineering students in this study? All these questions mark out discourses and representation as important areas of research, especially in the context of inclusion and exclusion. More specifically, they feed into the discourse analysis framework that is chosen for this study as will be revealed in Chapter 5.

Essentially, this becomes a question of power, for those who have got the voice to speak things into action can shape the discourse. To explain this point, Fairclough (1992) gives an example of the medical field, which is dominated by the discourse of medical science, over say the discourse of homeopathy. Considering this, we can perceive a strong link between discourses, power and institutions (see Gee, 1996; Foucault, 1994; Fairclough, 1992). These scholars have argued that social agents locate their power in the discourse itself, given the discourse can be used to explain and categorise social phenomena; and in turn to justify the phenomena. Thus, discourse as a social practice, disciplines one to speak, act and think in a certain way.

On a similar note, there is a widely held view amongst scholars working within a critical paradigm that there is a clear link between representation, power, knowledge and discourses (see Pennycook, 2001; Fairclough, 1992; Bourdieu, 1977); Foucault, 1994; Freire, 1996). These scholars posit that power is transmitted through the ideological practices of formal schooling and of society. These practices have the potential to produce subjectivity given some agents have the power not only to define what constitutes knowledge, but also to validate it. While this power is not always negative, it is productive in the sense that it produces subjectivity (Bernstein, 2000). Hence, when knowledge is linked to power, it not only assumes the authority of the truth, but also the power to make itself true (Hall, 1997). Therefore, the relationship between power and knowledge places constraints on the way people understand their contexts. Foucault (2007/1980; 1994) has referred to these limitations as truth-effects, which mediate our representation of reality. To understand knowledge and power, we have to understand the discourses that are used to explain that power. For instance, within the Engineering Faculty, there is the discourse of engineering science and that of engineering rhetoric. A widely held belief is that engineering and all pure and applied sciences alike, are 'higher status disciplines' (Belcher and Trowler, 2001). By logical extension, the knowledge that is

produced by engineering is highly valued in society. Engineering rhetoric, on the contrary has its roots in the arts (Winsor, 1996), and is regarded as a soft discipline (Belcher and Trowler, 2001). The arts are not as elevated in society as are the sciences. Cast in this way, sciences and arts as discourses are not only bearers of subject positions, but also of truth-effects (Foucault, 2007/1980; 1994). These subject positions can be better understood in the context of notions of agency and identity and the relationship between these two and forms of knowledge and practice. The real question is who has the power and the agency to define disciplines as high status and or low status?

To further illustrate how discourses produce subjectivity, Hall (1997) suggests that, in order for one to become the subject of a particular discourse, and thus possess its power and knowledge, he or she must locate himself/herself in the position from which the discourse makes the most sense. Hall gives the example of the discourse which makes a distinction between the west and the rest of the world. This discourse has positioned the west in a superior position in which the west is considered the yardstick of development. This position also places certain obligations on the west to help developing countries. In order to talk about this relationship between the west and the rest of the world, we have to adopt the dominant discourse that clarifies this relationship. The classical example here will be to use terms like 'third world' or, 'globalisation'. It is by adopting such discourses that we are advancing western supremacy. In this way, we become subjects of this discourse by subjecting ourselves to its meaning, power and regulation. Any attempts to talk about these world relations without acknowledging western supremacy requires us to adopt an alternative discourse.

Drawing on the work of Foucault, Gee (1999; 1996; 1992), has been influential in building a theory of discourse germane to academic literacy. Most importantly, Gee (1996) has questioned the institutionalised discourses that seem to exclude students who do not fit certain criteria. To achieve his purposes, Gee has provided a pragmatic illustration of how discourses as bearers of subject positions can be seriously flawed by making a distinction between the small letter discourse and capital letter Discourse. He described the small letter discourse as language in use. Thus, the small letter discourse figures in any form of interaction where language is

used. This meaning is akin to any form of interaction between speaker and addressee, or writer and reader as alluded to by Fairclough (1992) that I discussed in the introductory section. The capital letter Discourse refers to the socio-cultural and ideological ways of using language. While discourse- language in use- is part of Discourse, it cannot be reduced to the latter, which Gee also uses to refer to literacies¹. The upper case Discourse has been further divided into primary Discourses and secondary Discourses, where primary Discourses are

those to which people are apprenticed early in life during their primary socialisation as members of particular *families within their socio-cultural settings*. (p. 137)

Gee (1996) is suggesting that there are ways of knowing and being that students learn simply by being members of their societies. In the context of these primary Discourses, no child comes to school with an inferior language/knowledge (Gee, 2004). By adopting this, Gee seems to be questioning the logic of prescriptive definitions of literacy when the context in which it is primarily learnt is different. It is these prescriptive definitions that create subjectivity. Secondary Discourses, on the other hand,

are those to which people are apprenticed as part of their socialisations within various local, state, and national groups and institutions outside early home and peer group socialisation. (Gee 1996 p. 137)

The distinction between primary and secondary Discourses captures the social situatedness and identity issues which frame academic literacy. But most importantly, it helps practitioners understand that students are not *tabula rasa* or empty vessels when they come to school, passively waiting to be filled with academic literacy proficiency. On the contrary, all students possess some forms of knowledge which can be used as a resource for acquiring a secondary Discourse, such as academic literacy. To further illustrate the problem of prescriptive definitions of literacy, Gee (1996) suggests that practitioners need to understand that the distinction between primary and secondary Discourses is not a clear cut one. This distinction is mediated by another Discourse, which he refers to as borderland Discourses. Gee (1996) describes borderland Discourses as:

¹ Gee's trope of small letter discourse and capital letter Discourse is adopted in this study where the term

Discourses where people from diverse backgrounds, and thus with diverse primary and community based Discourses, can interact outside the confines of public-sphere and middle-class elite Discourses. (p. 162)

Borderland Discourses, according to Gee, are hybrids of other discourses: as students interact between school (secondary) and home-based (primary) Discourses, they learn and produce other Discourses. At the same time, who they are (their identity reflected in primary Discourses) and, what they are (their student identity reflected in secondary Discourses) also reflect the Discourses in which they participate. This stance is supported by Gutierrez, Morales and Martinez (2009) who deplore discourses that make distinctions between cultural practices without taking into account the variance that occurs as individuals engage in everyday practices in and out of their communities.

The brief outline of the three Discourses mentioned by Gee (1996) reveals common characteristics which have implications for pedagogy. Firstly, they point to the issue of multiple identities that students bring with themselves to school/university; the space of the home and the space of the institution overlap as students acquire academic literacies. This suggests a redefinition of the phenomenon of 'local' from one which sees the immediate background of the student as the all-encompassing force, to one which acknowledges outside influences on students' contexts (Brandt and Clinton, 2002). Secondly, these Discourses, as suggested by Gee, indicate transitions which can be both linear (from home to school to university) and lateral (occurring simultaneously, as in borderland Discourses). Crucial to this theorisation, however, is the idea that representing students, and academic literacy, using a narrowly defined understanding of context and culture, can be seriously flawed. Moreover, Gee's understanding of Discourses implies that discourses are not finite entities. Their existence is contingent on the relationship with other discourses in social networks and this is the reason they can evolve over time.

By writing up this dissertation, for example, I am involved in some of form of discourse, with prospective readers such as my supervisor, examiners and other postgraduate students who might want to refer to this piece of work. At the same time, I recognise the influence of other non-language aspects such as my identity as both a student who has had to acquire academic literacy and my English as a

second language (ESL) status, an identity which drives my passion for this topic. Furthermore, this dissertation is in the field of Applied Language Studies, which has characteristic ways of talking, writing and acting towards the subject of academic literacy (Gee, 1996). Thus, my dissertation is also a Discourse, for it is not a newspaper article, but an academic piece of work which should be read and treated in that sense. This is a Foucauldian conception of discourse in which, together with Gee, I am placing a double meaning on the term. First, Discourse is a social practice which has got its own ways of being. In this sense, Engineering is a Discourse which has got its own ways of making meaning. Accordingly, Discourse becomes an institutionalised way which allows social actors to make sense of their reality. For this reason, the capital letter Discourse has the potential to legitimatise actions.

The second point to make is that Discourse is a medium. Implied in this perspective is that, any social practice (Discourse) like engineering is mediated through another Discourse, which in this study I will call academic literacy. Therefore, Engineering as a Discourse uses language (discourse) in its texts, artefacts, and social practices (Discourse) to form its rhetoric (for instance, technical report writing). From this standpoint, technical report writing becomes a dominant manifestation of the Engineering discourse because “knowledge produced in the academy is primarily cast in written language” (Bazerman, 1988 p. 18). The implication is that writing represents knowledge in specific disciplinary ways (Lea, 2001). This understanding of the relationship between discourses, writing and academic knowledge is crucial in this study. Through an analysis of Discourses and discourses, this study proposes to bring to the fore the dominant representations of students and of academic literacy in an Engineering Faculty, and interrogate how these serve to include or exclude some students.

Taking the position therefore, that literacy is a Discourse this study favours the theoretical constructs drawn from social theories that foreground elements of participation, identity and power. This is because such a framework assists in understanding how the representations (identities) of students are mediated through a Discourse, such as *Technical Communication Course*. This leads on to the discussion in the next subsection on engineering as a Discourse.

2.3.2 Engineering as a Discourse

In the previous section, I indicated that Discourse is both a social practice and a medium. As a social practice with its own ways of being and doing, Engineering fits the definition of Discourse as advanced by Gee (1996). Consequentially, in this section, I will briefly discuss the nature of engineering as a Discourse and provide a link between this Discourse and technical communication, which is also a Discourse with its own set of practices and as well as a medium and channel through which the engineering discourse can be relayed.

Engineering is often described as an applied science, in opposition to pure science and the arts (Archer, 2006a; Belcher and Trowler, 2001). Whilst this description is the first step in defining the discursive properties of the discipline, the literature available suggests that there is a neglect of discourse in engineering education (van Heerden, 2000; Archer, 2006a). This neglect is twofold. In the first instance, engineering and science curricula are believed to be content based, with little consideration to how students process that content (van Heerden, 2000). Furthermore, there is also evidence in the literature that engineering academics and their students do not acknowledge the role of Discourse or writing in their teaching and learning (Perelman, 1999; Winsor, 1996). Thus, academic writing or discourse is seen as 'other' to subject content. Because of this neglect, the challenges students face with Discourse is often described/represented as 'language problems' (Boughey, 2002; 2000; van Heerden, 2000). This is worsened by the fact that "rhetoric was developed in fields where the goals are very different than they are in technical work" (Winsor, 1996 p. 4). However, this prevailing practice is contrary to current academic debates on the role of Discourse in teaching and learning both internationally (see Ivanic, 2004; 1998; Gee, 2001; 1996) and locally (see Jacobs, 2010a,b; Case and Marshall, 2010; Boughey, 2008; 2002; 2000; Mckenna, 2004a). Discourse is now a widely acknowledged factor in the teaching of undergraduate courses and often the focus of literature dealing with the academic development of undergraduates (van Heerden, 2000 p. 11). Moreover, the Engineering Council of South Africa, ECSA, as the accreditation body of the engineering profession in South Africa, specifies the acquisition of engineering Discourse as one of its ten exit outcomes for engineering students (see ECSA, 2004).

Simpson and van Ryneveld (2010) consider Discourse acquisition as the 'gate' through which engineering graduates must pass in order to be acknowledged as engineers. That is to say, engineering Discourse becomes a "carrier for something other than itself" (Bernstein, 2000 p. 4). It becomes the medium through which participation in the discourse community within and without the university is determined. Adopting such a position underscores an "internal analysis of the structure of the [engineering] discourse" (ibid) to determine the extent to which it provides opportunities for participation for all students. This need is further necessitated by the fact that much of what is written in discourse and writing theory is either based on research in the humanities (see Boughey, 2000; Ivanic, 1998) or non-higher education contexts (Lea and Street, 2006; 2000; Prinsloo, 2000; Gee, 1996; Street, 1984). Thus, there has not been much theory generation in relation to engineering rhetoric both internationally and locally. However, I am not unaware of efforts by some scholars working in engineering education such as Winsor (2003; 1996; 1990) and Braine (1995) internationally and Jacobs (2010a, b; 2005); Archer (2006a, b); van Heerden (2000) locally. The African Journal of Research in Maths, Science, and Technology also dedicated a special edition in 2010 on using Discourse and identity in the construction of teaching and learning. Jacobs' (2010a, b; 2005) work has mainly centred on collaborative teaching between content (engineering) academics and language (academic development specialists). She found that while these academics, as a result of their completely different discursive and professional identities, initially had diverse perspectives about the teaching of academic literacy, their ways of thinking were reshaped through collaborative partnerships. Furthermore, the collaborative teaching facilitated the "explicit teaching of disciplinary discourses through unlocking the tacit knowledge of the disciplinary lectures" (Jacobs, 2010b p. 111).

Archer's (2006b) work has centred on multimodal learning in an engineering context. She has also explored how students negotiate their multiple identities as they attempt to access the disciplinary practices of engineering (see Archer, 2006a). She concludes that engineering academics need to consider students' experiences of learning and move away from a top-down approach to teaching content. Admittedly, this work has been instrumental in advancing socio-cultural understandings of how students learn academic discourses. It is now widely accepted that there are

differences between engineering rhetoric and other forms of writing (Simpson and van Ryneveld, 2010; Archer, 2006a; van Heerden, 2000; Braine, 1995). This research has also been instrumental in fostering and challenging engineering academics to make the way they 'read and write' themselves and their discipline explicit to students (Jacobs, 2010b). In spite of all these efforts, I am convinced that this work does not match the efforts that have been put in research on rhetoric in the humanities. Moreover, I also believe that the scholarship in engineering rhetoric has not problematised Discourses in ways that reveal how they have the potential to exclude social agents. This is the contribution that my study seeks to add to the scholarship by theorising the 'phenomenon of exclusion' and to show how social agents use discourses to create this phenomenon.

Given this study is mainly on representation, the discussion in this chapter will be incomplete without a discussion of representation and how this figures in discourses. An important concept in discussing representation is semiosis, which in its simplest meaning is a study of signs.

2.4 Introducing semiosis

Although semiotics is an old discipline, it is regarded as complex given that semiosis is a major approach in psychology, anthropology, cultural studies, linguistics and even philosophy (Chandler, 2007). As a result, it is not "institutionalised as an academic discipline" (ibid p. 4). The general definition of semiosis is that it is the study of signs yet such a definition does not adequately explain what semiosis really is. Yet signs can be found anywhere. For instance we see signs that give us information every day, but we cannot limit semiosis to such a narrow view. The concept of a tree is given by many scholars to clarify what semiosis really is (see Berger, 2012; Chandler, 1994). When one talks of or writes about a tree (linguistic sign), he or she also pictures a tree in his or her mind (conceptual sign). Taking this position therefore, signs can be defined as something which represents something to someone in some capacity (Pierce in Nellhaus, 1998). Nonetheless, this definition still raises a critical concern initially touched on in the discussion on d/Discourses. People use signs that they are familiar with to make meaning of their world. Implying

therefore, that that which is unfamiliar, is seen as 'other' to that which is known. Can one talk about snow if he or she has never seen or experienced snow? Can academics effectively talk about students' experiences of academic literacy, if they do not have any conceptual reference of such experiences? Concerns such as these, suggest that there is need to understand the phenomenon of academic literacy and how it relates to students' experiences as well as academic experiences in order to make informed representations.

A key figure in developing a theory of semiosis was the French linguist Ferdinand De Saussure (Violi, 2001). De Saussure is particularly credited for his distinction between *langue* – the linguistic system and *parole* – individual utterances (Chandler, 2007; Violi, 2001). He theorised that for every event of language use- *parole*, there is an underlying system of rules – *langue*, without which there can be no meaningful language use. Therefore, for De Saussure, *langue* and *parole* are contingent upon each other. He also saw this linguistic system as being made up of signs, which comprised of a mental image (referred to as the signifier) and an idea (signified). He theorised the relationship between these two concepts in terms of what he called "differences without positive charges". He further states that:

In all these cases, what we find, instead of *ideas* being given in advance, are *values* emanating from a linguistic system. If we say these values correspond to certain concepts, it must be understood that the concepts in question are purely differential. That is to say they are concepts defined not positively, in terms of their content, but negatively by contrast with other items in the same system. What characterises each most certainly is being whatever the others are not. (De Saussure in Violi 2001 p. 19)

Essential to De Saussure's theory are the notions of difference and 'othering' through the linguistic system. How does one come to define something as a 'virtue' or 'crime'? According to De Saussure, this is only possible because social phenomena are based on pre-established values or frames of reference (Violi, 2001). The linguistic system, on the other hand is used to validate these values. Consequently, there is no natural reason why certain signs should be attached to particular concepts serve for the value that the signs have been assigned in the linguistic system. In other words signs are arbitrary and only become meaningful if there is consistency in their use to the point of dominance. It is clear that De Saussure was concerned with the relationship between language as a linguistic

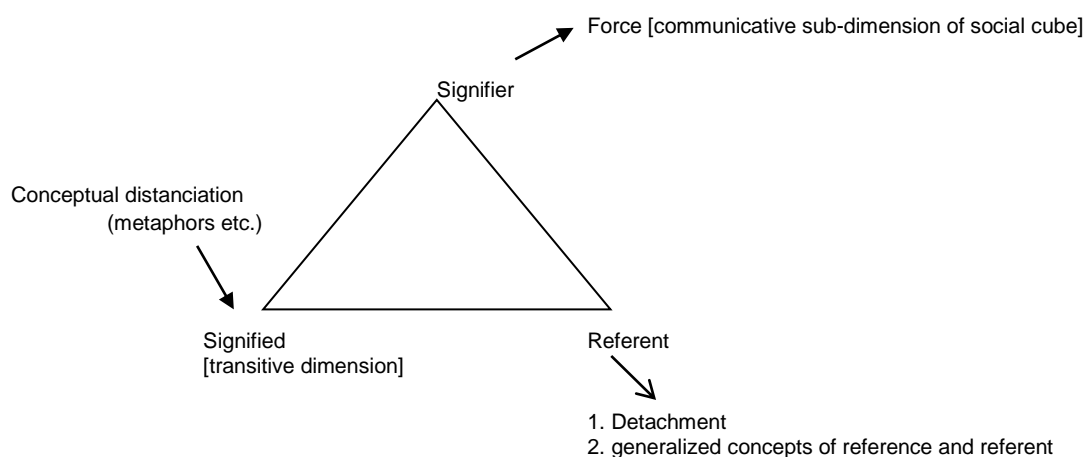
system/structure and society. Unsurprisingly therefore, his theory has been pivotal in advancing structuralism and to a certain extent post-structuralism.

Informative as De Saussure was in developing a theory of signs in terms of the signifiers and the signified; his work has been criticised for overlooking another important part of the process or representation, the referent. Consequently, scholars such as Bhaskar (1993) and Pierce (cited in Deledalle, 2000; Nellhaus, 1998) have advanced his work. For instance, Bhaskar has included the referent in his theory while Pierce has made a distinction between the sign, interpretant and the object as revealed in section 2.4.2.

2.4.1 Bhaskar's semiotic triangle

In view of the criticism of De Saussure's theory, in particular its exclusion of the referent; critics have argued that it cannot have a place in the signification or representation process (Nellhaus, 1998; Bhaskar, 1993) and in particular in a philosophical argument such as Critical Realism. Bhaskar (1993) argues that any theory of meaning is composed of three components, the signifier, signified and the referent as represented in the semiotic triangle in Figure 2-1 as follows.

Figure 2-1 Bhaskar's semiotic triangle



Adapted from Bhaskar, 1993 p. 223

Knowledge of the sign has got two dimensions; the reference and the referent. The reference/signified reflects the concepts people use in referring to the world (Bhaskar and Lawson, 1998); that is the thoughts and perceptions and knowledge that people have or develop/discover of signs. For this reason, it is also called the

epistemological or transitive dimension. The referent dimension of the knowledge of the sign is concerned with the actual object, regardless of how it is or has been identified (Nelhaus, 1998). Hence, it is concerned with a phenomenon as it presents itself. Al-Amoudi and Willcott (2011) illustrate the relationship between these two dimensions as follows. If Sally thinks of a cold drink, she relies on language and concepts to refer to the drink. The language and concepts that she will use to talk about the drink are the transitive objects of her knowledge and the drink is the intransitive object of knowledge. In this case, the signifier is the one who chooses the language (small letter discourse) to refer to something. The referent is that which is being talked about; the subject of discussion. Both the transitive and intransitive knowledge of the cold drink is not static or exclusive to each other in the sense that the cold drink can get warmer with time, just in as much as the concept of a cold drink can also change over time. Furthermore, if someone was to study what Sally thinks of her drink, then Sally's thoughts and language becomes the intransitive objects of knowledge while this person's transitive knowledge would consist of the knowledge and theories through which he or she understands Sally's representation of her drink (Al-Amoudi and Willcott, 2011). Both Sally and the person studying Sally's conceptualisation of a cold drink are the agents of this representation that is, they are the signifiers. They play an active role in the process.

Let us take academic literacy to be the cold drink. When one thinks of academic literacy, he or she draws on language/discourses to talk about it. The discourses that are used to talk about literacy form the transitive dimension or the signified in Bhaskar's conceptualisation while academic literacy is the intransitive dimension or referent. According to Bhaskar (1993), the role of the signified is bound in layers of differentially sedimented stratification; thus allowing conceptual distancing through the use of analogies, metaphors or metonymies. Implying therefore, that in representing reality, social actors use signs that need to be interpreted in some capacity for meaning to be conveyed. Metaphors are not straightforward utterances; they need to be deciphered, but for this to happen there is need for a common frame of reference between the addressor and the addressee. Hence, as Derrida (1982/1978) has also suggested, meaning is always deferred in any act of representation. As a result, the three aspects, signifier, referent and object have

multiple other semiotic triangles resulting from their contextual and historical and interactional activities (Bhaskar, 1993).

Bhaskar's (1993) discernment of signs and representation is relevant to this study for a number of reasons. First, it places the social agents at the centre of the process of representation, suggesting therefore, that signs are meaningless without the agents' role being specified. Second, representation does not just occur at the surface level, there are underlying mechanisms. These mechanisms deserve to be interrogated in any study that seeks to understand the reality of a phenomenon. Nonetheless, there have been criticisms of Bhaskar's semiotic paradigm from some realist scholars who believe that his semiotic account does not adequately represent a realist philosophy (Nelhaus, 1998). Two reasons are given to justify these criticisms. First, it is believed that Bhaskar's semiotics does not clarify the ontological status of the sign (Nelhaus, 1998 p. 1). This is because Bhaskar's account is brief (semiotics is covered only in two pages in his *Dialectic: the pulse of freedom* 1993 p. 222-224). Hence, there is limited engagement with the subject. As the discussion in the ensuing section will reveal, the sign and sign relationship with other components is much more complex, than that provided in Bhaskar's paradigm. Moreover, there has not been much focus on developing a critical realist understanding of semiotics (Fairclough, Jessop and Sayer, 2004; Fairclough, 2002). Unfortunately, semiosis is a field that is dominated by structuralist and poststructuralist ideas. As a consequence, critical realism might not make headway in theorising about representation unless it provides a "satisfactory account of the sign" (Nelhaus, 1998 p. 1). Hence, Nelhaus (1998) proposes incorporating Charles S. Pierce's ideas on semiosis to provide a convincing foundation for a critical realist semiotics. This is discussed in the section to follow.

2.4.2 Pierce's semiotic paradigm

While de Saussure's theory of semiotics had its roots in structural linguistics, Pierce's, just like Bhaskar, is a branch of philosophy (Deledalle, 2000). However, Pierce's theory of semiotics is more complex and his understanding of signs evolved over the years (Atkin, 2010). This has also influenced changes in terminology. As a result, it is impossible to give a full account of his paradigm in this section.

Nonetheless, for the purposes of this discussion, aspects of his theory that reveal a critical realist inclination will be favoured.

Pierce suggested that anything could be considered a sign which stands in some kind of relation to something (Deledalle, 2000). He saw this sign relation as the key to an understanding of the process of representation. The sign relation is composed of three elements which though exclusive to each other in terms of their role in the meaning-making process, are also dependent upon each other. These elements are the sign, also called the representamen, the object and the interpretant. It is important to note that Pierce used the word 'sign' to refer to both the whole semiotic unit as well as to one of the units (Nellhaus, 1998). This makes his typology confusing and also causes slippage in discussions of the sign. The object is that to which the sign refers, that is the subject of the sign and is analogous to Bhaskar's (1993) notion of the referent. The interpretant, on the other hand, refers to the meaning that is drawn from the sign, and compares with Bhaskar's signified.

Pierce also identified three types of signs namely; the icon, the index and the symbol (Nilan, 2007). The icon is identified by its resemblance/similarity to the subject. Hence, people can make meaning of a sign based on its resemblance or analogy to the original. Thus a picture of something is an icon. Metaphors can also be considered iconic signs given they are used to make implicit comparisons between objects based on their resemblance in respect of some characteristic. For example, when we say 'ideas bear fruit', we are measuring the worth of the ideas based on the outcomes, just as much as we judge the value of a tree by its ability to reproduce. Like Bhaskar, Pierce believed that the iconic sign (metaphor, analogy in Bhaskar's typology) enabled people to make sense of the world. The indexical sign can be understood as a suggestive sign (Deledalle, 2000). Let us take the example of the relationship between fire and smoke². Whenever we see smoke, we interpret the sign to mean that there is a fire somewhere. This interpretation is brought about by our shared frame of reference that smoke is the resultant of a fire (object). In this case the object (fire) determines the sign (smoke); there is a causal relationship between the index and the object. Sufficing to say, *there is no smoke without a fire*.

²Example taken from Atkin (2010).Pierce's theory of signs.In Stanford Encyclopedia of Philosophy online at <http://plato.stanford.edu/entries/peirce-semiotics/>. Accessed 13 July, 2011

The last of these, is the symbol. The symbol-object relationship is characterised by an arbitrary relationship. For instance, the flag of South Africa is a symbol which signifies the diversity that characterises the country. The 'crown', (both the word and the picture) can be used to represent royalty. Thus, linguistic elements such as metonymies can be regarded as symbolic signs.

The interpretant as well as the object also have several other components attached to them. With regard to the object, Pierce identified two sub categories which he named the dynamical and the immediate object. The immediate object refers to the sign as it presents itself. In other words, the immediate object refers to the perception or knowledge that we have of the sign. Therefore, the immediate object has a transitive/epistemological dimension (following Bhaskar, 1993). This suggests that the immediate object is not necessarily the real object; rather there is another layer that lies beneath. Pierce called this layer the dynamical object which can only be identified and understood through experience. Hence, it has an intransitive and ontological dimension (Bhaskar, 1993). In this way, the sign cannot articulate this object; rather, it can only point to its existence and leave the interpreter to find out through experience. Clearly, Pierce's distinctions between the dynamic and the immediate objects share an affinity with Bhaskar's transitive and intransitive domains of the sign.

Concerning the interpretant, Pierce also recognised three categories as the immediate, the energetic and the logical. Unlike the sign/representamen and the object, the interpretant is not necessarily a concept. For instance, the immediate interpretant relates to emotions that the sign evokes such as recognition, acceptance and interest or uncertainty. Pierce believed that these emotions are indicative that the sign has been understood. Sometimes, understanding of the sign is manifested in more than emotions; it might evoke some form of action. This is the energetic interpretant. Nonetheless, both the immediate and the dynamic interpretants are indicative of a partial understanding of the dynamic object. The ultimate interpretant involves more than emotions and actions; rather it invokes thought. Hence, the logical interpretant, unlike the other two interpretants, maybe a concept. If it involves thought, then it means that the logical interpretant maybe the object of further

semiosis. This thought process can lead to the development, conditioning or change of habits. Nellhaus (1998) explains:

It means that humans are constantly developing dim perceptions into fully-blown concepts, rethinking our past and so forth *ad infinitum*. (Nellhaus, 1998 p. 6)

Understanding semiosis as a process which leads to the development/conditioning and strengthening of habits underlies a realist understanding of identity as will be revealed in Chapter 5. Unsurprisingly, Pierce's theory of semiotics is perceived as a realist theory of representation and thus relevant to critical realism (see Cashell, 2009; Nellhaus, 1998; Fairclough *et al.*, 2004).

Translated to academic literacy, Pierce's formulation of signs would entail exploring the relation between academic literacy (sign which is iconic, indexical and symbolic); students' writing (the object) and discourses that are used to talk about students' writing (interpretant of the sign). As a sign, academic literacy can be regarded as an indexical sign, in the sense that it points to mastery of the discourse. As an iconic sign, academic literacy is a metaphor for success, which has also generated metaphors of its own to justify its existence. However, in HEIs, academic literacy is understood by focusing attention on its relationship with the object (for instance writing). Hence, the object writing, determines the sign, academic literacy, which further determines the d/Discourses that are used to talk about academic literacy. In Pierce's theory the interpretant, in this case, are the d/Discourses that are used to talk about literacy, which can also have further interpretants. These can also be understood if academic literacy is taken as a symbolic sign. As a symbolic sign, academic literacy represents something much more than the ability to read and write. It represents access to social mobility; to the symbolic goods like education, access to financial and job opportunities.

Clearly, Bhaskar's (1993) as well as Pierce's (cited in Delledale, 2000; Nellhaus, 1998) conceptions of signs render interesting insights for my study. First, they indicate semiosis as part of a social practice; hence it is more than a linguistic system, but represents "all signifying systems as elements within and across semiotically functioning organisms" (Stables and Gough, 2006 p. 271). Second, they help establish how signs are constructed and reinforced through social structures. Thus, meaning, is not inherent in the signs themselves, but rather originates from

relationships with other things; as a result, living is a semiotic engagement (Stables and Gough, 2006). Most importantly, semiotics, offers both methodological and theoretical tools that can be used to understand representation in the context of academic literacy.

2.5 Semiosis and representation in general

Scholars working in discourse analysis (see for instance, Fairclough, 2001; Meyer, 2001; Jessop, 2004; Hall, 1997) have argued that there is a dialectic relationship between semiosis and representation. These scholars believe semiosis offers humans the capacity to create/make knowledge of the social world through the creation and understanding of signs. Representation is the use of signs to understand the world (Sebeok, 2001). To convey knowledge of the world, people use various semiotic modalities such as language and Discourses (saying-doing-being-valuing combination, Gee, 1990). If this is the case, then, as Kress (2003 p. 144) suggests, that “representation is always partial”. This partiality is not accidental, but is conditioned by one’s interests, perceptions and knowledge of the phenomenon. Thus, the signs that are used to represent academic literacy in terms of a course such as *Technical Communication* in an Engineering Faculty are an indication of social actors’ understandings and or interests in the phenomenon. The implication is that these signs are not a complete representation of reality. Consequently, there is need to examine various perspectives emerging from the different social actors so as to establish the dominant representations.

Hall (1997) extends the link between semiosis and representation by suggesting that through the use of signs; representation reconstructs ‘others’ identities. By ‘other’, Hall refers to those that are represented as different according to some criterion that is used as a standard. From this perspective, representation is clearly a semiotic matter through which we can identify different discourses. These discourses may be used to represent the same idea but from different perspectives or positions (Fairclough, 2003). Yet this process does not occur in the material or physical world; rather it is symbolic in the sense that it draws on conceptual understandings (signs according to Pierce) of culture and language to construct this meaning (Hall, 1997). Thus, for Hall, representation draws mainly from the conception of the symbolic sign. This understanding of representation and ‘other’ is akin to Jacques Lacan’s symbolic

order, which presupposes that dominant symbols/signs have the power to create social orders (Leader and Groves, 2000). Cahoone³ (2007) concurs with this understanding when he says that representation is a process of exclusion, opposition and hierarchisation. He also suggests that identities only become dominant if some units are represented as 'other'. Taking this stance, therefore, we cannot take for granted the role of semiosis in any social practice such as academic literacy.

The discussion in this section reveals that semiosis, is part of a social practice, which has potential to create a social order. A semiotic order is a special configuration of discourses which involves:

- Selection of discourses to interpret events or legitimising actions;
- Retention of some resonant discourses through enactment;
- Reinforcement of procedural devices that favour these discourses and their associated practices whilst filtering contrary discourses and;
- Selective inculcation and retention by relevant social groups, (Jessop, 2004 p. 164-165).

It is easy to see why semiosis is of considerable importance to my study, for it seeks to explore representations of students as well as of the academic literacy context, and how these serve to include or exclude some students. This is because the link between semiosis and discourse enables me to locate the representation of academic literacy in its socio-cultural context.

2.5.1 Semiotic aspects of social structure, practices and events

Gee (2003) suggests that any semiotic domain, such as an academic discipline, is a lived and historically changing set of distinctive practices. These practices do not exist in isolation, but are mediated through social structure, as well as the social events within the same domain. Whilst social structures are not necessarily tangible,

³Though I concur with Cahoone's definition of 'other', my theorization of representation differs from that offered by Cahoone. As a postmodernist, Cahoone is not concerned with semiosis that is the signs that are used in representation, or perceptions. From critical realist ontology where there are three layers of reality, and perceptions are central to this understanding of reality, as I indicate in my paradigm section of this dissertation.

(for instance, language is a social structure yet it is abstract) they are real components of the social world which have an effect of social events and/ or practices (Archer, 1995). This understanding of the relationship between abstract social structure, practices/agency and events makes the relationship between what is structurally possible and what actually happens in a social context a very complex one. The reason for this is that social events do not directly emanate from social structure, but are rather mediated through social practices (Fairclough *et al.*, 2004). Thus, they need to be analysed in terms of their relation to each other; that is, in a position of 'analytical dualism' (Fairclough *et al.*; Archer 1995).

Fairclough (2001) provides a framework which illustrates how semiosis figures in social practices. First, semiosis is part of a social activity within a social practice and using language (small letter discourse) is part of the academic literacy teaching and learning context. While language is a social structure or system, it is also a human product. In this case, language as a social structure cannot have its own intentions or causality. It needs human agents for it to define social practice and social events. Second, semiosis is directly linked with representations as Fairclough, (2001 p. 123) states that "social actors within any practice produce representations of other's practices as well as 'reflexive' representations of their own practices". These representations can be done in a number of ways, for instance through metaphors, analogies or metonymies (Bhaskar, 1993), all of which can be described as either symbolic or indexical signs. Thirdly, semiosis is performative; therefore it is evident in the performances of particular positions within social practices. These performances can be reflected in pedagogic practices on the part of the academics, and literacy practices on the part of the students.

Cast in this way, semiosis provides a rationale for studying representations that are dominant at the level of structure, practices and events in the teaching and learning context. Following from this conception of semiosis, the literature review of this study will focus on the selection of signs/metaphors (semiosis) that are used to interpret and legitimise academic literacy practices. Hence, the focus will be on the various conceptualisations of academic literacy and of students as evident in the definitions that exist in literature, and how these definitions as semiotic representations can create "variation, have selective effects and contribute to the differential retention and/or institutionalisation of social phenomena" (Fairclough *et al.*, 2004 p. 6).

2.6 Semiosis and the representation of engineering knowledge

[Engineering] science is a “semiotic system which constitutes a body of knowledge generated by a community of scientists using a set of codes...that guide how scientific knowledge is represented, communicated and interpreted” (Jamani, 2011 p. 195). As such, an exploration of engineering knowledge requires an analysis of the codes and signs that are used to represent and communicate shared knowledge and values (ibid). There are a number of codes that are used when writing engineering knowledge. Guiding these codes is the belief that engineering is concerned with the production of objective truths and useful objects (Perelman, 1999; Winsor, 1990). The concern with the production of artefacts for consumption (Perelman, 1999) makes design the benchmark knowledge in the field of Engineering. In terms of Gee’s (1996) distinctions this would be characteristic of the capital letter Discourse which encompass particular ways saying, being, acting, believing and behaving which characterise a discourse community. This suggests that Engineering discourse will involve ways of being and acting as an engineer, which will involve the practice of design to solve real world problems (Allie *et al.*, 2010; Wolmarans and Collier-Reed, 2010; Perelman, 1999), through other practices such as collecting and analysing data using empirical laws and correlations, doing mathematical calculations and modelling, as well as presenting one’s results to a range of different audiences (Allie *et al.*, 2010). Through engaging in these practices, students identify themselves as belonging to the engineering discourse community.

The success or failure of the design measures the success of an engineer. Unsurprisingly therefore, textual mediation of knowledge is difficult to accept for engineers as it is not considered to be a central activity of being an engineer (Winsor, 1996; 1990). “The engine, rather than a document is the ‘final publication’ for the engineer” (Winsor, 1990 pp. 60-61). This perception is however false given engineering curricula highlights the need for the acquisition of Discourse (in the sense of written communication, see ECSA, 2004) as an exit outcome for engineering students. Vincenti in Perelman (1999) sees the ability to articulate and communicate effectively each step of the design process as the core of engineering knowledge. Implied is that the knowledge of the design is represented in the document. This makes engineering writing a powerful code in the engineering discourse community.

The concern with design also makes it “common to downplay [personal] role to highlight the phenomena under study” (Hyland, 2005 p. 181). Personal role refers to self-mention of the author in his/her writing. Therefore, constructing the engineering persona requires one to avoid using of the personal (subjective) “I” or “we”, in favour of the passive. Longo in Winsor (2003 p. 8) links this to power and suggests that:

The fact that technical writing is designed to divert its attention from itself to the subject is one of the factors giving it power.

The invisibility of the writer/researcher is thus a control mechanism in the sense that it forces the reader to read the text as absolute and the knowledge presented as ‘indubitable’ (Miller and Tsang, 2010; Descartes, 1924/2008). It constructs engineering writing as the “objective reporting of an independent and external reality” (Hyland, 2001 p. 207). The assumption is that the reader can simply decode the transmitted message and recover the same reality (ibid). By so doing, engineering writing makes the assumption that there is a universal reality, and any attempt to place human agency at the centre can create doubts. To illustrate this point, Albert Einstein in Hyland (2001 p. 208) states “when a man is talking about scientific subjects, the little word ‘I’ should play no part in his expositions”. This understanding has its roots in the positivist tradition in which language is seen as a transparent medium for conveying facts which compel rational assent without need for persuasion (Walzer and Gross, 1994 p. 421). A number of engineering writing guides, (see Hagan, 2006; Winckel and Hart, 2002), that I have come across explicitly advise students to desist from using the personal pronoun. Cast in this way, engineering discourse, as a semiotic modality “rules out’, limits and restricts other ways of talking about or constructing knowledge about a topic (Hall, 1997 p. 73). Through d/Discourse, some ways of knowing are legitimated, while others are disprivileged (Gee, 2010). Thus, semiosis institutionalises discourse by determining acceptable forms of communication.

Couture (1992) states that besides responding to values of scientific objectivity, engineering writing also responds to corporate interests. This is supported by Winsor (2003) who posits that most engineering knowledge is generated in systems of power and profit. This entails writers developing an awareness of the corporate audience. As such engineering writing, especially for design projects, is often written in an employee-boss relationship (Herrington, 1985). Other characteristics of

engineering writing include a common structure and the use of nominalisation. Easson and Bruce (2000 p.1) highlight that the rationale for the structure of a technical report results from the necessity that it can be read at different levels. This assumption draws from the fact that there are multiple audiences for a technical report such as managing directors or clients who might not necessarily be technical people, to immediate technical bosses and fellow engineers. As a result, the report must be structured in such a way that it can be read by these different people in different ways. Nominalisation refers to the process of turning verbs into nouns. It functions “to turn processes in the natural world into objects of study” (Corbett 2003 p. 81). For instance,

Trawl periods ranged from 10 to 18 minutes depending on trawl speed and trawl distance needed to intersect the submersible transcects (Kriegler and Sigler 1996 p. 284)

In this example, compound nouns have been formed to denote the period the trawling took as well as the distance trawled⁴. Ravelli (1996) states that using nominalisation makes a written text denser, abstract and ‘more written’. Whilst this is true, I also believe that nouns as naming words can state designations or measurements, as such they are associated with facts. Given facts are the cornerstone of engineering knowledge; it makes it easier for engineering writers to name facts.

2.7 Concluding remarks

The objective of this chapter was to introduce the concepts of d/Discourse, representation and semiosis as they are some of the main concepts used in this study. The discussion has revealed that these concepts are interrelated in a number of ways and can function together in the representation of social phenomena. Semiosis, as the study of signs, plays the role in representation. Discourses, on the other hand, are the meanings that underpin the sign, the meanings that social agents assign to these signs. Therefore, both semiosis and d/Discourses are essential components in the representation of social phenomena. I have also shown that

⁴ Example taken from Banks (2003 p. 128).

representation is an important aspect of life and people use different signs to represent the world around them. However, the problem arises when other people have control over how one is represented, for instance as is the case between students and their academics. This representational control, when adopted in the teaching and learning context, whether implicitly or explicitly, has socio-cultural and psychological effects on the ones being represented. Hence, it is difficult to evade issues of difference and power when representing 'others' who are perhaps different from the one doing the representation. Unfortunately, difference can potentially produce negative representations of students, which in turn can affect students' representations of their learning. In the context of academic literacy, these representations of students come from competing definitions which I discuss in Chapter 3. There is a repertoire of systems associated with semiosis and representation that social agents employ both to construct reality and constitute it as they respond to social phenomena. Among these systems is the use of metaphors and analogies. These metaphors, when interpreted, produce discourses that people use to shape, understand and react to the world and are presented in Chapter 3.

Chapter 3

Shaping influence of discourses

Nothing escapes the shaping influence of discourses (Kress, 2003, p. 43)

3.1 Introduction

Chapter 2 introduced three important concepts in this study: discourse, semiosis and representation. These three concepts lie at the base of the discussion that will run throughout this dissertation and in particular, in this chapter. While there are many conceptions of the notion of discourse in literature drawn from various fields, the notion of discourse as a social practice is favoured in this study. An attempt was made to show how this conception of discourse is relevant to a study on representation. This is because discourse as a social practice underscores the notion of shared beliefs which guide the way members participate in the discourse community. These shared beliefs are manifested when common signs are available to members. Therefore, discourses can be understood as the meanings that people attach to signs in an attempt to represent their world. In this chapter, the focus is going to be on the signs and discourses that are used in the representation of the notion of academic literacy, students and in orientations to the teaching of academic literacy.

3.2 Organising the literature

The discussion in this chapter is in three main sections and is focused on examining various perspectives on literacy/academic literacy and students. The first part of the chapter discusses semiotic representations that have been used to construct the notion of academic literacy. The critical question that this section will attempt to address is: 'Can literacy be defined?' This question has been at the heart of many debates on literacy in the fields of linguistics, education as well as in policy documents. The field of applied linguistics has grown over the years in response to debates on what constitutes literacy (Boughey, 2000). Whilst this growth has been instrumental in trying to clarify what it means to be literate, the naming that comes

with such attempts at defining literacy cannot be taken for granted: rather it must be opened to critique (Boughey, 2000; Roberts, 2005).

The representations discussed in this section draw from a semiotic system of metaphors. I will also reveal how some of these metaphors have produced an 'exclusion' discourse by constructing the notion of the other. I will also explore how these discourses are in competition with each other, thereby taking on stereotypical forms, where those that do not conform to the dominant view are represented as the 'other'. Alternative forms of representation drawn largely from the New Literacy Studies will also be offered. The second part of the chapter will focus on dominant representations of students. This aspect of the chapter draws from the dominant conceptions of academic literacy discussed in the first part. In the third section, the focus will be on the orientations to the teaching of courses on academic literacy. These three parts are not mutually exclusive; rather, as the discussion will show, they are intertwined. Hence, in some instances the discussion will be iterative, given the same discourses used to talk about literacy are translated to discussions on students and also permeates into the discourses about the teaching of literacy.

3.3 Representing literacy in higher education

My reading of research in literacy studies, in particular scholars such as Street and Lefstein (2008); Barton (2007); Ivanic (2004); Kern, (2000); Boughey (2000) and Gee (1996) drew my attention to the various semiotic representations of literacy. I have come to see these representations as oppositional and competing definitions, suggesting that literacy is a contested concept. Therefore, its meaning varies. I have used the work from these scholars as an algorithm to understand particular ways of conceptualising literacy that have been used to support pedagogical practice and policy formulations. What I am suggesting is that there are different conceptions of what constitutes literacy. In this study, I argue that these conceptions reveal how social and academic relationships between students and their educators shape how academic literacy is defined and, in turn define/ represent students. In other words, understandings of academic literacy are inherently linked to notions of identity. If this is the case, then it would be appropriate to argue that whatever representations of

literacy emerge in the teaching and learning context, they are a reflection of practitioners' ontological frames. As my awareness of the field is developing, I have found it necessary to question the link between this lack of consensus on the meaning of literacy, and the way students are represented in higher education. I have also engaged in a reflexive activity of critiquing my own practice of representing students and academic literacy. In particular, as I was writing this chapter, I consistently asked myself: whose perspective am I privileging when I represent academic literacy? In doing so, am I fairly representing students? I now turn to the work cited above in the discussion of these definitions.

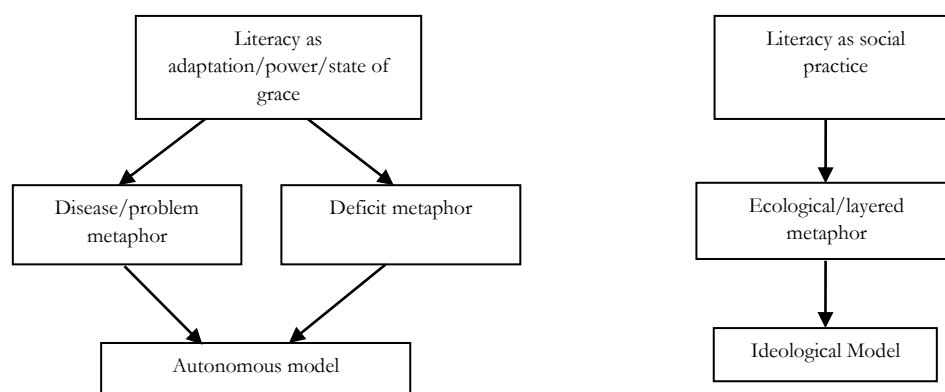
3.4 Metaphors for literacy

In an attempt to find a definition for literacy, the work of Barton (2007) as well as Scribner (1984) highlighted for me the metaphors through which various views of literacy are expressed. In her work entitled *Literacy in three metaphors*, Scribner (1984) classifies definitions of literacy in three parts: literacy as adaptation, literacy as power and literacy as a state of grace. Barton (2007) on the other hand, provides four metaphors that have been used in literature to represent literacy as; the disease metaphor, the literacy problem metaphor, the deficit metaphor, the ecological metaphor. The ecological metaphor has also been termed a layered metaphor by Ivanic (2004). Thesen and van Pletzen's (2006) work entitled '*Academic literacy and the languages of change*' also pointed me towards the tensions in the way academics use the term 'academic literacy' in South Africa, where the massification of higher education has seen a new generation of students gaining access to higher education. Given this backdrop, Street and Lefstein (2008) comment that it is difficult to "understand the term [literacy] and its uses unless we penetrate these contested spaces" (p. 34). It is for this reason that my study 'penetrates' the scope where literacy is located, in the teaching and learning context. This is because, I see these metaphors/views/ discourses as shaping dominant academic literacy views and practices in the universities.

To achieve brevity, I decided to integrate some of these categories identified by Barton and Scribner into a framework guided by Street's (1984) distinctions between

the asocial and social understandings of literacy. Street has referred to the asocial conceptualisation as the autonomous model of literacy because it sees literacy as a unitary skill which can be acquired in a universal way. This conception is cognitively biased. Street also believes this model is expressed in terms of metaphors which have been successful in creating stereotypes, which in turn have influenced methods of inquiry (Street, 2003; 1993; Gutierrez *et al.*, 2009). In contrast, Street (2001; 1984) termed the social conceptualisation the ideological model, which sees literacy as embedded in and a product of the socio-cultural practices. Literacy seen in this way, “is always contested both in meanings and practices, hence, particular versions of it are ‘always’ ideological, they are always rooted in a particular world-view” (Street, 2001 p. 8). Using these two models, I have managed to represent the different conceptions of literacy as shown in Figure 3-1. By so doing, I am not suggesting any hierarchical or linear order. Rather, I have used it to show the relationships between these diverse understandings. I discuss these conceptions in more detail in the section to follow.

Figure 3-1 Discourses framing academic literacy



3.4.1 Scribner's literacy metaphors

Literacy as adaptation is mainly concerned with literacy skills that people need to be able to function in society. It is mainly aligned with the notion of functional literacy and has been used in support of adult literacy courses worldwide (see Prinsloo, 2000; Scribner, 1984). It is believed that the purpose of adult literacy courses is to enable adult learners who are obviously beyond school going age, to ‘acquire’ literacy ‘skills’ that will enable them to function in society. In this sense, literacy as

adaptation is an indexical sign because it points to the ability to function in society, just like smoke is an index/sign of fire.

The literacy as power metaphor is used in arguments about the role of literacy in society. For instance, Goody and Watt (1963) conceived literacy as a power metaphor by focusing on the literacy-illiteracy dichotomy as well as the power of literacy in political and economic advancement (Barton, 2007; Collins and Blot, 2003; Street, 1993). To show this link between literacy and development, Goody and Watt (1963) categorised documented history, a feature of societies which were exposed to print literacy, as a more powerful source and sign of civilisation than myth, a feature of oral societies. The ability to document history was linked to rational logic, and writing was perceived to create “a different kind of relationship between the word and its referent” (ibid p. 321). Through writing, “an individual could objectify his own experience” (ibid p. 339) and engage in reflexive analysis and intensive scrutiny of the text. Oral societies, however, were seen as homeostatic in their knowledge generation in the sense that individuals ‘could’ only remember that which was important in their experience. As such there was no room for reflexive thinking. Thus, writing was seen as a ‘technology of the intellect’, implying that there are ‘intellectual’ differences between literate and non-literate societies. The ‘intellectual superiority’ that the ‘literate’ societies possessed was then directly linked to socio-economic advancement; hence, these societies have also developed as the most powerful of civilisations. In this manner, Goody and Watt linked literacy to symbolic power. By making these distinctions, Goody and Watt introduced the notion of the great divide between literate (reading and writing) societies as well as non-literate (oral) ones. More specifically for this study, their analysis has popularised the view of literacy as the ability to read and write using an alphabetic writing system.

Literacy as a state of grace is perhaps the oldest and most enduring understanding of what constitutes literacy. Being educated in most societies is linked to the ability to read and write. My experiences of literacy have also been influenced by this metaphor. I grew up in a country and community where one was judged by their ability to speak and write fluently in the English language. The ability to speak or write fluently in any of the major indigenous languages has never been elevated to the same status as English. Moreover, students have to write essays about these

indigenous languages through the medium of English (Thondhlana, 2002). Unsurprisingly therefore, I grew up listening to conversations like 'His command of English is good; he must have gone to such and such a school' or 'He/she is very educated; he/she has got a good command of English'. Thus, in my society, we attributed special virtues to people who were deemed 'literate' in the English language (Scribner, 1984). Literacy in my country was socially constructed in such a way that it excluded those students who were not conversant with English language.

By making the distinctions between these three metaphors, Scribner (1984) appears to be suggesting that conceptualisations about literacy are ideological; hence they need to be interrogated since they cannot be pinned down to a single unitary definition. As I read around these conceptualisations, I saw a link between these three metaphors that Scribner suggest and three of the four metaphors proposed by Barton (2007). I see Scribner's three metaphors as encompassing the ones identified by Barton, while the later illuminate the workings of the former. I discuss Barton's categories in the sections that follow and show how they relate to the functional view of literacy, as well as the notion of literacy as power or a state of grace.

3.4.2 Barton's literacy metaphors

Literacy definitions that focus on literacy as the ability to read and write are also closely related to debates about illiteracy (Kern, 2000; McKay, 1993). This understanding has invoked a number of related metaphors, all of which have been derived from the medical field; disease, (Barton, 2007); medical model (Baynham, 1995) or pathology (Boughey, 2008; Lea and Street, 2000). If literacy is seen as a tool for socio-economic-political advancement, it is easy to see why this definition of literacy is seductive in media and policy formulations (Barton, 2007). I am always fascinated when I see these reports in the newspapers about the state of literacy. They seem to always describe literacy levels quantitatively and suggest reform programmes meant to address these levels. The discourses are also linked to political and economic debates (see Pandor, 2008). A typical formulation of this position, sometimes evident in conversations with faculty members in South African HEIs, is: "if these black students were better taught language by qualified teachers at

Matric level, they would be able to handle academic tasks at university” (Bengesai, 2010 p. 16). Thus, the context in which academic literacy is acquired is perceived as a vicious cycle in which ‘ill prepared’ students become ‘ill prepared’ teachers, who in turn will ‘ill prepare’ students. The implication is that academic literacy amongst these students is a ‘chronic’ disease whose ripple effects have been felt in successive generations of black students, (ibid p.17). This understanding, according to Street (1984), is informed by the autonomous or asocial model of literacy.

When academics talk about a ‘literacy problem’, they usually mean that there are many students who ‘lack adequate reading and writing skills’ (Lillis, 2001). Consequently, literacy becomes something people possess, a state of grace, and those who do not possess it have a problem, or are a problem to society. As such, it is the moral order of society that is considered to be at stake. The metaphor is usually expressed in descriptive statistics, evoking discourses of quality and maintenance of standards. In South African HEIs, where the transformation of higher education agenda has seen more black students entering higher education, a ‘second language discourse’ has been used to explain away the learning histories of students as ‘second language problems’. Consequently, the solution to these ‘problems’ has centred on providing remedial instruction in English Language and the language related skills of reading and writing in special compulsory courses run by ‘language specialists’ (Boughey, 2000 p. 279- 282). The following citation from Moutlana (2007) illustrates the way academic literacy is perceived as a ‘problem’ in South African HEIs.

First year students [who] demonstrate deficiencies in one or more basic skills namely in language, computation, writing and study habits, skills that they ought to have assimilated quite well had they been subjected to good teaching strategies from well qualified lecturers. (p. 3)

This perception is problematic for a number of reasons. Lillis (2001) presents two characteristics which make it problematic. Firstly, it suggests that both the problem and the solution are “constructed as being overwhelmingly textual” (Lillis, 2001 p. 22). In other words, the ‘problem’ is located in the written texts that students produce. In so doing, the conceptualisation alienates students from the contextual conditions that could account for such ‘problems’. Secondly, Lillis believes the way the problem and the solution are framed subsumes an institutional ‘claim’ to

transparency, given that while the “language of students is made visible and is problematised, the language of the disciplines and the pedagogic practices in which these are embedded usually remains invisible, taken as given” (p. 22). Thus, the Discourse is not questioned; it is taken for granted and assumes the role of the truth (Hall, 1997). The result is a quick fix practice through giving students tips on essay writing (Boughey, 2005; 2002; Lillis, 2001).

Another conceptualisation of literacy, which I believe is very dominant is educational practice, particularly in South African HEIs, is one which sees literacy as a cognitive variable which can be measured or assessed against some criteria (see Barton, 2007). The associated metaphor is that of ‘deficit’ which has been sustained and justified through the use of standardised ‘literacy’ tests (Barton, 2007) which measure perceived levels of literacy such as ‘basic literacy’ or ‘required literacy’ (Venezky, 1990). Whilst this understanding has its intellectual roots in studies in Teaching English to Speakers of Other Languages (TESOL), it has gained much currency in many debates where students who speak English as an additional/second language are taught (Boughey, 2000). The way this metaphor works is that, if students fail to meet set criteria - for instance setting out references or organise their paragraphs- they are immediately placed in deficit. In this context, the solution then centres on addressing that perceived deficit. According to Street’s ideological model, standardised tests are both unethical and inappropriate because the standards favour particular contexts, cultures and identities, while at the same time marginalising others. Furthermore, it is reductionist in nature and reflects the notion that literacy is the acquisition of a decontextualised set of rules/codes.

Undoubtedly therefore, this metaphor, just like the problem and disease metaphors draws on the metaphor of the divide or a continuum suggesting a ‘deficit’ in people whose literacy practices differ from those of the dominant groups and are considered to be normative (Gutierrez *et al.*, 2009 p. 213). These metaphors present views of difference and diversity, and frame the way society perceives the literacy practices of non-dominant communities. Boughey (2000) is also quite unsympathetic about literacy pedagogy that follows a ‘deficit’ model. In a critique of her own practice she laments that:

If I persist in doing my professional best and teaching them 'language' in the way I have been trained and in the way teaching of language is popularly perceived, I will collude in denying the mass of students in the chapel access to much of what they hope and expect from a university. (Boughey, 2000, p. 280)

Hence, she is aware that reasons for teaching can serve to include or exclude students in higher education. It is important to note that the ways of talking about literacy discussed above therefore, indicate that the nature of literacy is treated as fixed, people either have it or they do not. Furthermore, literacy is only "visible institutionally when construed as a problem [or deficit] to be solved" (Lillis and Scott, 2007 p. 6). Simply put, these metaphors negate the notion of Discourse, as proposed by Gee (1996). This study argues that understandings of literacy that negate Discourse are limited in providing opportunities for students to fully participate in the discourse community of their choice. This is because they prevent students from learning the discursive norms which are appropriate for their membership in these communities by focussed or narrow conceptions about the nature of literacy.

3.4.3 Literacy as a social practice

The critique above suggests that dominant representations of literacy that exist in HEIs are seriously flawed. Hence, I have welcomed a counter response to these views which presents a balanced view of literacy in which literacy is seen as a plurality of social activities (people have different literacies) which can best be described in terms of literacy practices (Lea and Street, 2006; 2000; Street, 2005; 1996; Prinsloo, 2000; Barton, 2007). Essentially, literacy as a social practice takes as its central premise the significance of students' everyday literacy practices, as well as the institutional space within which they find themselves participating in new literacy practices (Barton, 2007). This understanding has also generated metaphors of its own as discussed in the following section.

3.4.3.1 *The ecological metaphor*

The ecological metaphor originates in Biology and was appropriated by Barton (2007) to highlight the holistic nature of literacy. Through this metaphor, we are made to think about the acquisition of literacy as the result of the interdependence

between the students and the overall environment- home, school and society at large. Thus “the ecological metaphor shifts the focus from the individual’s inadequacies and emphasises the importance of interactions within the context in which the individual finds himself” (Bengesai, 2010 p. 19; see also Barton, 2007). This metaphor has been advanced by scholars working in the New Literacy Studies, (NLS), who approach literacy as a social practice (Street, 2005; 2003; Barton and Hamilton, 2000; Gee, 1996). This is because literacy cannot be separated from people; it is contingent on the interactions between people and the context in which they engage with literacy. In this sense, literacy is located in “particular times and places” (Barton, Hamilton and Ivanic, 2000 p. 1), implying therefore, that literacy has a spatial and temporal dimension; it has a history, is developmental and contextual.

In this model, written texts, the form of literacy (reading and writing) that is favoured in the other representations discussed above, is combined with other semiotic systems or non-language aspects such as the individual student’s school which exists in a community, which in turn exists in a larger socio-cultural context. The impact of all these forces on the acquisition of academic literacy, direct and indirect, is examined (Bengesai, 2010). This is borne out of the belief that literacy is always “embedded in social practices and the effects of learning will be dependent on those particular contexts” (Street, 2003 p. 78). Adopting this position therefore, makes it problematic for scholars working within this model to use the term literacy as a unit of analysis, thus, they talk of multiple literacies and place the notion of discourse communities at the centre. As a result, the unit of analysis becomes the literacy event or the literacy practices, rather than the literacy skill (Street, 2003).

McKenna (2004a) reports on how literacy as a social practice manifests itself in the South African context. In a study of the conceptualisations of literacy amongst students and academics at one HEI, she found that the students in her study felt alienated by the higher education curriculum and “felt that their identities were not given a space in the classroom” (McKenna, 2004a p. 274). Implied in this finding is the notion of multiple identities as students negotiate the curriculum. This has led South African scholars working within a social practices framework to view South African universities as alien social spaces in which students are required to negotiate their identities (see Boughey, 2009; McKenna, 2004b; Leibowitz, 2004; Kapp and

Bangeni, 2009). I will discuss this in later sections. University literacy is therefore seen as oppressive and discriminatory and for it to achieve its purposes of enabling students to fully meet the literacy demands of their chosen disciplines, these oppressive tendencies have to be removed (Street, 1995; Gee, 1996; Barton and Hamilton, 2000). This can be done by encouraging students to speak with the significant others in their discipline and denying the elite to speak for them.

3.4.3.2 *Drinking from the 'bar'*

To emphasise the social situatedness of literacy, Gee (1996) introduces the notion of participation to his theory building. For him, people learn or acquire literacy by participating in the socio-cultural practices of the discourse communities. Drawing on the metaphor of the bar, Gee posits that when one enters a bar, he has to act and speak in a manner that is considered appropriate to be accepted as a member in the bar. Moreover, one has to share the same values with members of this bar, and demonstrate that they know how to act and speak like the regular members. Bartholomae (1985 p. 273) succinctly captures the way participation occurs in a Discourse as follows:

[One] has to learn to speak our language, to speak as we do, to try on the peculiar ways of knowing, selecting, evaluating, reporting, concluding and arguing that define the discourses of our community.

Thus, both Gee (1996) and Bartholomae (1985) draw on the Discourses of participation, as well as affiliation, in building a theory of learning. Boughey (2000) extends this metaphor and posits that the university is some kind of a bar, where academics such as professors, lectures and postgraduate students are the regular drinkers. When new students come to the bar, they also have to show that they can speak and relate like the regular members. This is not an all or nothing affair, in the sense that, in order for one to come to understand or affiliate with a particular social group, a process of enculturation has to take place. Hence, social groups, in this case academic disciplines, do not just teach students to read and write in certain ways, but also to act and value in certain ways (Gee, 1996). In other words, students are subjected to the power of the Discourse. To understand this process of enculturation also entails exploring the ways in which disciplines 'read and write

themselves' (Jacobs, 2010b). Whilst students might pretend to speak like the regular drinkers, this pretence will eventually be exposed because

In the university 'bar', they actually award pieces of paper to show that newcomers have been accepted. These pieces of paper are called degrees, and the higher the degree, the greater the level of participation. (Boughey, 2000 p. 281)

The various semiotic representations of literacy that I have discussed above are indeed diverse and carry very divergent meanings. However, what they do have in common is that they attest to the fact that literacy is always contested, not only in meaning, but also in practices (Street, 2003). Cast in this way, literacy is always ideological, and some meanings gain prominence and dominance over others. Taking this position therefore, I find it very problematic when as academics, we represent students based on our own understandings and ideological inclinations.

3.5 Tying together

In concluding this section, I would like to engage in some reflective analysis of my relationship with academic literacy. I had been socialised to understand that literacy is composed of unitary skills of reading and writing. One either had it, or not. I had never questioned the validity of such an understanding, perhaps because it seemed to work for me. Growing up as a child, I had often joined the majority in teasing those students who could not read and write. As an academic, I know I have also made comments about my students' experiences of academic literacy, comments that I now realise conformed to the autonomous model of literacy and the great divide (Street, 1984). Yes. I have represented my students and my classmates as the 'other'. Until I embarked on this work, which started with my Masters level, I had never questioned the role of the institutions such as schools and universities in creating this great divide. If truth be told, I used to cherish this great divide. I now look back at those experiences with contempt.

Now, I understand that literacy is not a neutral concept. Can literacy then be defined? This is a complex question, because literacy means different things to different people. It defies precise definition. Choosing one particular view of literacy is an act of representation. Hence, through the process of defining literacy, people

construct their social reality, which is informed by their ontological and philosophical understanding. Furthermore, these dominant representations of literacy also shape social reality. Thus, to seek a single unifying definition of literacy is a futile endeavour. Rather, there is benefit in focusing on multiple literacies. Given this backdrop, is it ever possible to represent students fairly? This is the question that I seek to answer in the next section.

3.6 Representing students

My review of literature indicated that the definitions of literacy discussed in the previous sections are closely linked to the representations of students. Given that the dominant representations/conceptualisations of literacy are drawn from the field medicine, the resultant representations of students have resulted in discourses that 'pathologise' students (see Boughey, 2008; 2000; Lea and Street, 2000). Moreover, these medical metaphors have been used to construct the image of the remedial student who suffers from some kind of disability, deficit, or defect (Rose, 1985 pp. 452-453). While these negative constructions of students and their writing practices have been challenged, there is evidence that these representations still dominate educational practice in most South African universities (see Boughey, 2009).

With regards to the deficits, a number of explanations have been given. For instance, there is a body of research which indicates that students enter university without having acquired the necessary literacy competencies to enable them to handle the curriculum at that level (Parkinson, Jackson, Kirkwood and Padayachee 2007; Rose, 2005; Yeld and Haack, 1997). This body of work considers factors such as cultural background and language as the major causes of these deficits (Dison and Button, 1999). Hence, deficit has been defaulted to a certain group of students who do not speak English; the language of instruction in most institutions, as a first language and the explanation for underachievement is framed within a comparison of the mismatch between culture of the home and that of the university. Writing as early as 1985, Rose in *The language of exclusion: writing instruction in the university* argues that practitioners have applied harmful representations to minority students who do not fit the image of the 'traditional student'. These sentiments have been echoed

over the years in a number of critiques by international scholars such as Scribner and Cole (1988); Street (1984) and Gee, (1996). Thus, we are confronted with an old problem manifesting itself in a different context.

In the South African context, it is evident that the dominant discourse emerging from deficit conceptualisations of literacy has led to the attribution of failure to students' individual traits. Boughey (2012a p. 137) argues that in cases where the language of learning and teaching is not the home language of the students "ability in an additional language is also cited" and this "too tends to be constructed as an attribute of the individual". In a systematic literature review of postgraduate research on academic literacy, Bengesai (2010) found that terms such as 'disadvantaged', 'linguistic disadvantage' (Collett, 2002), 'underpreparedness', 'limited language proficiency' (Collett, 2002; Hugo, 1999), 'handicapped' (Esterhuizen, 2001), and 'educationally disadvantaged' (Yeld, 2001), were euphemistic ways to describe black students. Indeed, in the study by Bengesai (2010) it is clear that these labels were reserved for black students; a finding also supported by Thesen and van Pletzen (2006); Boughey (2002) and Thesen (1997). As a consequence, as black students enter higher education, they encounter these identity categories, which presupposes both the explanation for the 'deficit' and the remedy (Gutierrez *et al.*, 2009).

Internationally, Discourses that distinguish between 'expert' and 'novice' writers have been used to talk about students and to justify what is commonly termed 'basic writing' courses. Consequentially, students who do not fit the identity of the ideal student are placed in these courses. Just like in the South African context, the label 'basic writers' has been assigned to EFL/ESL students. Rose (1985 p. 193) has referred to this as the "language of exclusion"- "a discourse that helps to exclude from the academic community students who are in need of repair". There are a number of reasons to support Rose's argument. First, students start their educational life already with a 'deficit'. This creates tension between the constraints these labels place on the students and their acquisition of academic literacy. Second, students represented as such are often enrolled in extra language support courses, which at times are non-credit bearing courses. Thus, they have to cope with an extra workload. Rose sees these remediation courses as a "scholastic quarantine" until the disease has been remedied. On a similar note, Picard (2006) questions the logic of

delayed teaching of Discourse; what she calls 'waiting to be academic', a situation that arises when students are placed in language courses that ground them in grammar before they can enrol in disciplinary courses.

This critique does not suggest that I am ignorant of the fact that terms such as 'disadvantaged' or 'underprepared' have been generated by South African HEIs in an effort to manage the transformational process which arose as a result of the massification of higher education. I do agree that some form of representation is needed to manage the educational process. As such, while accepting that these labels are a form of institutional Discourse (Thesen, 1997), I am also aware that the negative effects of this way of representing students are not always intentional. At the same time, I acknowledge that these representations can result in the exclusion and frustration of many ESL learners. Therefore, my critique is concerned with the constraints that are placed on students when this representation is done uncritically. I suggest a few points in support of such a critique.

First, it is important to note that it is the institutions that administratively categorise and identify students in terms of labels that they (the institutions) have constructed for them. In this case, the labels and representations used are socially and ideologically constructed; hence they must be opened to critique. It also goes without saying that these labels present student's challenges as rooted in their status as outsiders to academic Discourse (Boughey, 2000, p. 296). Kubota (2001) calls this the 'othering' of ESL learners because it essentialises their culture and language as if it were static and monolithic. This is supported by Gutierrez *et al.* (2009), who suggest that such comparisons are problematic because they assume that home and school practices are static and homogeneous within a given cultural group. Moreover, the dichotomy ignores the fact that students develop a number of literacy practices across a number of contexts -hybrid Discourses- which students acquire as they interact with agents in the community, school and home context (Gee, 1996). Hence, though this understanding of a cultural mismatch has been pivotal in pointing out issues of difference, it needs to be opened to critique because such sweeping overgeneralisations of students prevent academics from understanding students as individual writers. Pretorius validates this critique when she states that "if language proficiency alone were the basis of skilled reading, all L1 students would

automatically be good readers” (Pretorious, 2000 p. 36). By logical extension, if language proficiency was an end in itself, then all L1 speakers of the English language, the language of learning in South African HEIs, would automatically acquire Discourse. Unfortunately, this is not so, and a number of scholars (see Boughey, 2012; 2009; 2000; Gee, 2001; 1996; 1992; Lea and Street, 2000) have dedicated their scholarship to proving that Discourse is more than language. As such, it would not be erroneous to conclude that these dominant perceptions of ESL students are not manifestations of “objective truths, but are constructed by discourses” (Kubota, 2001 p. 10). Thus, they are truth-effects, which unfortunately, have been sustained without being opened to critique. This raises a very important question: Have students been fairly represented?

Finally, I take on a personal critique of these discourses of difference. I know how it feels to be labelled, or spoken of in such a way as ‘underprepared’ or ‘disadvantaged’; after all, I am a ‘black’ student myself. It never is a good feeling because it leaves one feeling hopeless and powerless. It takes away self-esteem and the motivation to succeed. Thus, in attempting to understand and deal with disadvantage, institutions have created another form of disadvantage. It is this understanding of representation and its effect that forms the crux of this study.

There are a number of scholars working in socio-cultural theories in the South African context who posit that students, irrespective of race or linguistic backgrounds, face one or more of a number of challenges such as learning in an additional language, the history of disadvantage and having to adopt or learn academic literacy (see for instance Boughey, 2000; McKenna, 2004a; Leibowitz, 2004; Simpson and Ryneveld, 2010). This work has been instrumental in building theory for academic literacy that is relevant to the South African context and has created a representation of students that is sensitive to the context in which students acquire academic literacy. Bartholomae (1985 p. 273) advises that the major challenges faced by students when they enter university is that they have to “reinvent the university by assembling and mimicking its language, finding some compromise between idiosyncrasy, a personal history and the requirements of convention, the history of the discipline”. These students have to learn to write in an academic voice which they are not familiar with. This reinvention however, is not an

easy process yet it determines their chances of success in the academy. Support for such a view of students has been advanced by scholars such as Gee (2001; 1996); Street (1984, 2001) and Boughey (2009; 2008; 2002; 2000); van Heerden, 2000; McKenna (2004b) who lament a dissonance that exists between this understanding of theory and practice. For instance, in a PhD study which explored undergraduate students' experience of acquiring the discourse of engineering, van Heerden (2000) found that the instrumental approach to writing and literacy, which is firmly located in the understanding of language deficiencies "quietly perpetuates itself in many engineering classrooms" (p. 12). This finding is also supported by other studies such as Boughey (2009) and Moore (1998). Boughey (2009), in a meta-analysis of five HEIs in South Africa, found that the deficit discourse was still dominant in higher education, in spite of research that pointed to social understandings of the student experience. In a critique of the South African context, Mgwashu (2011); Boughey (2008;2002;2000) and McKenna (2004b) concur that describing the challenge that students face as 'second language problems' is highly seductive in South Africa because it rids of the apartheid mentality of attributing educational challenges to differences in cognition. McKenna (2004a, p. 167) suggests the representation "function[s] to absolve the academy from dealing with politically sensitive issues of culture, by indicating that the difficulties students have all relate to a lack of English instruction". Thesen and van Pletzen (2006) conclude that this persistence points to a) the legacy of apartheid and b) difficulties in altering patterns of thinking about institutional provision. Thus, these scholars implicate history and institutional orders in the negative representations of students.

International critiques of the deficit notions of students and literacy have taken a number of forms. There are those who have based their arguments on studies of second language acquisition (see for instance Shaughnessy's (1977) *Error and expectations* and Bartholomae's (1980) *The study of error*. At the same time, there are those who have taken a socio-political perspective (see for instance Shor, 2001). Still, there are some who have taken up the critique from an identity/ social practices perspective (NLS scholars such as Gee 2001; 1996; Street, 1984; 2001). All these critiques provide conceptual stepping stones for this study.

Shaughnessy (1977) examined the types of mistakes that students categorised as 'basic writers' make in their writing. While her analysis was meant to bring to the fore the nature of 'basic writing' in an attempt to assist writing teachers deal with students' writing, she also noted that the way 'basic writers' are treated has got implications for their development and success in the academy. This is because once students are categorised as 'basic writers', teachers tend to focus on formulaic flaws in the writing, and nothing else. Yet, sometimes these errors are evidence of learning in progress and academics will need therefore to understand the logic behind such errors. In support of such a stance, Kapp and Bangeni (2009) urge academics to use the interaction between student writing and their Discourses as a platform for understanding the challenges they face. Shaughnessy concludes that the field of basic writing needs to take a new perspective on writing. Although she did not refer to the social turn, or social practices framework, her call for a new perspective attests to a need for different ways of talking about students and about writing.

Bartholomae (1980 p. 253) elaborated this work and concluded that what is called 'basic writing' is "not evidence of arrested cognitive development, arrested language development or unruly or unpredictable language use". If we take Bartholomae's position, it becomes fundamentally erroneous to represent students as having limited language proficiency. To illustrate his point, Bartholomae uses a T-unit⁵ analysis in the following example of a sentence from a student.

The time of my life when I learned something and which resulted in a change in which I look upon things. This would be the period of my life when I graduated from elementary school to high school (p. 254).

Using a T-Unit analysis reveals that this student, considered a 'basic writer', did not write an immature sentence. This is because in both sentences there are more than two t-units, suggesting that this is a complex sentence. An observation by Bartholomae, which I have also found to be true of ESL and English Additional Language students (EAL) in the South African context, is that they write far more

⁵ A T-unit analysis is a minimum terminable unit of a sentence that can be used to measure the smallest group of words that can stand alone or be considered a grammatical unit. It was introduced by K.W Hunt in 1964 and has been extensively used in second language acquisition research.

complicated sentences than their English L1 counterparts “attempting to do more than they can” and a target syntax that is more than what the convention requires (Bartholomae, 1980 p. 254). In this case, what is normally referred to by academics as failed sentences are, in Bartholomae’s view;

- stages of learning rather than failure;
- evidence that students are using writing as an occasion to learn (1980. p. 254).

What this suggests is that academics need to re-consider their perceptions of the ESL/EAL writer and invoke pedagogical strategies that enable these students to fully develop their writing practices. Thus, both Bartholomae and Shaughnessy provide pragmatic evidence that can help practitioners move away from deficit notions of the student by perceiving writing as developmental. Taking this position therefore makes it not only unfair, but also unethical to judge students’ writing at the time when they are still learning. Practitioners need to understand that as students develop in the discipline, they further approximate the conventions of the discipline. Gee’s (1996) theorisation on the acquisition of Discourses provides support for this argument. If academic literacy is a secondary Discourse, it can only be effectively acquired through interaction within the context, rather than learnt in the course of a semester. Students need more opportunities to interact with the Discourse for them to master the conventions of their disciplines. Thus, academic literacy should be inherent in every course in the curriculum throughout the degree programme rather than something offered at the beginning; as a quick fix. This understanding of learning as situated in a context is affirmed by Lave and Wenger (1991) who see learning as process of moving from the periphery to the centre through a process of ‘legitimate peripheral participation’. Thus, the more students write the closer they get to full participation within the discourse. If this is the case, then academic writing can be seen as having two dimensions, competence and performance. This suggests that students have the capacity to learn how to write, provided the necessary mechanisms are put in place, for instance, ‘is the discourse made explicit?’ Performance varies, therefore, as students develop. So when we represent students, are we considering performance or competence? This is a very crucial question that needs to be properly addressed in higher education.

Shor (2001), on the other hand, takes up a critical literacy approach in his critique of representation of students and literacy, and suggests that educational and socio-economic inequality has bred the concept of remediation. Thus, instead of academics examining the inequalities that exist in society, they have concentrated on the students and the focus is on changing people/students more than the educational system in which they confront learning. In consequence, such an approach transfers blame from the system to the individual, encouraging students to “internalize fault, to blame themselves for their own failures, especially on entry exams and in first year writing classes where their errors are legion” (Shor, 2001 p. 40). Thus Shor, is highly critical of courses that purport to remediate deficits, and implicates such courses in the perpetuation of social injustice. This view is affirmed by Gutierrez *et al.* (2009), who state that pedagogic activities framed within a deficit/difference context are problematic because they can potentially affirm the difference they serve to resolve.

3.7 Tying together

It is clear from the discussion in this section that discourses that portray students in terms of their linguistic/cultural (ESL/English L1) or historical (disadvantaged/underprepared) backgrounds have been sustained in higher education. Suffice to say that the language and culture of these students has been discursively constructed as the ‘other’. In spite of calls to move away from deficit portrayals of students, towards integrated perspectives, which allow both students and academics to first understand the literacy practices of the academy, the deficit model remains powerful and dominant, both in the representation of literacy and of students. Nonetheless, this situation is not unique to South Africa. International studies (for instance, Gutierrez *et al.*, 2009; Lea and Street, 2000) also lament the persistence of deficit notions in discourses, policies and approaches to learning. Hence, as the next section will reveal, academic literacy instruction has taken the form of a study skills approach, which centres on grounding students in surface features of grammar and study skills. This leads on to the next section which discusses the pedagogical approaches that have emerged as a result of the representation of academic literacy and of students.

3.8 Orientations to the teaching of literacy

Scholars working in socio-cultural understandings of learning and literacy have suggested that the diverse understandings of literacy as revealed in the diverse definitions have resulted in a number of orientations to the teaching of literacy. Ivanic (2004 p. 224) reports that Discourses of writing are “constellations of beliefs about writing, beliefs about learning to write, ways of talking about writing and sorts of approaches to teaching and assessment which are likely to be associated with these beliefs”. Hence, beliefs people hold of writing as literacy, discussed previously in this chapter, are closely related to the orientations to the teaching and learning of writing to be discussed in this section. Ivanic also makes a point that though people hold different beliefs about writing, these beliefs are not necessarily homogenous. Instead they tend to be ‘discoursally hybrid’, that is, they draw on one or more of the Discourses. In this section of the chapter, I will discuss some of the orientations to the teaching of writing - Lea and Street’s (2000; 1998) three tiered model to the teaching of writing, as well as Ivanic’s framework for discourses of writing inform this discussion. Lea and Street classify Discourses of writing into three categories, namely: the skills model, academic socialisation and academic literacies. Case and Marshall (2010) suggest that these orientations to the teaching of literacy are comparable with the developments in research on student learning. They see a link between the study skills approach and research in cognitive psychology, which perceived learning as a ‘technology of the intellect’. The academic socialisation perspective is likened to research on deep and surface learning approaches to learning. For Ivanic, there are six categories defined as skills, process, creativity; genre pedagogy, social practices and socio-political practices. The first three of Ivanic’s categories would fall under Lea and Street’s definition of skills model; genre pedagogy is an equivalent of academic socialisation, whilst social practices will be an equivalent of academic literacies. I will start with the skills model.

3.8.1 The academic skills model

In the study skills model, writing is considered as the application of a set of linguistic skills. The extreme position in this approach assumes that writing is a unitary, context free activity in which the same technical skills and rules are transferable to all

writing (Ivanic, 2004; Lea and Street 2000). These skills include, among others, grammar usage, punctuation and spelling. Discourse competency in using these skills is expressed in terms of Discourses such as 'correct', 'accurate', 'proper' (Ivanic, 2004). Moreover, competence is also measured textually, by looking at fluency in oral and written texts. Essentially, this approach to writing is prescriptive in nature, given successful learners are perceived as those who should or are able to write with accuracy in such linguistic skills. Geisler (1994 p. 35) comments that "reading and writing practices, which on the surface look open and easily available to all, may actually have become arcane practices restricted to just a few". As a consequence, some students are often marginalised. Prinsloo (2000) explains that the adoption of skills based approaches is often accompanied by a 'concern' with low levels of literacy to highlight a 'literacy' crisis. In terms of South Africa, he observes that the "concern is expressed in a more elementary form, as that which is either present or absent" (Prinsloo, 2000 p. 110). Hence, in South Africa, the concern is expressed as a 'deficit' (Bengesai, 2010).

Whilst the teaching of skills is not useless in itself, this understanding is questionable in respect to other aspects of literacy as the discussion in ensuing sections will reveal. Lea and Street (2000) also argue that addressing literacy takes on particularly different meanings when considered entirely as study skills. This is because a skills based approach to literacy reflects the understanding that academic skills can be easily learnt and transferred to other literacy contexts since they would consist of aspects like spelling and grammar. As such, the study skills approach justifies the teaching of generic essay writing to all students, irrespective of the communicative and discursive practices of their disciplines. In the context of this study, such a view is seen as reductionist in nature given the fact that it reduces a complex phenomenon like literacy to a set of atomised skills (Picard, 2006; Lea and Street, 2000).

Research focused within this framework is concerned with measuring linguistic skills and is a common feature in corpus linguistics and most studies on ESL. As far as pedagogic practice is concerned, the focus is on attempts to 'fix' students' academic 'problems', which must be treated early; therefore, these problems are also treated

as a kind of pathology (Lea and Street, 2000). Or as Rose (1985 p. 453) puts it, such courses are an attempt to cure students who suffer from 'diseased writing'. Accordingly, a teaching pedagogy framed within the skills method sees the inability to use these skills as a 'problem', a 'disease', or a 'deficit'. In light of this discussion, the skills approach can be critiqued at the levels of ideology and epistemology. Ideologically, the skills approach reflects an autonomous view of literacy which sees literacy as a set of context-free skills which are also universal both in time and space such that they can be easily transferred to different contexts (Street, 2005; 2003; 1984; Ivanic 2004; Lea and Street, 2000). As the discussion in subsequent sections in this chapter will show, academic literacy has come to be seen as a social practice emerging from contextual expectations (Lea and Street, 2000; Kern, 2000). Thus, literacy practices are acquired in specific socio-cultural contexts rather than universal ones. Epistemologically, the skills approach has been critiqued as being reductionist and distorted in the sense that the ability to construct syntactically accurate sentences does not necessarily result in appropriately written texts. This is because the academic skills such as sentence structure, grammar or spellings merely constitute the surface features of academic writing (Johns, 2005; Hyland, 2002a). Simply put, grounding students in grammar and other technical skills of writing does little to develop their secondary Discourse, academic literacy, which also involves non-language features such as voice, identity and other genre-based features (Bengesai, 2010).

The second tier suggested by Ivanic is the creativity approach which is also referred to as the expressivist method (see Johns, 2005). It is so called because the methodology is concerned with the style, content and the way in which student writing entertains the reader, rather than with the linguistic form as is the case with the study skills approach (Ivanic, 2004). The major concern is not on how the student produces the writing (that is, the process), but on the final product of the author's creativity (Ferris and Hedgcock, 2005; Hyland, 2002a). As such, the creativity approach is considered as a product approach. In this approach, writing is seen as a valuable activity in its own right; people learn to write by writing and reading. The method has got its roots in literacy studies and is expressed in terms of discourses such as 'good vocabulary' and/or 'interesting content' (Ivanic, 2004). Thus, it is closely related to the literacy as a state of grace metaphor, given 'good vocabulary'

is seen as a good virtue for a writer. Pedagogically, author creativity is privileged and it is believed that nothing should interfere with this. To achieve this creativity, students are encouraged to engage with and write on topics that are of interest to them (Ferris and Hedgcock, 2005). For this reason the notion of voice – the author's identity, stance and ownership of text – is privileged (Bengesai, 2010). The major limitation of this approach is that it encourages students to write texts that are of no use both in their acquisition of disciplinary Discourses as well as in the real world. As such it does little to introduce students to the literacy practices expected by the disciplinary community to which they are seeking membership (McKenna, 2010 p. 8). This is because students learn to write for an imagined audience. In spite of these weaknesses, the expressivist/creative approach has influenced literacy pedagogy which explores the notion of voice, which in the context of this study is considered a developmental priority in academic literacy development. This is explored further in section 3.8.4.

The third tier suggested by Ivanic is called the process approach. Curry and Lillis (2003) note that this approach emerged from the expressivist method of teaching academic writing. The discourse differs from the two approaches discussed above in that it focuses attention on the process of writing rather than the end product (the finished text). This approach has its roots in the cognitive psychology of the late 1970s (Ivanic, 2004) and was advanced by the seminal work of Emig (1971). Emig perceived writing as a recursive and uninterrupted process which involved cognitive and practical processes (Voss, 1983). The cognitive processes involve pre-writing activities such as brainstorming, which are essential in formulating ideas for writing while the practical processes involve during and post writing activities such as planning, drafting, revising and editing. The practical processes are the ones which lead to the completion of the written product (Ivanic, 2004). Cast in this way, the focus of the process approach to writing is to improve the quality of the end product. Because these processes are logical and sequential, mastery can be tested empirically (ibid). Consequently, critics have suggested that this approach has been attractive to teachers, transformed literacy teaching and has also generated a lot of research (see Johns, 2005; Curry and Lillis, 2003).

In a critique of the process approach, Bartholomae (1985 p. 142) points out that it is the product and not the plan of writing that locates the writer in his or her text- that is, as an insider to the discourse to which he is seeking the right to be heard. Another limitation with this approach is that it fails to recognise writing as a social activity. Rather, it frames the writer as a solitary individual engaged in a process of discovering and communicating personal meaning only (Curry and Lillis, 2003; Hyland, 2002a). Yet, in the context of academic literacy, writing is about gaining membership to a CoP. A further limitation relates to the focus on the mastery of the processes of writing. By so doing, the approach fails to differentiate between different types of writing in the different disciplines. Just like the study skills, the processes are also considered generic and can be used with any form of writing. Developments in the field of academic writing have problematised literacy approaches as the ones discussed in this section by highlighting that there are significant differences in writing in different disciplines (Bengesai, 2010). These developments are discussed in the sections to follow.

3.8.2 The academic socialisation model

The academic socialisation model sees reading and writing as embedded in disciplinary contexts. The aim is to acculturate students into conventions of disciplinary discourses and genres, with a focus on reading and writing texts as a means of expressing meaning (Jacobs, 2010a). This approach has its theoretical roots in social psychology, anthropology and constructivism (Lea and Street, 2000). The underlying belief is that texts vary linguistically, according to their purposes and context (Ivanic, 2004). Hence, unlike the skills, creativity and process approaches described above, the academic socialisation approach takes into account the cultural context and the target community in which the student confronts academic writing. In other words, the written text in an academic socialisation approach is shaped by the writing event. Academics working from this perspective therefore, favour genre knowledge. Consequently, the teacher explicitly presents the discourse structure and linguistic forms needed for students to achieve the communicative purpose of the task (Hyland, 2003). Considering this, genre pedagogy, originating from the Sydney school (systemic functional view) and Halliday's linguistics, English for Specific

Purposes (ESP) and the New Rhetoric, are the associated approaches borne out of an academic socialisation orientation (see Hyland, 2002a; Lea and Street, 2000; 1998). The hallmark of the systemic functional view is the notion of register- that is the function of language in social contexts (Burns, 2004). In the context of this approach, a text is produced and analysed in terms of Halliday's macro functions of language as field (ideational content), tenor (interpersonal context), and mode (textuality) (Belcher, 2004). The ESP perspective is concerned with communicative events which are linked by shared purposes recognised and accepted by members of a particular discourse community (Hyland, 2002a). The New Rhetoric perspective differs from the ESP in that it is more focused on the "situational contexts in which genres occur than on their forms" and – "the social purposes that these genres fulfil within these situations (Hyon, 1996 p. 696). Thus for New Rhetorics, the ability to use a genre is learnt through immersion in a particular setting.

The key word for this approach is the notion of appropriacy. Good writing is defined as that which is linguistically appropriate to the purposes to which it is put (Ivanic, 2004). Lea and Street (2000; 1998) describe the academic socialisation approach as an approach which sees student writing as a transparent medium of representation. Picard (2006) clarifies this assertion, when she says that in this approach, students' levels of socialisation in the Discourse are presumed to be evident in their writing. This implies that the academic socialisation approach deems academic literacy to be completely textual. A central tenet of the academic socialisation approach in terms of teaching is the notion of scaffolding⁶ (following from Vygotsky's and Bruner's theories of learning, see Rose, 2005). Thus, learning is explicitly scaffolded until students reach the 'required levels' of proficiency. Like Case and Marshall (2010), Picard likens the academic socialisation approach to 'deep' and surface learning approaches, thereby suggesting that students are only successful if they reflect the attitudes and behaviours of deep learning in their writing.

A number of criticisms have been levelled against the academic socialisation approach. With regards to the central criterion of this approach- appropriacy- which

⁶Scaffolding is a term used for supporting structures that help learners develop and improve their language abilities.

is used when judging writing, critics have asked questions such as ‘appropriacy according to whom?’ (Ivanic, 2004) or ‘what are the purposes in English for Specific Purposes?’ (Pennycook, 1997). Hence, these scholars have seen the need to challenge appropriacy in light of the social and discoursal practices which they contend differ from one context to another. Other critics have called it a prescriptive approach because it assumes that there is only one way of learning a discourse and that “text-types are unitary, static and amenable to specifications” (Ivanic, 2004 p. 234). Freire (1996) in the book *Pedagogy of the Oppressed* takes a very radical position to approaches which are prescriptive in nature and comments that such approaches are an imposition of the dominant class over those of the oppressed. The purpose of such an imposition, he argues, is to bring the mind of the oppressed into submission to the dominant ideologies. Gonzalez (2006) is also of the opinion that the process of acculturation prioritised in the academic socialisation approach hinders students’ agency. In this way, academic socialisation is implicated in the production and reproduction of social orders. In a similar vein, the approach has been criticised for paying little attention to institutional practices, in spite of its recognition of disciplinary differences (Lea and Street, 2000). In its attempt to make disciplinary practices more explicit, it focuses more on acculturating or changing students into becoming acceptable members of the discipline community with little consideration on the ways in which disciplinary practices could be a hindrance in and of themselves. For this reason, Discourse, from an academic socialisation perspective is institutionalised as unproblematic, and the role of institutions is considered to be that of changing students to fit or adapt to the university. In light of these criticisms, the discussion in the ensuing sections is an attempt to present theories that address these shortcomings.

3.8.3 The academic literacies approach

The academic literacies approach has been termed the social practices model by Ivanic (2004). This Discourse emanates from the New Literacy Studies and sees texts (oral or written, with their linguistic and creative aspects) and the processes of composing them as contingent on the social interactions in which the literacy event is situated. Writing is conceived as a social and ideological practice which aims at

revealing the rhetorical nature of texts. The development of this approach was guided by the research by the NLS scholars such as Street (1984); Brice-Heath, (1983) and Scribner and Cole 1988). Though these early analyses and ethnographies were concerned with literacy in people's everyday lives, rather than on research in education or higher education contexts, the field has grown to include studies of higher education contexts (see Lea and Street, 1998; 2000; Lea, 2004; Lillis, 2001). From these later studies and analyses, the Discourse of academic literacies was coined (Lea and Street, 2000; 1998) initially to explain how discipline based Discourses determined specific sets of practices. The approach to pedagogy that later emanated from this work was concerned with ways of making discipline specific norms and practices more explicit to the students.

Unlike other approaches discussed before, the academic literacies approach was a response to an influx of new students whose primary Discourses differed from those that were preferred in the university (Lillis and Scott, 2007). It also aimed to reform or transform higher education and go beyond the mere teaching of skills (in remedial response to 'deficit' or to solve the 'literacy crisis') to engage with the social, cultural and contextualised nature of writing in the university (Russell, Lea, Parker, Street and Donahue, 2009; Lea, 2008). Key figures in advancing the notion of academic literacy include Lillis and Scott (2007); Lea and Street (2006; 2000; 1998); Street (2005, 2003, 1995, and 1984); Lillis (2003); Barton and Hamilton (2000), and Gee (1996). These scholars argue that literacy is not only context dependant, but is also embedded in ideology (Street, 1984).

Lillis (2003) suggests that while the academic literacies approach is more than the learning of discrete skills, or enculturation into the discourse, the approach builds on the insights gained from the other approaches discussed earlier. This is captured in the following citation:

whilst a "skills' approach to writing, with its implicit model of language as a transparent medium, is often taken as the only, or "common sense' way of thinking about communication/writing in official discourse, the academic literacies frame enables us to see that a skills approach represents one particular, albeit a powerful, way of conceptualising language, literacy and student writing in higher education (Lillis, 2003 p. 195).

Thus, the approach also seeks to bring to the fore another aspect of academic literacy neglected in both the skills and the academic socialisation approaches.

According to Lea and Street, (2000 p. 33), it is the “understanding of the nature of student writing within institutional practices, power relations and identities” that is missing in the skills and academic socialisation approaches. Therefore, an academic literacy approach moves the focus away from how practitioners can help students develop literacy, to how students and teachers of courses on academic literacy understand and participate in institutional and disciplinary literacy practices.

Scholars working within this method are critical of writing courses that purport to teach students a generic type of essay, and they argue for the need to construe writing in terms of epistemology rather than as a cognitive skill (Lea, 2008). This is because what counts as knowledge is viewed differently in different contexts, making it a challenge for the student to switch practices between one context and another and handle the social meanings and identity that each of the contexts presents (Lea and Street, 2000). Furthermore, an “academic literacies approach sees institutions in which academic practices take place as constituted in, and as sites of discourse and power” (Lea and Street, 2000, p. 35). This is because disciplines read and write themselves in certain ways that can potentially frustrate students who come from contexts which are unrelated to the university. This follows that an academic literacies approach puts emphasis on identities and social meanings beyond the discipline (Case and Marshall, 2010). In this way, an academic literacies approach informs how both students and academics talk about literacy. This provides a foundation for a reflective analysis of individual discourses and practices, and the effects of others in the social context. Moreover, understanding how disciplines ‘read and write’ themselves also allows social agents (students and academics) to question the social practices that they engage in. All of these factors attest to the idea proposed by Street (2001; 1984) that literacies are ideological and contested because what is taught and the manner in which it is taught depends on the nature of the social arrangement in a particular context (Street, 1984).

The key word in this discourse is participation. Students learn by engaging in purposeful and socially constructed literacy events, rather than through explicit teaching. Participation in a discourse community entails the student developing the voice, identity and agency that is commensurate with the practices of that field. If so, to become an engineer denotes acting, speaking, thinking and writing like an

engineer. Naturally, the academic literacies approach is related to theories of situated learning, in particular Lave and Wenger's (1991) CoP. The implication of an academic literacies approach is that academics should allow students to learn these practices by participation in authentic disciplinary activities. Simply put, there is no room for generic essay writing in an academic literacies approach.

3.8.4 The socio-political discourse/critical literacy

Socio-political scholars believe that social semiotic systems such as language and institutions conspire to construct cultural and social reality (Hammond and Macken-Horarik, 1999). In these systems, ideologies and power are transmitted through language. The purpose of education, therefore, is to raise the awareness of people/students of the inner workings of these systems, and how language can be used as a tool, both to reinforce and challenge these systems. Luke (1994) suggests that literacy standards depend on agendas and power relations between institutions and culture. These power relations make language and culture sites of discursive struggle which can serve to advantage some people over others. If that is the case, then social systems should be brought under scrutiny. Although this discourse is sometimes found in conjunction with an academic literacies or social practices discourse, the two discourses differ in the sense that the socio-political discourse endeavours to examine the political aspects of the context in which students find themselves engaging in literacy practices. More specifically, this school of thought puts an explicit focus on the politics of writing, where writers are seen as free agents who can draw on discourses and genres not prioritised in their context (Ivanic, 2004). This understanding of the relationship between language and power has resulted in pedagogical approach such as critical language awareness (Fairclough, 1992; Janks, 2000) and critical literacy (see for instance Canagarajah 2002; Shor, 2001; Ivanic, 1998; Freire and Macedo, 1987) internationally and Janks; 2000 and Thesen, 1997 locally).

The Brazilian scholar, Paulo Freire, who is credited as the founder of critical literacy, saw literacy as involving a process of 'reading the world and the word', with reading the world preceding the word (Freire and Macedo, 1987). By reading the world, Freire meant the ability to decipher and or understand and interpret the events

around us. Those who can read, but cannot read the world, that is, cannot critique the social order, are not critically literate for “[to] be literate is to undertake a dialogue with others who speak from different histories, locations and experiences” (Giroux, 1993 p. 367-368). For Freire, “literacy makes sense *only* in these terms” (Freire, in Roberts 2005 p. 35).

Unsurprisingly therefore, a major contribution that this approach has made has been its emphasis on the notion of voice and identity in writing. Texts are not neutral. They are human creations, which are constructed for certain purposes. They are a representation of the one who constructs them, and “are defined by the existence of socio-historically shaped, asymmetrical power relations” (Starfield, 2002 p. 121). Proper literacy therefore is that which enables a person to question the attitudes or values that people draw on when they construct texts. As a consequence of this focus on voice and identity, the socio-political approach evaluates the social construction of a text and questions the factors that may have influenced the author to create the text in a specific manner (Ivanic, 2004; Starfield, 2002). Hyland (2002b) suggests that authorial identity can be expressed through self-reference. In this case the use of personal pronouns such as I/We/Our becomes an index of authorial identity. He further argues that the stages at which writers choose to self-reference reveal their rhetorical choices. Ivanic and Camps (2001) use the term ‘voice’ to refer to the way in which writers represent themselves, their authorial identity in their writing. Drawing on Halliday’s macro functions of language they came up with taxonomy for analysing voice types as ideational positioning, interpersonal positioning and textual positioning. Fairclough (1992) also adapted Halliday’s theory by leaving out the third function and splitting up the second. He saw language as both socially shaped and socially shaping. Language use is always simultaneously constitutive of i) social identities, ii) social relations and iii) systems of knowledge (Fairclough 1995 p. 134).

The idea that texts constitute social identities compels readers to explore whose identities are being constructed, substantiated and how this is being done linguistically (Hulsse, 1999). Social relations would focus on the relationships between participants, in the case of academic literacy it would be the students and the tutors or lecturers. These two functions constitute Fairclough’s interpretation of

Halliday's interpersonal function of language. The constitution of knowledge and belief systems corresponds with Halliday's ideational function. What people know and believe about the world is constructed through Discourses. Ivanic and Camps (2001) use the term 'voice' to refer to the way in which writers represent themselves, their authorial identity in their writing. Drawing on Halliday's macro functions of language wherein every instance of language usage has an ideational, interpersonal and textual function they came up with taxonomy for analysing voice types as ideational positioning, interpersonal positioning and textual positioning. Fairclough (1992) also adapted Halliday's theory by leaving out the third function and splitting up the second.

Luke (1994 p. 8) notes that

critical literacy entails not only a rudimentary control of the linguistic and semiotic codes of written text, but also understanding of the ways in which the texts of everyday life influence one's own identity and authority.

Taking this position suggests that literacy pedagogy should enable students to engage with issues that expose might marginalise or perpetuate stereotypes. As follows, literacy enables students to develop a voice and the agency that will allow them to be active participants in their own learning. Taking this position therefore, critical literacy scholars suggest that all texts should be subjected to questions about positionalities, agendas, and purposes. They are, after all, "cultural tools for establishing belongingness, identity, personhood, and ways of knowing" (Moje, Dillon and O'Brien, 2000: 167).

Critical literacy work in South Africa has strong links to the apartheid era, though it seems to have taken new direction in the post-apartheid period (Janks, 2000). The question that has been seemingly raised is what it means to be critical in both these time periods? In the apartheid era, being critically literate meant to 'read' in the Freiran sense, the way in which language was manipulated by the apartheid government to perpetuate subjectivities through media and education. Thus critical literacy work was "both a moral and political project" where the role of the educator/researcher was to deconstruct the language of the oppressor and being critically literate meant to understand the relationship between language and power (Janks, 2000 p. 175). Hence, in the apartheid era, critical literacy was a resistance to

the dominant undemocratic government (McKinney and Norton, 2008). In the post-apartheid era, critical literacy work has had to take on new meanings where the focus of critique is not on the state *per se*, given the new government promotes social justice and equity both in education and society (McKinney and Norton, 2008). The focus is now more on critical language awareness, with a focus towards re-inventing a new South Africa (Janks, 2000). This new focus understanding has invoked Discourses such as domination, access, diversity and design to talk about the South African literacy context. Some languages remain more dominant than others, which does not cater for the diversity of students, thereby limiting access to resources. A critical language awareness programme, therefore, is focussed on the design of a curriculum that allows students' voices to be heard and identities to be recognised.

3.9 Concluding remarks

The objective of this chapter was to discuss the shaping influence of discourses. The discussion has indicated that the beliefs that academics hold of literacy, determine how they describe students as learners as well as the orientations to the teaching. Most importantly, the discussion has revealed that deficit and autonomous views of students and academic literacy still dominate academic practice. This is contrary to research on academic literacy both internationally and locally, which has taken a 'social turn' to viewing literacy as a social practice which is ideological, intertextual and contested. These deficit views also continue to drive pedagogical practice. This is borne out by the dominance of skill based pedagogies in the teaching of academic literacy in higher education. It remains to be seen in this study, the effect that these Discourses have on the teaching and learning of academic literacy in an Engineering Faculty. The six Discourses and the resulting approaches or models are overlapping and as Jacobs (2010a) argues, it can be argued that all of these Discourses have a place in higher education, with one feeding into the next, in an iterative way. In the context of this study, these models were used to analyse the dominant practices framing the teaching of a course on academic literacy.

Chapter 4

In dialogue with, Gee, Bourdieu, Lave and Wenger and Bernstein

What is important is not language, and surely not grammar, but saying (writing)-doing-being-valuing-believing combinations (Gee, 1990 p. 142).

4.1 Introduction

In the context of the review of literature that discursively construct academic literacy and students as discussed in Chapter 3, this chapter discusses the theoretical approach adopted in this study. Given the fact that my goal in this study is to examine how the different actors in the teaching and learning context enact the discursive spaces they find themselves in, a socio-cultural theoretical approach is chosen. This choice is further necessitated by the fact that an analysis of this context, involves a consideration of what students learn, how they learn, why they learn it and who facilitates that learning suggests that learning literacy is socially-mediated practice. The act of choosing a framework, underscores the idea that human interaction is mediated by some characteristic. The fact that I have selected certain characteristics, in this study referred to as discourses, habitus, cultural capital, field, social practice, suggests that I view the research problem in a particular way. Representation is always partial (Kress, 2003 p. 144). This partiality is not an accident, but rather there are interests at play (ibid). We have vested interests in that which we represent. Broadly speaking, this suggests that there are other possible theoretical frameworks that could have been used; therefore I do not claim to have an all-encompassing theoretical framework. At the same time, given my own history of academic literacy, and the topic at hand, I believe the theoretical framework that I have come up with enables me to explain issues of identity, difference and representation in a more rigorous and detailed way.

In the preceding chapters, I have established that a study about academic literacy is a study of how linguistic, social, cultural, historical and ideological practices help the teaching and learning context. As a consequence, socio-cultural and socio-historical understandings of knowledge production and the relationship with power in the social

construction of discourses and ideology provide the basis for the theoretical framework that I have adopted. The theories discussed in this chapter are all a critique of the autonomous model (Street, 1984) or acquisition view (Boylan, 2010) of learning. While these theories are broadly referred to as socio-cultural theories, they all bring distinctive features to the understanding of learning as a social practice. This is because these theories are located in different philosophical traditions and historical periods. Yet, when used collectively, they bring some useful insights to the analysis of the academic literacy context. To effectively achieve my goals, I have employed a multidisciplinary approach drawn from applied linguistics, sociology, sociology of education and philosophy. In particular, I will interact with the NLS scholar, Gee, the sociologists Bourdieu and Lave and Wenger, and the educational sociologist, Bernstein in framing my study. Although scholars from the South African context (see Boughey, 2009; Mqgwashu, 2007; McKenna, 2004a) have recognised this link between these various dimensions that impact on academic literacy, there is also sufficient evidence to prove that there has been little impact on practice (see Boughey, 2009 for instance). I am also persuaded that without a theorised understanding of a teaching and learning context that draws from a multidisciplinary perspective, it is difficult for any research to bring about tangible educational reform. From Bourdieu, I am going to discuss the theoretical constructs of habitus and cultural capital, from Lave and Wenger, situated learning, and from Bernstein the focus will be on the pedagogical device. I will start off with a discussion of Gee's identity framework.

4.2 Gee's identity framework

In Chapter 2, I introduced Gee's (1996) work on discourse in which a distinction was made between discourse (small letter d) and the Discourse (capital letter D). This understanding has led Gee to theorise about discursive identities, which is the subject of this section. Through this work, Gee has been instrumental in fostering an understanding of the relationship between identity and social inclusion and exclusion in higher education. Notably, has been the recognition that identity is discursive, that is, it is mediated through a discourse. In consequence, Gee has recommended

incorporating identity as an analytic lens to provide a more nuanced understanding of students' lived experiences in the Discourse (Gee, 2001).

Gee defines identity as “the kind of person one is recognised as being, at a given time and place, which can change from time to time, context rendering it unstable or ambiguous” (Gee, 2001 p. 99). Implied in this definition is that one's identity is defined by others. If that is the case, then identity can never be neutral; “it may have considerable potential to define what it means to bear it, the experience of ‘being an X’” (Jenkins, 1994 p. 202). Essentially, the act of identifying becomes also an act of engagement, given “to identify someone could be enough to decide how to treat her” (Jenkins, 2008 p. 6). This conception of identity, like the perspective advanced by the sociologist Jenkins, is multi-faceted and socially situated. Similarly, Gee (2001) has identified multiple facets of identity which he has termed, nature N,-Identity, institutional, I-Identity, affinity, A-Identity and discourse, D-Identity. Nature identity refers to our genetic disposition. I am a black woman, in her mid-thirties, and I have no control over that. Institutional identity relates to the organisational affiliation, for instance engineering students in a Faculty of Engineering. This identity, marks people in a certain way which can in turn affect the way they are perceived by others. A-Identity refers to membership one shares with those with whom he holds common beliefs and or activities. Gaining this membership therefore, requires one to adopt certain characteristics, which are acceptable in that discourse community. By logical extension this implies that there are gatekeepers who determine who gains acceptance into a discourse community. Thus, affinity identity has the power to change people. D-Identity, on the other hand deals with identity acquired through participation in a discourse community. From Gee's definition of identity and the multiple facets that he identifies, the following identity categories can be deduced.

- Identity is located within discourses
- Identity is embedded within power relations
- There is a multiplicity of identities
- Identity is dynamic, it changes according to context

The discursive understanding of identity is a critical component of Gee's theorisation on identity and is crucial in this study. For Gee (2001) a person chooses a

d/Discourse that reflects/indicates who he /she wants to be perceived as. This discursive process has certain characteristics. Firstly, people use language to transmit their cultural knowledge and interpret events in any discourse community. Essentially, language becomes a tool that is used to construct identity as individuals internalise ascriptions of who they are and those around them. Therefore, we ascribe an identity to people, for instance, 'underpreparedness', 'disadvantage' or 'limited proficiency'. Secondly, these d/Discourses are embedded in power which works through a process of recognition (Gee, 2001) and is sustained by the discourse or language of the participants. Simply put, when somebody is referred to as an 'able' writer, there is recognition of this ability in their interactions with them and hence, they use the d/Discourse of ability to communicate this identity. Discursive identity, therefore, is manifested through the selection and use of d/Discourses that enable those that we are affiliated with to interpret what we mean (Brown, Reveles and Kelly, 2005). Put in this way, d/Discourses have the potential to mark people in certain ways, all of which are representations that can have negative or positive effects on those that are marked.

All of Gee's identity domains are invested in or yield to some sort of power. Though we have no power over our N-Identities, given they are designated by nature, they can also gain force as identities through the work of institutions, d/Discourses or affinity groups. Hence, students who come from 'other' backgrounds are diagnosed as 'underprepared' or 'disadvantage'. This becomes their N-identity which is ascribed through the work of institutions. The manner in which people identify others has a bearing on how they identify their interests (Jenkins, 1996). Consequently, it is believed that because these students come from 'disadvantaged' backgrounds, they are in need of 'language support'. Subsequently, this N-Identity, in turn becomes an I-Identity as students take up the role 'officially' of 'underprepared' or 'disadvantaged' students in the university. While people focus on these identities as 'natural', they do so to forget or hide the fact (often for ideological reasons) that there are institutional, socio-interactional factors that create them as identities (Gee, 2001).

Gaining access to a Discourse is also mediated by power. This power is invested in the distinctive practices and experiences of the discipline. Therefore, to gain this access, one has to walk the same walk or talk the same talk as the significant others,

that is the experienced academics, in the discipline to which they seek membership (McKenna, 2010; Boughey, 2000; Gee, 1996). The process through which this power works then is participation and sharing (Gee, 2001 p. 105). The notion of participation is further explored in section 4.5.1 below.

Admittedly, Gee (2001) views a person from multiple facets. This is reflected in his distinction between primary and secondary Discourses and the hybrid or borderland Discourses. Primary Discourses being those ways of knowing in which students are socialised by their family institution, while secondary Discourses are those ways of knowing in which they are socialised by public institutions like schools and universities (Gee, 1996). This socialisation of students into certain Discourses or what Street (1993) has termed literacy practices, are a culmination of values, attitudes and the social relationships they make. In the course of acquiring primary and secondary Discourses, Gee (1996) maintains that students acquire a hybrid Discourse which is a result of interaction with other students who have primary and perhaps secondary Discourses different to theirs.

The identity categories discussed above imply that identity is not static; it can change from one context to another, mediated by the interactions than one engages in. For instance, the identity of an engineering student changes when he or she moves into the profession to become an engineer.

Work on identity has been adopted in the South African context. Most of this work has focused on the relationship between identity and language (McKinney and Norton, 2008). There also has been work which has focused on identity as a resource in the teaching and learning context (discourse) as well as the need to engage with diversity in changing contexts (Kapp and Bangeni, 2009; Archer, 2008; Leibowitz and Witz, 1994). Some of this work has already been referred to in previous chapters. Central to this work on identity in the South African context is the understanding that South African universities are alien social spaces (Boughey, 2009) and learning to 'be' in those spaces impacts on identity in negative ways and involves more than the acquisition of a set of neutral, asocial and acultural skills (McKenna, 2004b). If literacy is a Discourse, which displays social identity as actors participate in a social practice, then I am comfortable relying on Gee's work. This is

because this interpretation helps me understand how students' representations (identities) are mediated through a Discourse, warranting a discourse analysis.

4.3 Bourdieu

While Gee's conceptualisation of identity provides guiding principles for understanding the notion of representation from an applied linguistics' point of view, the work of Pierre Bourdieu has also supplied my understanding of student representation with a socio-historic perspective. I particularly draw on his theoretical tools of habitus and cultural capital which he developed in the 1960s (Robbins, 2005). These tools are very important to my study because they address issues of disparities in educational attainment between students of different classes as well as races. In South Africa, difference has framed educational provision; therefore, the notion cultural capital can complement Gee's typology in conceptualising this context.

4.3.1 Habitus and cultural capital

Bourdieu saw habitus as "a system of durable, transposable dispositions, structured structures predisposed to function as structuring structures, that is, as principles which generate and organise practices and representations" (Bourdieu in Hillier and Rocksby, 2005 p. 20). Habitus can thus be traced back to the wider structural forces (historical and present) that help shape individual's present and future sphere of influence (Albright and Luke, 2008). In this habitus, an individual's way of thinking and acting is shaped, that is, his cultural identity is embodied. Although Bourdieu did not see habitus as static, in the sense that he believed social actors could mediate their social spaces, even to the point of resisting embodied beliefs, he also understood that habitus plays a significant role in affording some social groups certain advantages over others (see Bourdieu, 1977; 1983/1986). Whilst it is true that there has been improved access for previously disadvantaged students in South African HEIs, these changes in student demographics have not mirrored changes in staff composition (Jansen, 2003). Using Bourdieu's conception of habitus, one could argue that the persistence of racially skewed staffing patterns is a sign of the reproductive power of the society which affords those social groups with powerful

habitus, the opportunity to reproduce cycles of privilege (Ramphele, 1996). Most important, the critique points to a possible mismatch between students' habitus and those of their academics. While this mismatch is inevitable, it has got implications which shape the way teaching and learning occurs. But without a proper examination of the whole context, that is, students' habitus (background) and the habitus that is created by their academic context, this understanding is likely to be missed.

Related to habitus is the notion of cultural capital. In this theory, Bourdieu argues that cultural capital is acquired through upbringing and education, and those cultural habits and dispositions that are inherited in the habitus are passed on from one generation to another (Bourdieu and Passeron, 1977/1990). By logical extension, the way a Discourse like engineering and/or academic literacy is represented has socio-historical roots and the meanings given to academic literacy are related to the cultural capital possessed by the actors. By logical extension one's practices of academic literacy are a product of the dispositions that he or she has been habitually exposed to (habitus) which ultimately determines his or her position in society (capital). What stands out in Bourdieu's construct of cultural capital is his focus on the knowledge and life experiences (non-discursive aspects of culture) that particular individuals have which facilitate their success more than their counterparts from less experienced backgrounds (Bourdieu, 1983/1986; Bourdieu and Passeron, 1977/1990). Seen in this way, one can say that cultural capital is shaped and made manifest through personal experiences and interactions with others over time and space. These experiences and interactions will ultimately shape an individual's cultural capital and in turn determine the approach to schooling. Broadly speaking, an understanding of cultural capital helps illuminate the discourse of social exclusion that exists in higher education. Boughey captures this understanding when she says;

Since race is conflated with social class in South Africa, the failure rates of black working class students can be contextualised in an understanding which involves social class and the transmission of privileges, values, attitudes and knowledge from one generation to another," (Boughey, 2009, p. 8).

Bourdieu's cultural capital comes in three forms; objectified, embodied and institutionalised (Bourdieu, 1983/1986). "Embodied capital is a form of capital which is linked to the body and presupposes embodiment" (Bourdieu, 1983/1986 p. 244).

Hence this form of capital cannot be separated from the person who 'holds' it. As such, acquiring cultural capital has both a spatial and temporal dimension in that one has to take time to learn. Effectively, as students come to university to study engineering, they are in the process of acquiring an embodied engineering capital which will label them 'engineer'. Cultural capital can also become objectified in material objects such as writings or media or instruments. These objects become a form of cultural capital which is transmissible in its materiality (ibid p. 247). Hence, an engineering technical report is an 'objectified' cultural capital in that it requires prior knowledge of engineering concepts coupled with a knowledge of technical writing. Cultural capital is also institutionalised. This is because universities as institutions have certain standards to measure competencies (embodied) that they use to offer credentials. The same universities also require that students possess a certain cultural capital in the form of academic literacy, yet, students, prior to joining the university, have been drinking from bars that are different from that of the university (Gee, 1996). The relation between institutional expectations and students' discursive resources lies at the heart of the question of the role of language in education,' (Collins, 2000, p. 67). There is thus dissonance between institutional expectations and students' discursive resources (Collins, 2000). This dissonance makes it difficult for students who do not possess the cultural capital that is recognised in the discourse community to gain epistemological access (Mgqwashu, 2011; 2007, Nomdo, 2006). Seen in this way, "capital is resource that yields power" (Peillon, 1998 p. 216) while differences in type and amount of capital are ultimately differences in power.

By focusing on cultural capital and habitus, Bourdieu has placed culture rather than the individual at the centre of social structure and has implicated the latter in the production and reproduction of social inequality. With this in mind, we can read Bourdieu's notion of habitus as an emancipatory project concerned with throwing light on social and cultural reproduction through processes of misrepresentation in the construction and transmission of knowledge (Albright and Luke, 2008 p. 12).

4.4 Bernstein's pedagogic device

I have also found the work of the sociology of education scholar, Basil Bernstein on the pedagogic device crucial to my understanding of the context of academic literacy. Bernstein (2000) suggests that the pedagogic device serves to convert assumptions about knowledge into pedagogic communication. Hence, he saw discourses as key to an understanding of the nature of knowledge. Bernstein (1999) has categorised discourses as either horizontal or vertical. Horizontal discourses are “‘common sense’ knowledge” which everyone has access to and “is likely to be oral, local, context dependent and specific, tacit, multi-layered and contradictory across but not within contexts (Bernstein 1999 p. 159). Hence, the knowledge that characterises this discourse is context dependent and will probably not have the same meaning when extrapolated to different contexts. Martin, Maton and Matruglio (2010 p. 436) point out that Bernstein's horizontal discourse represents “everyday practical discourses that students bring to education”. In the context of this study, Bernstein's horizontal discourse is seen as closely related to Gee's (1996) understanding of the primary Discourse in that both scholars characterise the d/Discourse as local, and emanating from everyday practices. It is this d/Discourse that was investigated in the ethnographic studies (see Scribner, 1988; Street, 1984) that were discussed in Chapter 3.

Vertical discourses on the other hand, is a “coherent, explicit and systematically principles structure... and takes the forms of a series of specialised languages with a series of specialised modes of interrogation” (Bernstein, 1999 p. 159). The vertical discourse, like the secondary Discourse identified by Gee (1996), is acquired and scaffolded through schooling. By making this distinction between every day, common sense and specialised uncommon sense discourses, Bernstein (1999) is raising important questions about knowledge and how it is structured. The implication is that knowledge should be conceptualised in terms of legitimation (Maton, 2010) which enables us to understand how social actors are positioned in relation to knowledge and disciplinary practices. Drawing on Bernstein's work, Maton (2010) identifies two sets of relations characterising knowledge. These are epistemic and social relations. The epistemic relation refers to the relationship between knowledge and the object of study (referent), while the social relation relates to the relationship between

knowledge and the subject (the one making claims to knowledge). To show how these relations operate, Sayer (2000 p. 42) states that

the relation between knowledge and its referents is not at all like that of mirroring an object or reproducing or representing a copy of it. If we don't understand something, then it is no help whatsoever to have a mirror image or exact copy of it, for we will be none the wiser. On the contrary, what we need is something different, namely a discourse. The relationship in question is one of unlikes, not likes. (If the object is itself a discourse, then, similarly, an exact replica of that discourse would add nothing that we didn't already know: again, what we need instead is a different discourse.

Thus, the relationship between knowledge and the knower is arbitrary and depends on experience as well as discourses available to the subject. It also follows that claims to truth when considered from the point of view of the social relation are subjective and truth is defined by 'who' rather than 'what' such that "actors with different subjective characteristics are unable to make claims about this knowledge" (Maton, 2010 p. 157). On the contrary, the epistemic relation is about "intelligibility, rather than replicability" (Sayer, 2000 p. 42). As such, knowledge claims should not necessarily mirror the world, but should interpret it in "such a way that the expectations and practices it informs are intelligible and reliable" (ibid).

The issues discussed above are at the core of the pedagogic device which Bernstein has used to describe how discourses of knowledge are translated into curriculum issues (Luckett, 2010; 2009). Bernstein's pedagogic device consists of three fields; the fields of production, re-contextualisation and re-production. These fields are social spaces which are characterised by conflict and perhaps competition as this discussion will show. The field of production, as the name entails, is concerned with the production of new knowledge. This is basically the practice of HEIs as well as research based institutions like the Human Science Research Council in South Africa. It is in this field that vertical discourse is most dominant. This raises a number of interesting dynamics. First, the vertical (specialist) discourse is encoded in highly complex symbolic forms (Singh, 2002). In order for this discourse to be accessible, it must be translated into a form that is accessible to those marginal to the specialist domain. The process of translating specialist knowledge is what Bernstein (1999) refers to as pedagogising knowledge. Whilst it would make sense that those who produce the knowledge should engage in the process of pedagogising this knowledge, Bernstein (2000; 1999) argues that these agents more often than not do

not have the time or the resources to do so, leaving the role of pedagogising knowledge to the fields of recontextualisation. The fields of recontextualisation are characterised by agents such as curriculum authorities and state departments. Hence, the field of recontextualisation is the official arm of education which is closely linked to national and political agendas. Bernstein (1990 p. 184) reckons the “pedagogic discourse is a *recontextualising* principle which selectively appropriates, relocates, reinforces and relates other discourses to constitute its own order and orderings”. Unfortunately, research indicates (see Ensor, 2004; Luckett, 2009), that it is in this field that a lot of tinkering with the curriculum takes place. This is because pedagogic discourse, when recontextualised, “takes on a different form [as a result of the] ‘discursive gap’ that always occurs when knowledge is relocated from the field of production to the field of reproduction” (Luckett, 2010 p. 14). This creates room for ideologies about what is legitimate knowledge to creep into the curriculum. The third field in Bernstein’s pedagogic device is the field of reproduction. As the name suggests, this field aims to bring together the knowledge validated by the field of production with the pedagogised (official) curriculum, translated by the recontextualising field. Furthermore, in this field, teachers and students convert this knowledge in the recontextualising field of the classroom. In this field, pedagogic codes can be made visible or mystified and students are faced with insurmountable task of cracking these codes. When these codes are mystified, it makes it easier for those students who possess horizontal discourses (Bernstein, 1999) or primary Discourses (Gee, 1996) that are related to the privileged codes in the field of reproduction to gain epistemological access, while at the same time disadvantaging those with discourses that are less appropriate. It is important to explore how teachers/academics attempt to construct and convey knowledge in the field of reproduction as well as the nature of the relations that exist between students, knowledge and academics.

A number of implications arise from this understanding of the pedagogic device. For instance, what knowledge is validated and how that knowledge is validated by the field of production, how is that knowledge understood and translated by the field of recontextualisation, and how is that knowledge transformed into pedagogic forms by the field of reproduction. Boughey sums it up when she says: “The result of the pedagogic device is conflict and struggle as different social groups attempt to control

the way educational knowledge is constructed (Boughey, 2009 p. 11). It is the purpose of this study, to bring to the fore the inner workings of the pedagogic device in the context of the *Technical Communication for Engineers* course.

4.5 Lave and Wenger's situated learning

Lave and Wenger (1991) have also made informative contributions to the socio-cultural perspective. Their distinctive contribution is the notion of participation. If learning is seen as a social practice and outcome, then it follows that it cannot be linked to individual abilities. It is a situated and negotiated outcome which results from the interactions between students and the more experienced academics. Although situated learning was developed in informal learning contexts, the theory has been influential in formal academic contexts as well. If we adopt Bernstein's fields discussed in the preceding section, we can safely say that Lave and Wenger's situated learning is concerned more with the field of reproduction that is the actual teaching and learning context.

4.5.1 Key features of situated learning: Participation

Participation is an "epistemological and ontological account of the nature of knowing and being in the world" (Boylan, 2010 p. 5). It presents a way of making sense of learning. Lave and Wenger (1991) pointed out that learning can only take place if there is participation. They also understood participation to be a continuum, which on one hand, is characterised by a state of *no participation*. This they believed was characteristic of teacher centred methods of learning, what Freire (2008) has called the banking system of education and for Street (1984), the autonomous model. For Lave and Wenger (1991), no participation was equivalent to 'no learning'. The next level of the continuum was characterised by a state that they referred to as *legitimate peripheral participation*. This level represents a trajectory of learning in the sense that it is not static, but the purpose is to enable students to move towards the ideal, which is *full participation*. Although critics have questioned the conception of full participation which presupposes completion of learning (Boylan, 2010), Lave and

Wenger have maintained that ‘everyone’s participation is legitimately peripheral in some respect. In other words, everyone can to some degree be considered a “newcomer” to the future of a changing community” (1991 p. 117). Undoubtedly learning is an on-going process, and even the more experienced academics are involved in on-going learning.

To this end, patterns of relationships are created, and they socially and culturally legitimate participation (Boylan, 2010). This belief led Lave and Wenger (1991) to introduce the notion of *communities of practice* discussed in the section to follow. The purpose of learning is to enable students, to gradually develop the discursive practices that will facilitate their membership in the discourse community. Given that learning is an on-going process of students learning to join the community of practice, learners’ experiences of joining the community of practice have implications for their sustenance and ability to progress to full participation.

4.5.2 Communities of practice

The recognition that learning is a form of social practice which takes place within some community, underscores the importance of understanding the way in which learning is structured in these communities (Boylan, 2010). To understand this, we have to first understand the constructs that define a community. These include; mutual engagement and joint enterprise, community boundary, relationships between communities of practice, as well as the centrality of language and discourse (Barton and Hamilton, 2005). Like Gee, Lave and Wenger see engagement in a community of practice as related to the creation and maintenance of identity, given being a member of a CoP is not just about doing, but also being. Thus learning in a CoP constructs the individual’s identity as a member of the community (Boughey, 2009; Winsor, 1996). The purpose of learning is to enable students, to gradually develop the discursive practices that will facilitate their membership in the discourse community. In this regard, disciplines such as Engineering can be regarded as communities of practice. The notion of CoP provides a link between agency and structure in that it highlights that fact that participation occurs within a framework of

(disciplinary) structures. It is these structures that provide the contextual conditions that enable or disable legitimate peripheral participation.

Two major principles stand out. First is the idea that knowledge needs to be presented in authentic contexts, in as much as learning activities need to be typical of the activities that people engaged in such kinds of knowledge would engage in. Second, learning involves social interaction, co-participation between students and old timers in the disciplinary knowledge. A critical question to ask as far as situated learning is concerned is to what extent does the institutional order impact on students' efforts to gain access to the discipline/CoP. In a nutshell, Lave and Wenger's theory highlights a number of issues in the teaching and learning context such as situatedness of learning, relationships in the teaching and learning context, and trajectories of identity and belonging (Boylan, 2010 p. 7).

This model, like all the approaches discussed in this chapter, challenges the cultural deficit models which locate ability in the individual, thus, failing to recognise what Barton and Hamilton (2005) call the constraints and affordances of the disciplines as communities of practice on the success or failure of students. For Lave and Wenger, learning is an on-going process of students learning to join the community of practice. What this suggests is that learners' experiences of joining the community of practice have implications for their sustenance and ability to progress to full participation.

4.6 Power, difference and representation

The theoretical constructs that I have discussed in this chapter are all linked in one way or another to power. Hence, in this study there is need to interrogate the power relations that exist in the context of academic literacy and how these can lead to the exclusion of students. Power is a very complex phenomenon, which manifests itself in diverse ways. In the first instance, the theoretical tools of the NLS have shown that literacy is socially constructed within institutions and as such, certain ways of knowing are favoured over others: for instance, reading and writing over orality (Street, 2005; 1984), visual literacy etc. Because of this, literacy has symbolic power which serves to include and exclude students who possess discourses that are not

privileged by society (Gee, 1996). In that respect, literacy constructs people's social realities and serves to produce and reproduce advantage in society. Considering this, an effective analysis of power requires an examination of the power relations within literacy events and practices. For instance, whose literacies are being favoured and who has the power to decide what kinds of literacy are acceptable. For reasons such as this, scholars in the NLS have argued for the recognition of non-dominant forms of literacy as having the same status as academic literacy or schooled literacy (Collins and Blot, 2003). What this suggests to me is that there is domination on one side of privileged literacy practices, but for literacy as a social practice, this dominance should be contested. This contestation, has got the ability to produce resistance, thus, in an academic literacy context, we have these two power dimensions, dominance and resistance at play. This conception of literacy experiences align well with Street's ideological model as well as Gee's (2001; 1996) interpretation of power as discursive practice. In consequence, in my study, I analysed literacy practices and how these are contested in the power relations of dominance and resistance within the Engineering Faculty. This domination in academic circles, is legitimised through institutional structures and rules, as such, power in the academic field has an authority dimension.

In spite of this theoretical appreciation for power, the NLS have been largely criticised for not critiquing the moral ordering of this power (see Collins and Blot, 2003). Therefore, though the NLS has been pivotal in informing my understanding of the contested nature of academic literacy, critics contend that they do not tease the inner workings of this power. If other forms of literacy are recognised in education and society, is that enough? Moreover, to believe that power is made up of only these two dichotomies is to produce a very simplistic version of social reality. As such, although my study takes as its theoretical parameters the NLS in particular Gee's (2001; 1996) work, it extends this theory by teasing out the power issues surrounding the academic literacy context, and establishing how justified this power (the authority of this power) is. This interpretation of power as authority is a Foucauldian construct, which sees discourses as institutionalised.

Academic literacy is also about 'purposeful participation' in literacy events (Ivanic, 2004 p. 235). Support for this concept is also evident in Gee's discursive and affinity

identity domains and is well captured in his use of the metaphor of the bar. To be a member, one has to talk and act in a like manner. Hence, participation is the fourth dimension of power that the analysis focussed on. To do this I examined the level and amount of participation that was afforded students within the discourse, and how this was mediated by power relations between students and those who teach them. This entailed an exploration of the field of technical communication and examining the rules that govern this field as well as whether these rules were fair for all students.

Inarguably, the framework that I chose presents a theoretical appreciation of the discursive constructions of academic literacy which favours social factors. Hence, Gee's identity framework, Bourdieu's cultural capital and habitus, Bernstein's pedagogic device and Lave and Wenger's participation as theoretical frameworks enabled me to explain differences in educational attainment as well as provide historical (Bourdieu) as well as socio-cultural (Gee) explanations for these differences.

4.7 Relevance of theories to the South African context

The relevance of these theories to the South African context can be summarised as follows. Firstly, they foreground difference, and how this difference is influenced among other things by representation. This difference is also linked to identity, this is because, identity, is prescribed by others. All the theories perceive membership of social groups and the identity formations related to that membership as crucial to success in learning (Boughey, 2009, p. 10). Secondly, the focus is not only on how knowledge is transferred from one generation to another, but how it is also transformed in such a way that identities are constructed while class legacies continue to be organised and imposed (Collins, 2000). In a country in which education provision is characterised by inequality, Bourdieu's theory provides a theoretical basis on which to understand differences in success and throughput between students from different population groups that seem to characterise higher education. This is confirmed by the nationwide survey by Scott *et al.* (2007) of throughput and retention which found that there were still severe disparities between

success patterns of White and Black students more than a decade after the demise of apartheid.

For Bourdieu (in Bourdieu and Passeron, 1977/1990), academic success is a result of the amount of cultural capital acquired from the family background rather than a measure of an individual's talent. Accordingly, the conceptual link with Gee is that identity, just like academic literacy is socially constructed. In this respect both Gee and Bourdieu share a situated view of the relationship between literacy, identity and institutional orders. Gee and Bourdieu and Lave and Wenger, see participation and socialisation as central to gaining access to a Discourse; however, the mode of socialisation determines who succeeds or who does not. These Discourses/capital are particular ways of using language, which are closely related to ways of thinking and acting, as a result, they can be used to validate knowledge (Boughey, 2009) and hence should form the sphere of analysis in research which sees academic literacy as socially situated. In my study I examined representations of academic literacy as an identity and Discourse as evident in the construction of teaching and learning of the technical report writing course in an Engineering Faculty. This helped me to establish the way in which students' experiences, as a form of cultural capital, are validated or not in the university.

Bernstein's conception of the pedagogic device also shares many affinities with Pierre Bourdieu and Gee in as far as these scholars theorise about social position. Like Bourdieu, Bernstein saw language as the means through which "knowledge is transmitted and transmuted; identities are constructed and expressed and class legacies are organised and imposed" (Collins, 2000 p. 66). Access to both linguistic and socio-cultural knowledge is embedded and transmitted through discourses. Through participation, students learn both the structure and the ways of being, talking about what they know. Without participation in authentic learning contexts, it is difficult for students to fully acquire the discourse of the discipline.

Thirdly, Gee, Bernstein and Bourdieu are concerned with questions about what counts as knowledge and who decides how it should be valued. This also conjures up questions like 'does technical report writing count as knowledge in the Engineering discourse community, and if so, how is it validated? These questions reveal discourses of dominance and difference which result in the creation

subjectivities between forms of discourses, for instance engineering science versus engineering writing. In other words, they reveal how issues of power and difference play out in the representation of academic literacy and of students. Thus, in my study I explored the various representations of students and the motivation behind such to ascertain the discursive constructions which serve to produce and reproduce subjectivities, thereby, excluding some students. Within these power relations, four categories for analysis emerge. These are domination, authority, resistance and participation. Some literacy practices are dominant; largely because they are authorised by those in power. Thus, in my study I coded for power relations that are manifested in the various representations of students and the motivation behind such to ascertain the discursive constructions which serve to produce and reproduce subjectivities, thereby, excluding some students.

My understanding of literacy as a social practice, and the constructs that I will analyse for as drawn from these theories are represented in Figure 4-1.

Figure 4-1 Summary of theoretical framework

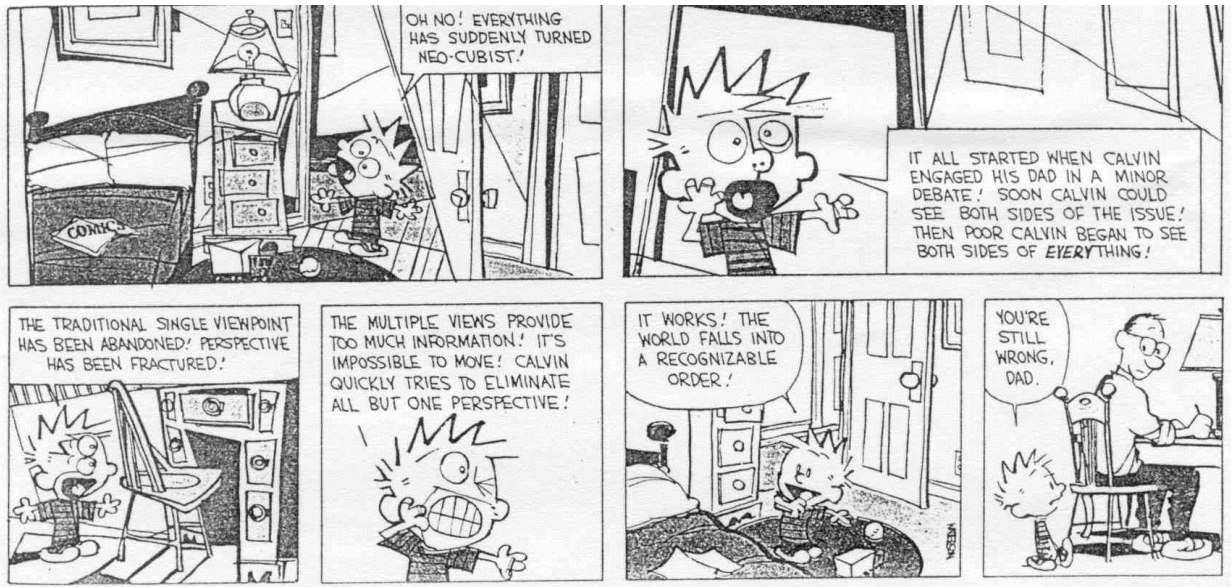
Identity domains	Context	Power
Discursive identity	Academic literacy is situated, contextual	Academic literacy occurs in a field which has got its own rules-authority
Multiple identities revealed in N-Identity, I-Identity, D-Identity, A-Identity	Academic literacy has a spatial and temporal dimension	Some academic literacy practices are more dominant than others. These dominant practices are transmitted and transmuted from one generation to another as cultural capital
Identity is dynamic and not static		Social actors can resist embodied beliefs in their habitus/context
Identity is socially constructed and has an ideological base		Academic literacy is about 'purposeful participation' in literacy events (Ivanic, 2004 p. 235).

4.8 Conclusion

The objective of this chapter was to argue for a multidisciplinary approach to the study of academic literacy. Such an approach is necessitated by the fact that academic literacy is a multi-dimensional phenomenon which cannot be understood

through a singular dimension. The framework that I have presented in this chapter places an emphasis on identity and literacy in history, context and in power relations, and sees Discourses as the controlling base on which the super- structure of society is founded (Boughey, 2002). What this suggests is that Discourses are not mundane or random, rather they constitute reality and consequently define the academic world in which we live and how we participate in it. Cast in this way, they deserve interrogation. As a consequence, the classification that comes with the ascription of certain identities, together with the historical and contextual conditions of literacy are all implicated in the social exclusion and or inclusion of students in higher education.

Exploring reality: a critical realist study



The cartoon illustrates the philosophical ontology of reality. Every person has their own reality and it would be futile to reduce reality to a single explanation. Reality hinges on many different factors, such as culture, upbringing or education. In this study, the focus is hence on multiple realities. Therefore, in attempting to uncover reality, I do not claim to offer absolute answers. Instead (perhaps like Calvin in the cartoon) my aim is to illuminate the different perspectives that people have of academic literacy in an Engineering Faculty, while at the same time, privileging my own perspective, which derives from my personal experiences together with my reading of other people's realities.

5.1 Introduction

In Chapter 4, I discussed the theoretical framework that guides my study. The theories used to construct this theoretical framework all draw on social understandings of teaching and learning. Of particular importance is the way these

theories develop the understanding of the university as a 'social space' (Boughey, 2009). Within this social space, discourses are produced, sustained and performed.

This chapter presents the methodological framework adopted in this study. This framework draws from the theoretical framework chosen for the study, thus it also privileges the social. The chapter begins with a brief description of the context and then revisits the research questions and objectives outlined in Chapter 1. Because this study seeks to explore the 'contact zone' between students, academics and the academic literacy context, a mixed method approach has been adopted. Guba and Lincoln (1994) comment that questions of research methodology are by no means limited to distinctions between qualitative and quantitative enquiry. They suggest indeed that "Questions of method are secondary to questions of paradigm" (Guba and Lincoln, 1994 p. 105). This chapter therefore sets out both epistemological and ontological positions from which I am enabled to make sense of the data in the study. In essence, the study is located within a critical realist epistemology and ontology. This is because it seeks to uncover the causal mechanisms that generate events and practices. Following Lankshear and Knobel (2004), Chapter 5, in brief, sets out the research design as the broad strategic approach or logic for conducting the research, matching the kind of question that is being pursued. Or as Berg (2007) describes research design, this chapter sets out the plan according to which the study was conducted, indicating the kind of data that was collected, how it was collected and used, where and when it was collected, and why it was collected.

5.2 Paradigm

Paradigms and paradigmatic debates are at the core of research in the social sciences. The philosopher Thomas Kuhn (1962/1970/1996) is considered the father of paradigmatic debates. In his book *The structure of scientific revolutions*, Kuhn suggested that scientific inquiry cannot take place without some set of 'received beliefs'. He called these beliefs paradigms, and participation in a discourse community entailed being mentored by those who are already experts of those beliefs. "The study of paradigms is what mainly prepares the student for membership in the particular scientific community with which he will later practice" (Kuhn, 1996 p.

11). Since Kuhn's original use of the term in research, it has been adopted and advanced by a number of scholars in the social sciences. For instance, Neuman (2006) defines a paradigm as a "general organising framework for theory and research that includes basic assumptions, key issues, models of quality research, and methods for seeking answers" (p. 81). Guba and Lincoln (1994, p. 105) describe a paradigm as a "basic belief system or world view that guides the investigation". Broadly speaking, paradigms are notions of ontology (assumptions about the nature of social phenomena) or epistemology (assumptions about the nature of knowledge and how it can be acquired) which are implicit in theory and research. Paradigms are also concerned with issues of methodology, meaning ways in which questions about knowledge and the world are to be answered (Creswell, 2003). Implied also in the understanding of paradigm is the issue of values, for to choose one paradigm over another is a matter of value. Value, in this context, hinges on a number of issues, chief among which are one's ontological and epistemological perspectives. In other words, paradigms deal with the nature of social reality, the nature of knowledge, and research procedures. In dealing with the ontological and epistemological orientations of theory and research, paradigms are thus of great importance to a researcher in providing guiding principles on which to base methodologies. They shape opportunities to develop research questions, the research design, and the appropriate research strategies.

This study is concerned with the conceptualisation of academic literacy and the understanding of students in this context. Thus, my ontological view is concerned with the socio-political, socio-cultural, and socio-cognitive orientations people have towards literacy and towards students. These perspectives have guided me in the choice of methodology by which to explore these phenomena and my epistemological orientation is reflected in the framing of the key research questions in this study. While these questions are provocative, they are also essential in that they seek to uncover the underlying mechanisms that produce certain actions that have been taken for granted. To effectively answer these questions, I was guided by the critical realism ontology of stratified reality and analytical dualism, as discussed in the next section.

5.2.1 Analytical framework of analysis

Although the study draws on a theory of discourse and literacy as a social practice drawn from the NLS (in particular, Gee, 1996), from Bourdieu's cultural capital and habitus, Lave and Wenger's situated learning and from Bernstein's pedagogic device, I have found explanations of representation lacking in some instances in these theoretical constructs. Apart from identifying identity categories, the present study is also interested in a theory that lends itself to rigorous and detailed empirical research. This is the reason I needed a theory that guided my methodology while at the same time enlightening my analysis. *Critical realism* (CR) seemed to have the potential to serve this purpose. In the sections that follow, I will discuss the central tenets of a critical realist methodology, these being *stratified reality* and *contingent causality*.

5.2.2 Stratified reality and contingent causality/ epistemological stance

Critical realism makes a number of assumptions about reality that are crucial to this study. Firstly, CR makes the assumption that the world we live exists independently of what we think about it (Zachariadis, Scott and Barret, 2010). This also implies the potential *fallibility of knowledge*, suggesting that there is no absolute truth. Our perceptions are simply a window to that reality and are therefore not necessarily the real reality; as such they cannot be the object of research. Sayer (2000) notes that the realist tenet that the world is independent of our knowledge of it is closely related to the distinction between *intransitive* and *transitive* dimensions of knowledge. The intransitive dimension refers to our object of study (i.e., the social phenomenon under study), which in this study is the representation of academic literacy in an Engineering Faculty. The transitive dimension, on the other hand, refers to the theories and discourses that are used to understand social phenomena. Considering the fallibility of knowledge, Bernstein, (1983 p. 9) comments that

each time an objectivist has come up with what he or she takes to be a firm foundation, an ontological grounding, a fixed categorical scheme, someone has challenged such claims and has argued that what is supposed to be fixed, eternal, ultimate, necessary or indubitable is open to doubt or question.

The implication is that “researchers’ fallibility and unavoidable reliance upon presumptions rule out claims to indubitable knowledge” (Miller and Tsang 2010 p. 144). Guided by such as understanding of the nature of knowledge, Sobh and Perry (2006 p. 1201) note that CR researchers “enter the field with prior theories”. This is necessitated by the underlying philosophy that reality has an external referent; therefore other people have likely researched or experienced that reality (ibid). Consequently, their perceptions become “some of the windows through which we can understand the present reality”. Miller and Tsang (2010) argue that because reality has an external referent, knowledge claims may be challenged and their merits assessed logically and empirically. This, they further contend, “motivate[s] the need for and possibility of critically evaluating theories” (p. 144). The main purpose for conducting the literature review in this study was to explore understandings of the notion of representation, and what representations of academic literacy and students other scholars have come up with. Specifically, I was looking for discourses that have been used to talk about students and academic literacy. Olsen (2009) states that realists attempt to rework and reassess conceptual frameworks, which they argue are representations of the real. To understand reality requires a larger conceptual map of reality. This requires a CR researcher to work with multiple theories providing windows through which the present reality can be understood.

Secondly, CR sees reality as “both multi-dimensional and stratified and also [as] open and differentiated in the sense that closed systemic situations in which event regularities occur are highly restricted” (Bhaskar and Lawson, 1998 p. 5). It is in this context that CR illuminates reality. It adds value in the research activity because it takes into consideration the notions of *heteroglossia* (Bakhtin, in Farrell 1995) and *polyvocality* (Foucault, in Agger, 2006) in which multiple voices are seen as fundamental in any discourse. Because the nature of the *life-world* under study is dependent upon individuals’ experiences of phenomena, a singular version of reality that might be provided will be seriously biased and flawed. In this study, CR is used as a paradigmatic framework of analysis which can offer a meta-perspective on the different positions from which the study draws. This meta-perspective of reality allows analysts to penetrate the deeper structures that generate certain behaviours/tendencies. Hence, instead of focusing on experiences alone, CR makes it possible to probe beyond these experiences. This is because, in CR terms, reality

has three levels of *ontological depth*: the *empirical*, the *actual*, and the *real* (Bhaskar, 1978). At the empirical level, the focus is on surface events which are recorded through the senses; in the context of academic literacy, this could be the perceptions or interpretations of what academic literacy is. Common sense thus takes precedence at this level. Critical realists understand however that senses can be deceptive and cannot therefore, be used alone to analyse reality. That is why beneath the empirical domain they posit the domain of the actual. At the actual level, events, experiences and practices are generated. In other words, the perceptions and/or interpretations present at the level of the empirical produce justifications for pedagogical practices. We make sense and interpret what happens. Because we see these experiences and events, they therefore become the data and field of inquiry or focus of research. Bhaskar (1978) argued that scientific realism concentrates on this level because it is tangible. Yet, the events that we see at the level of the actual are generated by mechanisms at a third level termed the domain of the real or causal. Simply put, the domain of the real produces mechanisms that produce events that are made manifest in empirical sensations (see Figure 5-1). The implication is that researchers should seek to understand and explain these 'tendencies' rather than focus on naive common sense reality available at the level of the empirical and or actual (Houston, 2001). By privileging the real, critical realists do not claim privileged knowledge of it, but understand, rather, that reality exists regardless of whether or not it is experienced. Hence, the purpose of analysis is to uncover reasons (real) evident in experiences (empirical) that eventually become both the data and or field of investigation (actual), and it provides discursive constructions that support that field (actual) (Corson, 1997).

It is important to note that the domains of reality proposed by Bhaskar (1993; 1978) overlap. The empirical is a subset of the actual, which is a subset of the real. It is quite evident why this last level is of critical concern to the proposed study. This is because it provides an ontology which helps to uncover the nature of the unobservable causal mechanisms that generate practices (discursive constructions of identity) that are evident at the empirical level. Broadly speaking, it helps us understand that phenomena such as conceptualisations of academic literacy emerge from certain levels, yet they are not, neither should they be reducible to those levels

because reality is stratified. Bhaskar's three domains are presented in Figure 5-1 below.

Figure 5-1 Bhaskar's domains of reality

	Domain of the real	Domain of the actual	Domain of the empirical
Mechanisms	x		
Events	x	x	
Experiences	x	x	x

Adapted from Bhaskar, 1978 p.38

For CR analysts, to theorise is to propose mechanisms that explain events (Miller and Tsang, 2010 p. 146). Hence, they engage in a process of *retroduction and abduction*. Danermark *et al.* (2002 p. 96) define retroduction as a process of “advancing from one thing (empirical observation of events) and arriving at something different (a conceptualization of transfactual conditions)”. Drawing from Bhaskar, retroduction seeks to question the conditions which necessitate the occurrence of the phenomenon under investigation (Bhaskar, 2008). In the context of my study, it questions representations of academic literacy and students; it asks what conditions determine such representations. Retroduction, is thus a form of inferential reasoning used to reconstruct empirical phenomena. Abduction, on the other hand, refers to the re-interpretation or re-contextualisation of phenomena within a conceptual framework or a set of ideas (Danermark *et al.*, 2002 p. 80). Through abduction, the CR analyst re-interprets empirical observations using an established heuristic or conceptual framework. As an explanatory model abduction thus emphasises that “facts are always theory-laden” (Alvesson and Skoldberg, 2009). Chapter 4 indicated that my study is informed by a number of theoretical frameworks drawn from different disciplines. In particular, I am relying on Gee's theorisation of discourses and identity, Bourdieu's cultural capital and habitus, Bernstein's pedagogic device and Lave and Wenger's situated learning. All of these theories provided me with both the language of theorisation in my analysis as well as the theoretical lenses through which I could make sense of the data.

Thirdly, CR's position on the relationship between knowledge and language is also of essence. Critical realists hold that dominant discourses in society influence people's perceptions as well as actions (Trowler, 2001) and in turn help to define (represent) others. For this reason, reality is not independent of semiosis and discourse. It is discursively constructed, just like identity (Gee, 1996). If reality is discursively constructed, then it is multifaceted, pointing to multiple identities. And if that is the case, then whose reality is privileged in the academy; what kind of representations does this kind of reality give rise to?

The approach offered by CR is relevant to this study because it helps illuminate the complexity and the differential practice that underlie the development of discourses in higher education. Like the Gee (2001; 1996) and Bourdieu and Passeron (1977/1990), CR implicates language/discourses in the production and reproduction of knowledge in society. The framing of the key research questions in this study likewise reflects the socio-cultural-historical and CR views that frame this study. These questions indicate that people do hold multiple perspectives of academic literacy – hence the focus (in the research questions proposed for this study) on the dominant discourses framing academic literacy in an Engineering Faculty. The suggestion is that there are diverse perspectives of academic literacy, making it a contested issue that warrants interrogation to illuminate both the dominant practices and (especially) the causal mechanisms of such practices.

Having explicated the research approach, design and analytical framework guiding this study, I now turn attention to issues of data collection and analysis. While it is true that CR is a philosophy rather than a method, in this study the focus is on using the philosophy to come up with a practical method for theory testing.

5.3 A critical realist research design

Cohen *et al.* (2000) suggest that the first requirement in the research project is to be clear about the research design. Mouton (1996) refers to research design as a plan; Lankshear and Knobel (2004) call it a broad strategic plan. Without a clearly articulated research design it is not possible to carry out the research. Mouton notes that a well-planned research design helps maximise the validity of the research

findings. Within this research design, research questions, research approach, data sources and analysis are included. These aspects are discussed in the sections that follow. The previous subsection outlined the broad tenets of a CR philosophy; in this section I indicate their appropriateness for researching academic literacy. I have also mentioned in the introductory part to this section that my intention was to use CR to guide my methodology, which entails explicit principles for collecting and analysing data. The discussion in the sections to follow illustrates how CR principles have been incorporated in my methodology.

5.3.1 Research objectives

This study explored representations of academic literacy by students, representations of academic literacy by academic staff, and representations of students by academic staff, all in relation to academic literacy in an Engineering Faculty. The purpose of this exploration was to investigate how these various representations can potentially include or exclude students from the engineering academic community. The argument that runs through this study is that these representations figure in particular discourses which, although not always intentionally, may generate associated practices that govern inclusion or exclusion of students in the academy. Guided by these broad objectives, the study sought to answer the following research questions.

5.3.2 Key research questions

- What are the dominant discourses framing the representation of academic literacy in a *Technical Communication course* in an Engineering Faculty?
- What dominant practices do these discourses give rise to?
- How do these practices serve to include or exclude students from the Engineering discourse community?

The CR philosophy is reflected in the framing of these research questions. The enquiry proceeds in the first place from the understanding that knowledge of reality is discursive (Agger, 2006). It thus seeks to uncover the dominant discourses which

frame the knowledge of academic literacy in a social context, and which constitute causal mechanisms reflected in certain practices. This leads in turn to the next question which is concerned with the level of the actual. Lastly, seen in a CR perspective, mechanisms can potentially govern behaviour in one way or another (Sayer, 2000). In this study, it is assumed that discourses, as causal mechanisms, have the potential to 'cause' the social inclusion or exclusion of students. To answer these questions, the research followed the approach and methodology outlined in the next section.

5.3.2 Research approach

Creswell (2003 p.4) identifies three research approaches which are contingent upon "philosophical assumptions about the nature of reality, epistemology, values, the rhetoric of research and methodology". These approaches are quantitative research, qualitative research and mixed methods research. Critical realists, however, refrain from talking about qualitative or quantitative methods which supposes that there is an either/or position (Sayer, 2000). Rather, they talk of intensive and extensive approaches. An extensive approach, which can be seen as the equivalent of quantitative research, "shows us mainly how extensive certain phenomena and patterns are in a population" (Sayer, 2000 p. 20). Such an approach is based on a positivist understanding of phenomena, where the researcher engages in a process of coding the social world in numbers according to some preordained variables (Maxwell and Rossman, 2011). Because it is rooted in statistics, quantitative research can be used to prove or disprove hypotheses. In this sense, quantitative methodology assumes that there is a single reality which is independent of people's experiences. Starting with a hypothesis thus limits the positivist understanding in that it imposes a limited worldview on the subjects and the research. The intensive approach is "concerned with what makes things happen in specific cases" (Sayer, 2000 p. 20). In this approach, which can also be likened to the qualitative approach, the natural and subjective components of the social world are emphasised and the aim is to "identify the native and indigenous concepts of the subjects being investigated" (Mouton, 1996 p. 186). By 'native', Mouton signifies the natural elements of society. It is only after these concepts have been identified that the

researcher integrates them into an interpretative framework (Mouton, 1996). Although the distinction between extensive and intensive research methods would suggest incompatibility, given the inherent differences in the underlying philosophies, Sayer (2000) suggests that they have complementary strengths and weaknesses and can hence be used together. Intensive approaches are strong on causal explanation and interpreting meanings in context. As such they are time-consuming and are therefore best used on a small sample. Extensive approaches, on the other hand, provide the researcher with information on the extent or quantitative dimensions of certain phenomena. Using a combination of both approaches offers the possibility of a fine-grained understanding of the phenomenon under study.

Choosing the research methodology for my study went hand-in-hand with my growing understanding of the enquiry I intended to embark on. Following the advice from scholars such as Maxwell and Rossman (2011); Maxwell (2005); Cohen *et al.*(2000) and Mouton (1996), I had to give serious consideration to the setting in which I wanted to conduct the research and ask which approach best suited my objectives. This led me to realise that there was no way I could separate myself from the subject I sought to explore. I am part of that context, as both an insider and an outsider. As an insider, I am a student myself. Hence, an examination of the academic literacies teaching and learning context is close to my heart. As an outsider, I have represented myself as a critic of the same context. Furthermore, I have also realised that human actions are to a large extent influenced by the context in which individuals find themselves (Maxwell and Rossman, 2011). Thus, in order for me to understand the teaching of academic literacy as a course in an Engineering Faculty, I had to adopt a methodology which was both exploratory and descriptive of the phenomenon under investigation and which allowed for an analysis of context. It was only fitting therefore, that I used a combination of both intensive and extensive approaches in order to answer the research questions central to my study.

5.3.3 The research sample

This study is primarily concerned with the discursive construction of teaching and learning. As such, its locus of interest is HEIs. Consequently, the population for this study was the HEIs in South Africa. However, a complete analysis of representations of students in all the 21 HEIs in South Africa was not feasible. Cohen *et al.*(2000)

point out that to make the research manageable it is necessary to work with a smaller group or subset of the population, often referred to as the sample. For the purposes of this study, purposive sampling was used and the study focused on a single institution, the University of KwaZulu-Natal. Given the multiple data sources that formed part of this study, it was also not feasible to do a survey of all the faculties. Hence, the focus was on one Faculty, while recognising that issues of representation and identity explored within this context can apply to all students. Cohen *et al.* mention that in purposive sampling researchers handpick the cases to be included in the sample on the basis of their typicality. Research indicates that it is a common feature not only of South African higher education institutions, but also internationally to refer to courses designed to teach disciplinary practices as academic literacy (see Boughey, 2009; Lea and Street, 1998). In the context of this study, such a conception is considered to be a misappropriation of what academic literacy is, and is therefore contrary to the theoretical position that I have adopted which sees literacy as a set of practices emerging from the Discourse of a discipline such as Engineering. Yet, it is the dominant (mis)perception that has been used to justify add-on language courses. In light of this (mis)appropriation, the *Technical Communication for Engineers* course in the Faculty of Engineering is considered a typical 'academic literacy' course and was therefore the sample for the study.

5.4 Data collection

In this section, the tripartite critical realist framework is discussed as it pertains to the present study. Adopting a CR methodology means that one approaches the research process as (in the words of Alvesson and Skoldberg, 2010 p. 43) "constant digging in the ontological depth of reality". The three domains of reality—the empirical, the actual and the real – all highlight the differences between surface reality and depth reality. In this study, as discussed in sections to follow, triangulation of research methods was used to interrogate the 'real' nature of the phenomenon of academic literacy and its representation. The data sources used in this study correspond to the critical realist domains of reality. Social reality is considered to have a real existence, with underlying or causal mechanisms. This real existence of social reality may be actualised by uncovering causal mechanisms through a process of re-interpretation.

As a methodology, realist ontology looks beyond empirical appearances of reality that can be found in people's perceptions.

The data sources discussed in this section were carefully chosen after consideration of the research questions in this study. The focus on multiple realities makes it inappropriate for a researcher working from a CR paradigm to use just a single data collection instrument. Accordingly, in this study prior theory (literature review) and triangulation of primary data collection instruments such as interviews, documents and classroom observations were used. These are discussed as they relate to the CR tripartite framework of stratified reality. It needs to be emphasised that from a realist perspective data collection is related to both the transitive and the intransitive dimensions of knowledge. The use of prior theories relates to the transitive dimension (Sayer, 2000), while the primary data collection that focusses on the social phenomena under investigation relates to the intransitive dimension.

5.4.1 Data collection at the empirical level

The empirical level of reality is "the domain of experience" (Sayer, 2000 p. 12) and is mainly concerned with perceptions of the world which constitutes the knowledge that is most accessible to people. At this level, the following data collection methods were used:

- Documents (Faculty handbooks and course readers)
- Interviews with students, language tutors and engineering academics

I begin with a discussion of the documentary evidence.

5.4.1.1 Documents: Faculty handbooks and course readers

My focus on dominant discourses prompted me to examine curriculum documents such as the course outlines, course packs and students' written texts. Of these, the Faculty handbooks and course packs were regarded as representing collective empirical knowledge about the nature of academic literacy from an institutional perspective. My working rationale was that these documents provide accounts of

what the Faculty of Engineering considers to be the academic literacy practices to be taught to the students and how it has planned to make such practices accessible to engineering students. From this point of view, these documents are interpretations of what the Faculty believes and values. Taking this perspective, I then analysed these documents to determine the values and beliefs that they espoused. For this purpose, I drew up an analytical instrument shown in Figure 5-2.

Figure 5-2 Document analysis schedule

	English for Engineers (2008)	ENCH1TC (2009)	ENCH1TC (2010)	ENCH1TC (2011)	ENCH1TC (2012)
Author					
Audience					
Purpose					
Benchmark knowledge					
Listed outcomes					

The document analysis schedule shown in Figure 5-2 was used to analyse the course packs. Identification of the elements of analysis was guided by the theoretical framework, in particular Bernstein's pedagogic device, which puts the emphasis on what is worthwhile knowledge and how it is validated. Consequently, the instrument focused on the authors of the guides as well as issues of benchmark knowledge. Benchmark knowledge was identified in the aims of the course and in the assignment topics. Five course packs and their course outlines were analysed, dating from 2008 to 2012. The 2008 course pack was included to provide the background to the *Technical Communication* course which was introduced in 2009. I also examined students' technical reports written between 2009 and 2012. These documents are performances in a social practice, and they provided me with a better understanding of the rationale for a course on academic literacy and the debates around the way it is understood in the Faculty. Essentially, these documents laid bare the dominant representations of academic literacy and students as constructed within the *Technical Communication* course, containing, as they do, multiple voices from the range of different academics in the Faculty. Analysing these documents using the instrument described above enabled me to uncover underlying causal

mechanisms that produce events (in the classroom) and influence students' experiences of academic literacy in the Faculty of Engineering.

5.4.1.2 Interviews

The politics of representation that frames my study also prompts me to analyse academics' conceptions of the teaching and learning context. Interviews are an efficient and valid way of understanding someone's perspective and can provide additional information that was missed in observation (Maxwell, 2005 p. 94). Following from this understanding, I chose to use interviews because, in my view, representations of students come primarily from their educators and these representations are also a reflection of the educators' ontological orientations. As a consequence, interviews with academics helped me gain a better understanding of the discursive constructions of academic literacy within the *Technical Communication* course that might not be evident in the classroom discourse. I also sought students' perceptions of academic literacy and of the *Technical Communication for Engineers* course in particular. From a realist point of view, people's perceptions of things can provide the basis for exploration of the real. In terms of the critical realist framework, this data source corresponds with the empirical level (i.e., individuals' perceptions or experiences of their reality). These experiences are considered to be a culminating point of reality in that they are structured by underlying mechanisms. It is the mechanisms that produce the experiences that we see at the level of the empirical.

I elected to use the guided interview approach, where I had a basic checklist of all the items that I intended to pursue (see Patton, 2002). This allowed me to probe and pursue other topics that emerged from the interview while still operating within the parameters of my study. I made audio recordings of all the interviews that I conducted. Participants were also made aware that their responses were recorded. These interviews were then transcribed to allow me to capture participants' responses verbatim, which in turn provided me with accurate quotations to use in the analysis of data. The interview participants comprised 2 engineering academics, 12 language tutors and 24 engineering students at various levels of study. As a result, I prepared three interview schedules/checklists to cater for the different groups.

Copies of these checklists can be found in Appendices B, C and D. The language tutors came from the different Humanities disciplines such as Sociology, Philosophy, Literature studies and Creative writing. These tutors were chosen primarily for their 'perceived' expertise with academic literacy since they came from disciplines that required substantive amounts of writing.

5.4.2 Data collection at the actual level

The actual level domain is closely related to the empirical level domain in the sense that experiences observed in the domain of the empirical constitute part of the events which we can identify at the domain of the actual (Jeppesen, 2005 p. 5). In other words, at the empirical level, we observe people communicating either verbally or textually about their experiences, while at the level of the actual, we see 'things in action'. In line with this thinking, classroom observations and students' technical reports are considered events in the actual domain.

5.4.2.1 Classroom observations

Because the focus is on how students are represented, and the institutional identities that are constructed as a result of such representations, the main data source was the teaching and learning context. Within this context, issues of power and difference are illuminated as both students and academics try to negotiate the discursive spaces they find themselves in. Hence, classroom observations were done because they have the potential to provide evidence of tacit understandings and 'theory in use' (Maxwell, 2005, p. 94). Figure 5-3 shows the classroom observation schedule that was used to collect information on the teaching and learning context of the *Technical Communication for Engineers* course.

Figure 5-3 Classroom observation schedule

Focus	Notes
Type of teaching	
Type of interaction	
Teaching goals	
Classroom atmosphere	
Student motivation	
Materials used	

The classroom observation schedule gathered the information represented in Figure 5-3. All of the items on the schedule are related to the type and manner of participation. The theoretical framework that I adopted for this study compelled me to focus on the participation in terms of what participants say, do and value (Gee, 1996). Focusing on these aspects of participation enabled me to explain why the practitioners in the *Technical Communication course* taught in the way they did. It also enabled me to link their espoused beliefs (drawn from interview data) with their enacted beliefs (present in the teaching and learning context). The observations took place between February and May 2012. A total of 31 tutorials and 8 lectures were observed.

5.3.2.2 Documents: Students' technical reports

A sample of 25 reports was taken from each year starting in 2009. The 2009 corpus ideally should have included both the seminar paper and design report as appendices. However, only 13 of the reports samples from 2009 had these drafts as appendices. From 2010, I took the experimental report to be part of the corpus. No drafts were attached to this report. The 2011 corpus had the seminar paper and design report as appendices. The 2012 corpus did not have any drafts attached except for one. Figure 5-4 presents a summary of the documents sample.

Figure 5-4 Summary of the documents sample

Text type	Number of texts	Year
Experimental report	25	2009
Design report	25	2010
Design-experimental report	25	2011
Design-experimental report	25	2012

Guided by Fairclough's understanding of discourse (discussed in Chapter 2) as well as the literature reviewed in Chapter 3 (in particular, Ivanic and Camps, 2001; Hyland (2001), I came up with the analytical framework for the analysis of students texts shown in Figure 5.5. I took Fairclough's three functions of language, as social identity, social relations and a system of knowledge and beliefs and mapped them onto the notion of voice as espoused by Ivanic and Camps (2001). The second column in Figure 5-5 indicates what these functions mean in the context of this study while the third column shows how these were realised in the texts/discourse.

Figure 5-5 Analytical framework for analysing students' texts

Type of voice	Denotes	(d)iscourse realisation
Social identity	Who am I?	
Social relations (Interpersonal)	How do I relate with others?	
Knowledge and beliefs (Ideational)	What do I know?	

The discussion above has shown how I appropriated the CR philosophical principles into a methodology for my study. Figure 5-6 provides a summary of the CR tripartite framework as it relates to my study.

Figure 5-6 Summary of the critical realist tripartite framework

CR Reality Domain	Analysis	Data Source
Empirical reality	Participants perceptions of their reality	Interviews
Actual reality	Events resulting from mechanisms and experiences	Observations of teaching and learning Documents- students technical reports
Real	Mechanisms that produce events and are reflected in experiences and perceptions	Discourses emerging from Interviews, documents and observations

In the next section, I focus on the method that was used to analyse the data. Critical discourse analysis (CDA) was the chosen method of analysis as being potentially able to address the research questions posed in this study by bringing into dialogue the multidisciplinary framework that guided this study.

5.5 Data analysis

The discussion in this chapter has established that the domain of the ‘real’ reality is wholly contingent upon the mechanism that can cause things to happen. This suggests that real reality is not necessary a material object, but rather relates any mechanism that has the potential to structure events. In this study, d/Discourses are considered to be causal mechanisms in that they do exist and can generate certain tendencies. This is not to ignore the empirical and/or actual reality, but the focus on d/Discourses as causal mechanisms is a way of highlighting how they structure events and experiences. Gee (2001; 1996) recommends the use of discourse analysis in researching literacy in particular, where representation or identity is centre stage. This is because discourse analysis indicates underlying assumptions, or “tacit theories”, in a discourse community such as Engineering. Given that the study was framed within a critical paradigm, critical discourse analysis was used. Although there are a number of approaches to CDA, the underlying philosophy is that they all follow “a critical approach to problems, and endeavours to make explicit power relations which are frequently hidden, and thereby to derive results which are of practical relevance” (Meyer, 2001 p. 15). The focus on hidden meanings is important because it illuminates dominant understandings of social reality. Both Jenkins (2008) and Gee (2001) point out that the way people are represented often influences the way they are treated. McGregor (2003) cautions that “unless we begin to debunk words, we can be misled and duped into embracing the dominant worldview (ideology) at our expense and their gain”. It is therefore important to unravel what people say so as to understand the discourses that influence their utterances. In this light, CDA is well aligned with critical realism in that it attempts to uncover what is implicit in discursively enacted relations and how these relations reproduce social dominance and resistance (van Dijk, 1995). This is particularly

relevant to academic literacy, which, as I have pointed out, is dominated by competing and conflicting definitions or semiotic interpretations which in turn produce diverse representations of students. These representations obviously produce social dominance and, by logical extension, can serve to include or exclude some students from higher education. In this study I will follow the CDA analytical framework proposed by Fairclough (2001).

Much like Bourdieu's habitus, Fairclough saw language as both socially shaped and socially shaping. In its socially shaping capacity, it constitutes social identities, social relations and systems of knowledge and beliefs (Fairclough, 1993). Thus language is more than a means of communication and at a deeper level 'does certain things'. "Social objects and phenomena do not have a straightforward and unproblematic existence independent of our discursively-shaped understandings" (Chia, 2000 p.513). This is because social objects are systematically constructed by human agents through processes of differentiating, classifying and labelling (Sheyholislami, 2001 in McGregor, 2003). These processes are semiotic ways of constructing the world and there is a repertoire of systems that people use to do so. These could be linguistic features (small letters discourse) or could include other deeper features of language such as associations induced by the choice of certain words. For instance, choosing to describe African students as either ESL or 'disadvantaged' and conflating such terms with the choice between English Second Language and underpreparedness, likewise the association between such terms and ability to learn are all discursive practices. It is also important to note that although these linguistic choices are not arbitrary, they are purposeful regardless of whether the choices are made consciously or unconsciously (Sheyholislami, 2001 in McGregor, 2003). This according, to Fairclough (1992 p. 4), shows that any instance of language use is simultaneously a piece of text (small discourse), an instance of discursive practice (writers and readers construct phenomena in particular ways) and an instance of social practice (ways of valuing and believing).

Discourse as text recognises that language, written or spoken, is constitutive of social identity, social relations and knowledge and belief systems. In this sense texts become the semiotic dimension of events (Fairclough, 2007 p. 164) in the sense that they are products of a literacy event. I have already indicated that this study engaged

with texts such as (course outlines, students' reports, interview excerpts and observational data) to identify the discursive practices that producers of these texts employed. Furthermore, the social conditions that influenced the production of such texts were also brought to the fore in this analysis.

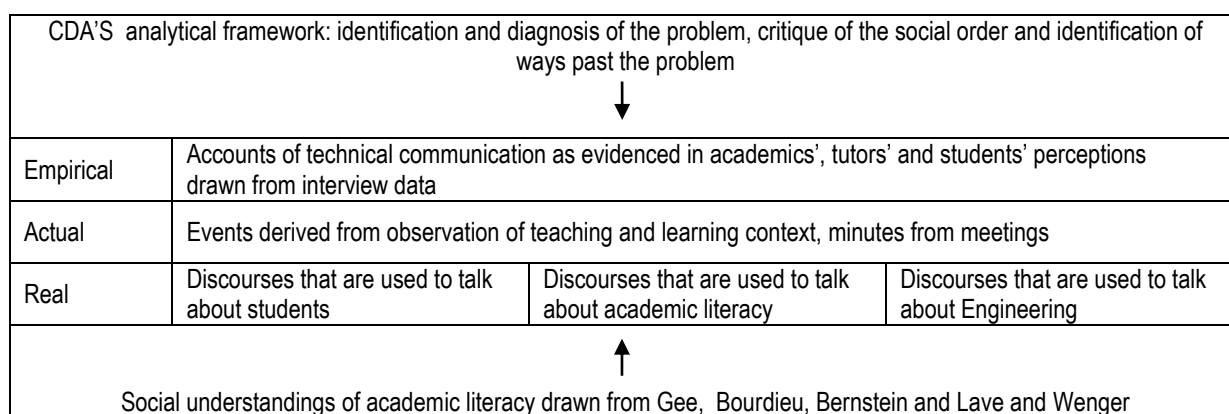
Other approaches that are used to constitute reality include the use of words that frame or position the author of the text in a particular context, encompassing the social relations and social identities (Fairclough, 1995). As an analytical tool, Fairclough's CDA prompts the researcher to ask what kinds of representations of the world are being constructed in a text (Hulsse, 1999) and how these constitute identity and the nature of participation or relationships. In this vein, CDA enables the researcher to recognise those abject truths inherent in texts. It does this by analysing their sources and causes, resistance to them, and possibilities for overcoming them (Fairclough, 2007). This implies then that CDA is not only concerned with analysing texts to investigate power relations, dominance and social biases therein, but also with how all these are initiated, maintained, reproduced and transformed within specified contexts (van Dijk, 1988). Thus "the intertextuality and recontextualisation of competing discourses are closely attended to" (Wodak and Meyer, 2007 p. 10).

Drawing from this understanding of CDA, in the analysis stage of this study I coded for the contextualisation of the literacy event. This helped to identify the problem: namely, how the learning context was constructed, and how the context was inevitably related to the literacy practices – in other words, the experiences of academic literacy evident at the empirical level. This identification required some kind of semiotic interpretation of the ways of thinking and being that are available to the different actors in this context. I also coded for literacy practices –as evident in both the practitioners' and the students' assumptions of literacy. This took place during the classroom observations as well as during the interviews and pertained to the CR's domain of the actual, where focus is on the events (i.e., what happens when these causal mechanisms, evident in the domain of the real, are activated). Lastly, I also coded for identity (i.e., the representation of students and of academic literacy). To do so, I relied on Gee and Bourdieu's understandings of identity as socially constructed. I also adopted Fairclough's (2007) notion of *orders of discourse* which he describes as the semiotic dimension of social practices which constitute

social fields, institutions and organisations. Thus in describing orders of discourse, one focuses on discursive practices that are available in the context.

Following Fairclough (2007) and Gee (1996), I focused on the institutional orders of discourse that bring about certain ways of acting and speaking about academic literacy. I also sought to highlight orders of discourse for textual production that were evident in the teaching and learning of technical communication. To do so, I used the tools of critical discourse analysis as espoused by Gee (2001;1996), in which I identified both the small-letter discourse (i.e., the language [Gee, 1996]) that is used to represent students and academic literacy as evidenced in meeting minutes, course outline and interview data, as well as the capital-letter Discourse (i.e., ways of talking, valuing and using language in a social network [Gee, 1996]) in the Faculty documents, students and academic narratives and in classroom events. The purpose of such an analysis was to highlight the socio-cultural representations present in these discourses and also the ways in which they produce Discourses that maintain hegemony in academic practice. With regard to CR's domains of reality, this corresponds with the domain of the real and seeks to foreground the causal mechanisms that generate certain discourses. This analytical framework that I used is summarised in Figure 5-7.

Figure 5-7 Analytical framework



This framework of analysis describes the three domains of reality that are identified by critical realists. Data collected at each of these levels was first discussed descriptively in order to understand the participants' reality at the different levels as it emerged from the data sources.

5.6 Validity

Although notions of validity are central tenets of positivist paradigms, Guba and Lincoln (1985) have been instrumental in showing validity issues are critical in any study. In this section, validity is discussed from a CR perspective which as I have already established, posits a stratified ontology of reality. Within this ontology, generative mechanisms and theories used to describe them are all considered real. Theories have been tested in prior research and when they are used to describe mechanisms, prove that knowledge claims may be contested (Miller and Tsang, 2010). The distinction between generative mechanisms and theories is a critical one in understanding the validity of research in that it provides multiple windows through which reality can be understood. The stratified ontology of CR also calls for the use of multiple methods in data collection or analysis so as to uncover reality at the different levels. Such an approach rejects dogmatism and is an expansive and creative form of research (Johnson and Onwuegbuzie (2004 p. 17). Patton (2002) proposes triangulation of research methods as a procedure to strengthen the study while Maxwell (2005 p. 93-94) sees triangulation not only as a strategy that can minimise the risk of bias from just a single method, but also as a way to gain a deeper understanding of issues under investigation. This study utilised three different approaches for data collection: class observations, interviews and literacy products. Observations provided me with evidence of behaviour or actions in the contexts in which they occurred (i.e., the teaching and learning of academic literacy). Interviews supplied my analysis with justifications for certain actions and also with evidence of past events to which I could not “gain observational access” (Maxwell, 2005 p. 94). Document analysis offered insight into performances resulting from representations of both academic literacy and the students. I also used multiple theoretical lenses (Maxwell and Rossman, 2011) to ensure that my analyses were not biased. My theoretical and analytical framework as indicated in Chapter 4 utilised a range of social theories including linguistics (Gee), sociology (Bourdieu; Lave and Wenger), education (Beinstein) and philosophy (Bhaskar and Archer). Lastly, Guba and Lincoln suggest that researchers should discuss their findings with critical friends to “ensure that analyses are grounded in data” (Maxwell and Rossman, 2011 p. 40), and Maxwell and Rossman make a related suggestion that researchers should search for alternative explanations as well as discrepant evidence.

5.7 Limitations of the study

A major limitation of this study concerns sampling. In the first place, the study is located within one Faculty at the University of KwaZulu-Natal. It is believed that this focus on one just one Faculty may limit the analysis and generalisation to that particular institution and Faculty. Second, the study focuses on a course that is designed to develop engineering students' academic literacy, and not on typical Engineering courses. Thus the d/Discourses identified are only to be understood in the context of Technical Communication and not the construction of engineering knowledge *per se*.

5.8 Ethical issues

There were a number of ethical issues that I had to address in this study. I followed guidelines by Christians (2005) for ethical compliance: access and acceptance, informed consent, privacy, and confidentiality and deception. Closer consideration of these guidelines reveals the necessity of observing them. First, they promote the aims of research, which are knowledge production, truth, and avoidance of error. Second, they promote the values which are of paramount importance to research: trust, accountability, and fairness. If research is seen as collaborative work, there must be trust and accountability between the researcher and the participants. The first step in observing these guidelines was to obtain ethical clearance. To obtain access to the institution and the particular department, a draft letter was sent to the Dean of the Faculty requesting access to data. This ensured that participants gave informed consent on whether or not they wanted to participate in the study (for a copy of the consent form, see Appendix A). With interviews, participants were given the interview questions beforehand and were also assured that confidentiality and anonymity would be preserved in any information subsequently published. In guarding against deception, participants could also opt to see transcripts of the interviews to make sure there was no misrepresentation of the information they provided.

5.9 Concluding remarks

In this chapter I discussed the nature of naturalistic inquiry and how it related to my research study. This chapter presented the research methods that were used in this study together with the epistemological principles that guided these methods. Issues of data collection, sampling, and data analysis were discussed. Also discussed were issues regarding ethical guidelines, as well as limitations of the study. The methodology described in this chapter makes it clear how the dominant discourses framing academic literacy in an Engineering Faculty were investigated.

Chapter 6

Empirical Experiences of academic literacy

In distinguishing the real, the actual and the empirical, critical realism proposes a stratified ontology (Sayer, 2000 p. 12).

6.1 Introduction

In this chapter, I present data collected from two of the instruments discussed in Chapter 5: documents and interviews. The interviews were conducted with the language tutors, engineering students and engineering academics involved in either the teaching or the administration of the course. The purpose of these interviews was, among other things, to understand the goals and values that shaped practitioners' perceptions of academic literacy and of students in the *Technical Communication* course. The underlying belief was that practitioners' ontological orientations influence the socio-cultural features of their teaching and learning, as well as their approach to teaching and representation of students. Similarly, interviews were also used to understand students' conceptions of academic literacy and context. Data from documentary evidence was mainly in the form of Faculty documents such as the Faculty Handbook, minutes from meetings, and course packs. The rationale for presenting this data was derived from Bernstein's (2000) understanding of the pedagogic device, and in particular of how production, reconstruction and reproduction work together to deliver events that we see in the teaching and learning context. This data also constitutes textual evidence of discourses that frame academic literacy in the *Technical Communication for Engineers* course.

Methodologically, this chapter represents the first stage in the critical realist framework where the focus is on the research participants' empirical experiences of the academic literacy in the context of the *Technical Communication* course. These two data sets were considered to represent the empirical knowledge that the participants have of academic literacy. Faculty documents like the course readers and Faculty handbooks provide accounts of what is perceived as worthwhile knowledge, while interviews provide verbal accounts of the participants' understanding of their context.

The first section presents data emanating from the Faculty Handbook and the *Technical Communication* course packs from the first semesters of 2008 to 2012. The analysis in this section was largely descriptive and was concerned with identifying what is privileged as valuable academic literacy knowledge in the Faculty of Engineering at UKZN. Miller and Tsang (2010 p 147) suggest that “To abstract from specific empirical instances to mechanisms, we attempt to distinguish general and essential conditions that underpin the phenomenon from incidental and nonessential conditions (i.e., spurious effects)”. In line with this, I also sought to identify salient discourses which were apparent in this data set. This discussion is related to the principal question guiding this study:

- What are the dominant discourses framing the representation of academic literacy in a *Technical Communication* course in an Engineering Faculty?

This discussion is also important because it provides the background from which the causal mechanisms that contribute to social exclusion or inclusion of social agents in the *Technical Communication for Engineers* course are explored.

6.2 History of the *Technical Communication* course: Documentary Evidence

As its mission, the Faculty of Engineering sees its role as being

to equip students with knowledge and skills to apply the fundamental principles in dealing with a wide range of practical problems they will encounter in their professional lives as engineers, construction project managers, land surveyors and quantity surveyors” (Faculty Handbook, p. 1).

“Equipping students with knowledge and skills” can also be read as empowering students to participate in the engineering discourse. There is a discourse in higher education, in particular in critical studies, which see the role of education as being fundamentally to empower. Freire (1996) has argued that education is a tool for bringing students (especially the disenfranchised) into societal conversation. By logical extension, empowering/equipping engineering students with the necessary ‘skills’ should bring them into dialogue with significant others in their field. This idea undergirds the philosophy of discursive identity as espoused by Gee (2001) and of participation as theorised by Lave and Wenger (1991). Gee (2001) desists, however,

from using the term *skill* in favour of the more socio-culturally accepted *practices*. The important question in this regard is how then has the Faculty interpreted and translated this aim into pedagogic practice? This question is significant in the light of what Bernstein (2000) refers to as the pedagogic device, which serves, he suggests, to convert assumptions about knowledge into pedagogic communication. Suffice to say that the assumptions of technical writing inevitably influence what is taught. With this broad aim in mind, the course packs for the academic literacy course from 2008 to the first semester of 2012 were explored in this study.

6.2.1 English for Engineers (2008)

The English for Engineers course for UKZN Faculty of Engineering students was outsourced and followed the structure that had been used in a foundation programme for the UKZN Faculty of Science. The authors of the manual titled *Guide to teachers of Technical Communication* which was used in this course were language specialists who had been teaching academic literacy to Science students. The manual was designed primarily as a resource pack for students, although tutors were also expected to use it for planning their tutorial sessions. A resource guide for tutors which stipulated the approach to teaching literacy that was to be adopted accompanied the manual. The aim of the course was advertised as being to develop “essential skills of reading and writing and expression in English [together with] the ability to write fluently and persuasively (scientific and non-scientific) in the English language” (Course template, 2008). The emphasis on English language suggests that the course centred on grounding students in the grammar and linguistic (technical) aspects of the English language. Furthermore, the course would assist students “to learn the skills of critical analysis, interpretation and evaluation [these being] important critical tools which can be applied to a wide range of literary and cultural texts (and academic disciplines)” (Course template, 2008). The English language element in the course was realised through topics such as

Introduction to English Language study, grammatical structures with reference to technical and literary writing styles

Comprehension of literature

Writing skills – development of the written argument, inferring of meaning and drawing conclusions

Other skills to be developed were oral language skills, 'general' vocabulary, scientific vocabulary, systematic nomenclature, and types of reports such as newspapers, popular science literature, textbooks, data books, scientific journals. Notwithstanding this emphasis on skills, the course was described as operating in a "literacies approach rather than a skill-based or ESL approach" (Guide for teachers of Technical Communication, 2008 p. 1). This suggests a degree of confusion in what the course actually envisaged, in that a "literacies" perspective would more usually foreground socially embedded literacy practices rather than skills. From a realist point of view, this indicates the disjuncture that can exist between espoused and enacted beliefs, further justifying a study that analyses both as levels of reality.

These assumptions about academic literacy as a set of essential and generic skills were embodied in the course material. Twenty readings were included, ranging from journal articles and extracts from text books to newspapers. Students were also required to produce

- an essay on "Lead in Petrol"
- a feasibility report on the topic "A pebble bed reactor near Durban"
- design a poster on comparison between an industrial and a traditional process using fermentation
- an oral presentation on the importance of Calcium Carbonate (CaCO_3), Magnesium Carbonate (MgCO_3), Sodium Carbonate (Na_2CO_3) and Sodium Hydrogen Carbonate (NaHCO_3); industrial preparation, properties and uses of these chemicals; Nitric acid production; uses and properties of nitric acid; and the use of chlorine in sterilising water in swimming pools

The manual for the course indicated how the assignments were to be assessed but had nothing to say about the relevance of the material (and the course) to an engineering student. Of what use is essay writing to an engineering student? Are these assignments authentic for the engineering curriculum? The readings suggest that the broad focus of *English for Engineers* course was general science. The *English for Engineers* course only lasted for a year, as administrative issues took centre stage at the end of 2008. The Faculty of Engineering

indicated that they were not satisfied in the way the English for Engineers was offered and are not confident that the new module

would be effectively taught. They expressed concerns that the materials are not available to the schools for evaluation and no persons are put in place for the delivery of the module. There is no sense of ownership of these modules either by the Faculty of Engineering or Faculty of Humanities⁷.

The consequence of this dissatisfaction was the introduction of a new course called *Technical Communication for Engineers* (ENCH1TC).

6.3 *Technical Communication for Engineers (ENCH1TC): 2009 to date*

The problems of administration and ownership of the course resulted in a shift in perspective in 2009 when the course was absorbed into the Faculty of Engineering. An engineering faculty member was entrusted with determining discipline-specific tasks and assessment criteria. In the process, language specialists became responsible for the rhetorical and linguistic conventions of academic writing. Under these circumstances, the philosophy of teaching was drawn from a wide range of teaching and learning approaches, including the traditional lecture, peer to peer assistance, and small group sessions with an assigned tutor. The inclusion of the peer assistance was a significant shift from the initial course which depended mainly on traditional lectures and tutorials. The name of the new course was also changed from *English for Engineers* to *Technical Communication for Engineers*. The course drew on discourses of competence, ability and support, as indicated in the statement that its aim was

To develop students' discourse competence in Technical English with the intention of improving their ability to read a range of texts, to write genres important to Engineering students and to give oral presentations on Engineering topics. (Faculty Handbook, 2009 p. 88)

This aim has been restated in the Faculty Handbook each year since 2009. A shift in the focus from English language to technical English was signalled by engineering-related formulations such as 'research projects relating to engineering' and

⁷Extract from Minutes of the Teaching and Learning Committee Meeting for Engineering Faculty held on Monday 08 September 2008 at 13H00 in Unite Board Room. Faculty-wide Foundation Modules

'*Technical Communication for Engineering* is a practical course' (Course outline, 2009). Whereas the English for Engineering course had focused on a range of essays which could be written in any academic discipline, the new course focused on "practical experience of a number of different kinds of writing: Design Reports, Technical Reports, and seminar papers"(Course outline,2009). In its structure, the new course used a four-tiered model focussing on the design/experiment element, the structure of technical reports, technical aspects such as referencing and a language/grammar component. The design element represented a major shift in the course, reflecting an understanding that the main activity of engineers and engineering students is the practical creation/design of things, and that whatever they write should emanate from this focus (Perelman, 1999). This approach seems to correspond with Gee's (2001) notion of discursive identity and Lave and Wenger's (1991) legitimate peripheral participation, in that it puts the emphasis on providing students with opportunities to participate in the discursive practices of the engineering discourse community by doing legitimate, although not expert, activities.

Another tier in the course that has persisted over the years is the language/grammar component which focusses on teaching students about the use of articles, the apostrophe, tenses and sentence structure. Closer analysis of the course aims suggests that the grammar component was included in response to the likelihood that "a significant proportion of the students will not be EFL (English First Language) speakers while others despite having EFL may not have well developed critical and analytical skill" (Course outline). Thus the grammar component was included as a way of addressing a linguistic 'deficit'. In the subsections that follow, I examine the content of the course packs from 2009 to 2012.

6.3.1 Course reader: 2009 version

In 2009, students were expected to write a seminar paper⁸ on one of three topics;

- The advantages and disadvantages of bio-fuels
- How pyramids were constructed
- Why alchemists dream of transforming lead into gold

⁸ A seminar paper in the context of the *Technical Communication for Engineers* course is a literature review.

Nine readings were provided for the three topics, two for the first on bio-fuels, three for the second and four for the final topic. Eight of these articles were internet based from sources such as Wikipedia (2), chemistry.about.com (2), catchpenny.org (1), National Geographic (1), Inforplease (1), and the Touregypt website (1). There was one academic journal article. In terms of the discourse, four out of these nine readings had instances of first-person pronouns, symbolic of textual self-representation (Hyland, 2002b). I have mentioned in Chapter 3 that a significant characteristic of engineering rhetoric is 'objectivity' which can be defined as the absence of the agent. Simply put, engineering rhetoric is considered to be content prominent, rather than author prominent. Below are a few examples of the first-person occurrences in these texts:

"However, today we know that ramps were definitely used at least in some pyramids" (Winston 2008 in 2009 ENCH1TC Course pack, p.9)

"We know who built the Great Pyramid" (Brier, 2007, in ENCH1TC 2009 Course pack p. 10)

"In both (3) and (4) we have one more proton than before" (Chemistry.about.com, in 2009 ENCH1TC Course pack p.18).

"As we are ready to change, in dramatic and prolonged ways..." (National Geographic, 2007, in 2009 ENCH1TC Course pack, p. 3).

The students were also involved in a project to design a bubble blowing machine, from which two pieces of writing and a design report were expected to emanate. Seven readings taken from textbooks and the internet were provided to assist students with the design project. Six out of the seven readings had first-person occurrences.

"We can conclude from the circular shape...."(Duncan 1994, ENCH1TC 2009 Course pack p. 38).

"If we were to place an object with a low density..."(Byrd, 1999 in 2009 ENCH1TC Course pack P. 42).

"As children, many of us have blown bubbles...."(Internet extract in 2009 ENCH1TC p. 44).

“...this is the way that we blow bubbles ourselves” (Internet extract in 2009 ENCH1TC p. 45).

“So far we have talked about ‘driver’ gears...”(Ryan, 2001 in 2009 ENCH1TC Course pack p. 49).

“I find it hard to see any pattern” (Morgan, 1994 in 2009 ENCH1TC Course pack p. 60).

An experiment on heat transfer (measuring the rate of reaction when a potato is boiled) was also conducted, and students had to write a technical report based on the experiment. Again, five reading texts were included in the course pack for this task. In producing the reports, students had to follow a process of drafting and redrafting before they submitted the final drafts. Two out of the five readings had first-person occurrences:

“However, we need to be careful” (Zimmerman ud, in 2009 ENCH1TC Course pack p. 75).

“Consequently, if we choose a model we must accept its rate equation” (Levenspiel, 1999 in 2009 ENCH1TC p. 80).

An assessment rubric was provided for the drafting/redrafting process (2009 course pack, p.i): In the drafting/redrafting process, students would work with their tutors for the course, with writing consultants (in 2009) and/or with the Academic Development Officer. All of these practitioners were from the Humanities. The first drafts were to be handed in and comments made, although no marks were to be awarded at this stage. Students were expected to use this formative assessment to improve their writing of the final report. The final report was to be marked and graded using a rubric according to which 40% of the mark was allocated to the organisation of the report, language use and referencing and the remaining 60% was for content. No mark was awarded for the design itself. A closer look at all the readings for the course in 2009 indicates that they were taken from a range of genres including popular science articles, academic journal articles, textbooks and web pages. No technical reports were included.

6.3.2 Course reader: 2010 version

The course reader for 2010 followed the approach taken in 2009. Students had to write a seminar paper, a design report and an experimental report. One difference, however, was that this time only one topic was offered, on alternative energy sources, for the seminar paper that all students had to submit. The seminar paper also served as the basis for the oral presentation. Nine readings were provided for this topic from a range of sources such as online databases, online magazines, journal articles and textbook extracts. Regarding discourse, two of these nine readings had instances of first-person pronouns. The design required students to make a floating concrete boat – a project which linked the physics of density and displacement, drawing on a number of principles that students had encountered in high school and in first-year Physics at university. Three extracts from popular Physics textbooks such as Abbott's *Physics* (1989) and Duncan's *Advanced Physics* (1994) were included in the course packs. These two texts also had instances of first-person pronouns, usually in explanations of fundamental and proven scientific theories or in the elucidation of processes. Below is an example of a fundamental scientific principle being explained, taken from Duncan (1994) in (2010 ENCH1TC Course pack p. 53).

“We can say

Volume of liquid column = $h \delta A$

Mass of liquid column = $h \delta A \rho$

Weight of liquid column = $h \delta A \rho g$ ”

Two further examples of processes being explained are from Abbot (1989) in (2010 ENCH1TC Course pack p. 60 and 64).

“Suppose we have measured the relative density of a liquid as described above and found it to be 0.8. If we now assume that 1 cm³ of water has a mass of 1g, it follows that any volume of water is numerically the same as its volume in cm³”.

“We weigh a sample of the solid, first in air, and then in water”.

The textbook extracts used for the design project were supplemented with two articles from the internet on concrete and the chemistry of cement, which also had instances of first-person pronouns. The experimental report also drew on physics;

students had to investigate the physics (mainly the concepts of motion, friction and momentum) of any item of playground equipment such as a see-saw, slide, or roundabout. Five readings were provided (drawn from Physics textbooks) useful for investigating these playground items. All of these texts had instances of first-person pronouns, as shown in the following examples:

“Expressing this relation in the form of an equation, we have $f = \mu N$ ”
(McCormick, 1969 in 2010 ENCH1TC Course pack p. 106)

“Because the net force on the box is the force of our push minus the force of friction, it is always less than (or equal to) to the force we apply,” (Beiser, 1978 in 2010 ENCH1TC Course pack p. 112).

“Referring to Figure 4.11 we observe that point P travels a distance of $2\pi R$ in time T,” (Stevenson and Moore, 1967 in 2010 ENCH1TC Course pack p. 125).

The 2010 course reader also included an extract from a manual on technical report writing and included grammar and linguistic items on the passive voice, articles, the apostrophe, tenses and sentence structure. Technical aspects such as how to use MS PowerPoint were also added to the course content.

6.3.3 Course reader: 2011 version

The 2011 course reader incorporated some new structural aspects. There was a schedule of lectures and tutorials which indicated what would be covered in each, and dates were given for completion of each stage of the students' assignments. Also included was advice on how to conduct literature searches, which turned out to be a significant portion of the course pack, taking up about seven pages of the 28-page manual. The readings for the course, five in all, were put in the appendices. One out of these five readings used first-person pronouns in setting out aims, processes, assumptions and findings:

“Our aim with this study is to generate from...”

“We analysed the frequency of proximate causes...”

“Our findings reveal that prior studies...”

“We assumed that each study revealed the actual causes...” (Geist and Lambin, in 2010 ENCH1TC Course pack pp. 43-44).

The written activities consisted of three written reports, a seminar paper, and a design report, all integrated into the final experimental report. The topic for the report was solar cookers. The first drafts of both the seminar and design report were attached to the experimental report as appendices. For the first time in the history of the course, the oral presentation was based on the design and experiments that students had conducted rather than presentations based on the seminar papers, which were basically literature reviews.

6.3.4 Course reader: 2012 version

The reader in 2012 made an interesting shift, although the basic structure remained the same. The four-tier approach was retained, but this time linked to team-based assignments. Students were required to work in groups in both the design of the prototype (a charging device operating on renewable sources of energy) and in the writing-up of the technical reports. This meant that just one written report was produced by each group at each phase of the writing process. The first piece of writing that students had to produce was a two-page project proposal. This was followed by a literature review to be submitted to the tutor, which would then eventually be incorporated into the final report to be submitted to the course coordinator. In keeping with environmental good practice, no hard-copy version of the course reader was provided; instead, all course materials, including lecture notes, could be accessed through the Moodle learning website. Just a single reading, on electronic waste, was included on the website. As in previous years, this reading also had instances of first-person pronouns.

“In the present study, we review the challenges....”(Osibanjo and Nnoran, 2007 p. 4 in Online ENCH1TC 2012 Course pack).

“In our ever-changing technological age...” (ibid p. 5).

Students were expected to read this article in preparation for the reading comprehension test in week eight of the semester: guides on how to do literature searches were also included on Moodle. Very questionably, over the four years, none of the readings that students were exposed to in the course reader resembled the texts (technical reports) they were expected to produce. This would seem to

have ignored the advantages of using authentic genre material for readings in the teaching and learning of academic literacy. Authentic readings accustom students to reading technical reports as writers of reports themselves. Beginning to notice how these texts are constructed, students learn to use the writing conventions and technical aspects as they negotiate and interact with the text, rather than merely listening to tutors explicitly telling them 'how to'. Figure 6-1 provides a comparative analysis of the four course packs from 2008-2012.

Figure 6-1 Analysis of course readers

	English for Engineers (2008)	ENCH1TC (2009)	ENCH1TC (2010)	ENCH1TC (2011)	ENCH1TC (2012)
Author	Academic literacy specialist working within a Science Foundation programme	Engineering academic and language specialists	Engineering academic	Engineering academic	Engineering academic
Audience	Students	Students	Students	Students	Students
Purpose	Resource pack for students	Resource pack for students	Resource pack for students	Resource pack for students	Resource pack for students
Benchmark knowledge	Essay writing using scientific texts Designing posters Oral Presentation on scientific topics Feasibility report	Seminar paper Design: a concrete boat Experimentation: Heat transfer- Oral presentation Reading comprehension	Design: a bubble blowing machine Experimentation: the physics of playground equipment	Design: a solar cooker Testing and of the solar cooker	Design: a charger that operates on non-renewable, recycled, repurposed or re-used material Testing and of the charger
Listed outcomes	None listed in course reader. Listed in course Template	Engage with and reach comprehension of scientific and technical literature (drawn from textbooks, journals and reports) at elementary university level. Critically analyse scientific and technical literature at the elementary university level. Synthesise information from several references. Subsequently construct a coherent, persuasive and appropriately referenced argument. Present information under the genres of technical report (design) and technical report (experiments), seminar paper and oral presentation (including oral presentation). Present information in grammatically acceptable formal technical English. Present information in acceptable oral style. Reference sources of information appropriately.			

This section presented a descriptive analysis of the course readers. I have already mentioned that from a critical realist perspective, a descriptive analysis represents surface appearances of the data. The purpose of this study, however, is to uncover depth reality, for which analysis must move beyond surface scratching of reality (Plummer, 2001 p. 4) to a position where the researcher offers his or her own interpretation of the data. As Miller and Tsang make the point, “Rather than focusing solely on empirical outcomes, critical realists seek explanations for contingent relations, understood in terms of causal mechanisms” (2010 p. 145). This is done by identifying those discourses that are perceived as having the power to produce the experiences described (above) at the level of surface appearance. As I mentioned in Chapter 5, this requires a reinterpretation and or re-contextualisation of the empirical observations using one or another heuristic (Danermark *et al.*, 2002). The heuristic used in this study is prior theories on related phenomena. This re-interpretation is done in section 6.4, which follows. A similar approach is adopted throughout this chapter, where for each subset of data, discourses are identified which are considered to be causal mechanisms. The purpose of this identification is to prepare for the analysis that will be done in Chapter 8, where the relationship between these discourses and social exclusion is made clear.

6.4 Discourse that reduces academic literacies to English language proficiency

Overall, the data presented in this chapter so far highlights the dominance of the *English language proficiency discourse* in the teaching and learning of technical communication. This discourse is manifested in a number of events. One such event is related to the initial academic literacy course which was called *English for Engineers*. Although the *English for Engineers course* was not the focus of this study *per se*, its inclusion is important as it provides the context in which the *Technical Communication course* was introduced. Fairclough (1995 p. 11) advises that in studying discourses should focus on the “historicity of discursive events by showing both their continuity with the past and involvement in making history”. In other words, for Fairclough, historical background is important to understand the inner workings of current discourses. As the introductory academic literacy module in the School of

Engineering at UKZN, the *English for Engineers* course provides the basis for understanding the perceptions of academic literacy within the school.

The focus on English was not coincidental. Rather, it mirrored the widely held belief in academia that equates academic literacy with English language proficiency (see Boughey, 2000). This is also a common feature of the English for Specific Purposes perspective which is concerned with the teaching of the English language for whatever purposes maybe defined. In this approach, the teacher explicitly presents the discourse structure and linguistic forms needed for students to achieve the communicative purpose of the task (Hyland, 2003). While the key word for such an approach would be the notion of appropriacy (see Ivanic, 2004), the English for Engineering course failed to address this. As the data in section 6.2.1 indicated, the focus of this course was general science. Grasso, Callahan and Doucett (2004 p. 412) argue that engineering is often classified together with science, mathematics and technology because it is believed that “the pedagogy beneficial to these groups (Science, Maths and Technology) is beneficial to all”.

While it is true that knowledge of science is essential in the engineering curricula, there is a crucial distinction between engineering and science. Perelman (1999) suggests that engineers do not produce abstract knowledge; rather they produce artefacts that are meant for consumption. He further states that it is this concern with production and consumption (i.e., the design process) that differentiates engineering from science. By logical extension, the rhetoric of engineering is more extended and needs to incorporate engineering design. This suggests that design process writing in the form of a technical report would have been the purpose which the course should have satisfied. Instead, the focus was on essay writing, feasibility reporting and poster design. The topics for these texts were, as already noted, general science topics (see section 6.1.1, on page 124). Thus, an assignment on general chemistry in the English for Engineers course was ‘inappropriate’ for an engineering student. More problematically, the course professed to be operating within a “literacies approach rather than a skill based or ESL approach” (Guide for teachers of Technical Communication, 2008 p.1), yet the skills dimension still seemed to be prioritised where one would expect the discourse to focus on socially embedded literacy practices (Street, 2005; Gee, 1996). From a realist point of view, this

demonstrates the disjuncture that can exist between espoused beliefs and enacted beliefs, thereby providing justification for a study that analyses both as levels of reality.

Another signifier of the discourse that conflates technical communication with the English language is found in the aims of the new course, *Technical Communication for Engineers*. The course outline explicitly notes that “a significant proportion of the students will not be EFL (English First Language) speakers” (Course outline, 2009-2012). This suggests that students have already been administratively categorised as social subjects before they have even started learning. Inherent in this understanding is the acceptance of language proficiency as the major factor militating against academic literacy development. The stated aims of the *Technical Communication* course use similar phrasing: “...while others despite having EFL may not have well developed critical and analytical skill”⁹ (2009-2012) Course outlines, making it clear that language is considered a major differentiating factor in learning. While it is true that discourses that distinguish students according to linguistic and or cultural backgrounds mirror the discourse related to identity categories applied to students in Historically White Universities (HWUs), (Moore *et al.*, 1998), such labelling is not without its own problems. McKenna (2004a) suggests that such naming practices are used to depoliticise the issue of epistemological access by removing the apartheid mentality which attributes educational challenges to differences in cognition between black and white students. By doing so, true interests and injustices are concealed (Mckenna, 2010 p. 11) while the discourse lends itself to a narrow and racialised view that academic literacy is only a problem for the Africans (Thesen and van Pletzen, 2006). Such a view of students and of academic literacy is simplistic and, as the discussion in section 6.6 will reveal, has unfortunately helped to perpetuate the notion that solving surface language problems such as syntax will lead to improved academic performance in students (Jacobs, 2010a).

Having discussed the findings emerging from the analysis of documents, the next subsection focuses on another set of data located at the level of empirical reality, the interviews.

⁹Repeated in all course outlines from 2009 to 2012.

6.5 Interview data

Three categories of interviews were conducted: with students, with tutors and with two engineering academics (the course coordinator and the academic responsible for teaching and learning in the Faculty). Although there were a number of question items in each of these interview categories, they could all be categorised under the following broad themes (i) tutors', students' and engineering academics' perceptions of technical report writing, (ii) tutors'/academics' perceptions of students, (iii) tutors' and students' perceptions of the *Technical Communication for Engineers* course. The discussion in this section focuses on the broad themes rather than the individual questions.

6.5.1 Tutors' perceptions of technical report writing

When asked about their views concerning technical report writing, all the tutors interviewed acknowledged the rhetorical differences between technical writing and other forms of writing, especially in the humanities. Some of their responses to this broad theme are as follows:

Tutor 7: Well, *coming from the Humanities*, this was my first time teaching on the course, so *technical report writing was rather foreign to me*. But what I understand it to be is that it's got to be *clear, precise formal um to the point* and ummm, in a *specific format* that the the report has to come out right. It's got to have a specific format.

Tutor 9:technical report writing, you are *using the data mainly* uuuummm *rather than in humanities referring to authors and direct quoting*. In technical writing, you're not reporting, you just using the data and summarising and paraphrasing and uuuh so *that is quite a big distinction* and also *where we are allowed to use 'I' or 'we', they are not allowed to*, we are allowed to. So it's got to be objective so which *was something new for myself but also something I had to instil in the students*.

Tutor 3: Ok, *technical writing is very different*, writing reports and things like that, than writing stories, creative writing or letter writing or business writing. *There is a specific format for technical writing*.

These responses from tutors suggest that they see technical report writing as fundamentally different from other forms of writing, mainly in relation to technical

aspects such as format and objectivity (mainly use of passive voice). All the tutors also acknowledged the fact that technical report writing was something new to them yet they had to *instil* it in the students. This understanding presents a flawed understanding which supposes that it is the teacher's duty to deposit knowledge in the student's mind (Freire, 2008). More specifically, it highlights the belief that students are *tabula rasa*, or in 'deficit', waiting to be filled with academic literacy proficiency. The focus on the technical aspects of report writing is characteristic of the skills discourse (Lea and Street, 2000; Ivanic, 2004) which is believed to dominate education policy. Underlying this discourse is the perception that student writing consists of technical skills and instrumentalised atomised skills such as syntax, grammar, spelling, structure and formulaic language (Lea and Street, 2000). Hence these are taken as the starting point in teaching and learning. It is also important to note the distinction made particularly by tutor 9 which relates to the production of artefacts in both engineering and humanities. Tutor 9 states that in "*technical writing, you are not reporting, you are just using the data and summarising and paraphrasing*" in contrast to writing in the humanities where there is more focus on referring to other scholarly work. This suggests that technical communication is perceived by the language tutors as "eminently practical, constituted solely of facts and devoid of imagination and creativity" (Perelman, 1999, p. 65). Technical writing in this sense is not considered writing *per se*, but simply the "transparent transmission of natural facts" (Bazerman, 1988 p. 14). Simply put, this shows tutors' inability to recognise the complex and rich discourse conventions inherent in technical report writing rhetoric.

6.5.2 Tutors' perceptions of students

I also made an assumption earlier that teachers' perceptions of literacy influence their perceptions of students. In this section, I describe tutors' perceptions of students. The major finding related to this broad theme is that tutors acknowledged the existence of unsuccessful writing by students. Unsuccessful writing was mainly described in terms of 'standard of English' and related concepts like grammar, sentence construction and technical aspects like formatting, and referencing. These are some of their responses:

Tutor 3: Well, *their standard of English is abysmal* in most cases and I often ask, start off by asking students what their grades were for English and *they are very corky, they all got As*, they were wonderful *but when it comes to writing, even simple sentence construction, use of a passive voice* ah, I can't remember the things, you know the actual language, the actual grammar, *it's not very good*.

Tutor 7: Uhuh, well, *my experience with the students is that I did not have any UNITE group. I had a Chem Eng and a Mech Eng group, and I found the students to be reasonably grammatically um, sort of satisfactory,so* in terms of their writing skills they weren't poor but they were very informal, they were very first-person style, often incorporated a lot of slang, colloquialisms, sms talk that kind of thing so. *And they often didn't follow instructions, so if you asked them to put certain information in certain sections they just totally disregarded that completely*.

Tutor 9: oh, gosh um , *I'm not too sure if they have had experience with technical writing. So, a lot of them are trying to be creative in a sort of English form like they used to do in an argumentative essay or even creatively when they are writing, trying to express whatever thoughts they have and.. They can't do that*. And they seem to make that mistake of putting their sort of expressive language through where it's supposed to be technical, so, that's interesting and some of them even at the end of the course battle realising that they should be objective and they can't do that or they find difficulty doing that.

Tutor 10: We teach *first year students so they are just out of school and very inexperienced* when it comes to academic scientific writing. They have to learn many things including organising and referencing in detail.

These responses suggest that tutors did not perceive students' writing to be in conformity with university norms of acceptable writing. In the second comment, Tutor 7 makes reference to UNITE students and presents them as fundamentally different from the other engineering students in terms of their ability. The UNITE programme at the University of KwaZulu-Natal was developed to provide access to students from historically disadvantaged schools in South Africa. These students are deemed to be fundamentally underprepared for learning. This comes out saliently in the comment from Tutor 2. The above comments also reveal the belief that technical report writing is a 'problem' that is predominantly textual and directly related to English language proficiency. However, tutors also indicated other reasons that they felt were causal

factors for the 'unsuccessful' writing by students. Some of the comments are listed below:

Tutor 3:*Some of them resist and persist in making the same mistake over and over again. Referencing for example, is a, is, it's not difficult to grasp because I give them examples of how you reference, citation and things like that and even though they read the examples and I go over and over and over, they still come up with...*

Tutor 5: Well, like I said, they are not familiar with it, they haven't read a lot of this style of writing.... and you know what, *the social media, social networking, texting, all of that it does impact on the style of writing.*

While Tutor 5 was quick to cite other semiotic domains such as social networking that influence student writing, explanations for students' 'resistance' and 'persistence' in making the same mistake (Tutor, 3) were provided through the discourses of 'discipline and responsibility'. Tutor 7 reiterated the sentiments expressed by Tutor 3 and felt that students *"often didn't follow instructions, so if you asked them to put certain information in certain sections they just totally disregarded that completely"*. She further attributed these actions to what she termed a lack of 'work ethic', suggesting that students have a moral obligation to behave in a certain way that is acceptable in the academy, while Tutor 3 felt it was a *"matter of discipline"* which was *"lacking in the whole country"*. The major problem with such a perception is that it fails to take into account other factors that might influence students to behave in the way they do. For instance, it is possible that what was perceived by the tutor as a simple case of students not following instructions could as well be a case of students not understanding these instructions.

While the above excerpts assign agency in learning to the students, highlighting issues of self-discipline and resistance, tutor 8 was more critical on this point and reminded me that it was unfair to talk of engineering students as technical writers, a status which denotes expertise. This is what he had to say:

Tutor 8: I don't think it's a fair question. *I think that the idea that you can rate someone as a technical writer when they have no conception of what technical writing is, turns out the exact same problem turns out in humanities when people are like, "how do you get them to think critically, how do you get them to do a critical analysis" ...*

In the next subsection, I describe students' perception of technical writing and themselves as revealed in the interview transcripts.

6.5.3 Students' perceptions of Technical Report Writing

A total of 24 students were interviewed in this study. Seven students were interviewed individually and the remaining 16 were interviewed in their design groups. The group interviews consisted of four to five students, and can therefore still be considered simply as interviews rather than focus group interviews. The rationale for interviewing students in their groups was to get their collective understanding of working together, since the whole course was designed around the notion of group work. These students were interviewed during the semester that they were taking the course. Of the individual interviews, three students were interviewed a semester after they had completed the course, one, two semesters late, and the remaining four three semesters after the course. The purpose in interviewing students who were at different levels of study was twofold. First, these students had done different projects in the course. Second, I wanted to find out whether students who were doing technical report writing in their second and or third year felt the course had prepared them for the writing they had to do in subsequent years. Figure 6-2 provides the biographical data for the students who were interviewed.

Figure 6-2 Profiles of students interviewed

Student	Level when interviewed
Student 1	First year, semester after completion of Tech com course
Student 2	First year, semester after completion of Tech com course
Student 3	First year, semester after completion of Tech com course
Student 4	Third year, four semesters after completion of Tech com course
Student 5	Third year, four semesters after completion of Tech com course
Student 6	Third year, four semesters after completion of Tech com course
Student 7	Second year, two semesters after completion of Tech Com course
Student 8	Second year, three semesters after completion of Tech Com course
Student 9	Second year, three semesters after completion of Tech Com course
Student 10	Second year, three semesters after completion of Tech Com course
Student 11	Second year, three semesters after completion of Tech Com course
Student 12	Second year, three semesters after completion of Tech Com course
Students 13, 14, 15 and 16	First year (group interview), during the semester they were taking the Tech Com course
Student 17, 18, 19 and 20	First year (group interview), during the semester they were taking the Tech Com course
Student 21, 22, 23 and 24	First year (group interview), during the semester they were taking the Tech Com course

One of the themes that emerged in the data is that students drew their understanding of technical report writing both from the way the course was structured pedagogically and from the learning activities that they had to engage in.

Student 1: Well uhh, *from what we did*, it's just a report of some, like an experiment, something that you carry out as an engineer or yah, *I think so that what we did, we did a report on an experiment that we carried out.*

Student 2: I think it's being able to write in a language according to the profession you are going to choose and not just writing formally, anyhow, but being able to communicate in scientific terms.

Student 3: It's about, say you do your research, then say you do the experiment, then you have to write like the introduction on the topic itself, the project that you doing, then the results, then the discussion. But the most important thing is the results and discussion.

Student 7: Um, yeah, *it's just another form of communicating..expressing your ideas to other people... and another form is engineering drawing....*

Student 13: Actually, *we kind of figured it out, it's more like a presentation where you've to market your prototype, you are selling it to manufacturing company trying to impress them so that they can manufacture your product.*

Another student who was in his third year of study added another view related to his understanding of what technical report writing is. This is what he had to say:

Student 4: Ah *well what I got from what we did*, is that, ah, basically the, *we learning on how [ah sigh] to communicate with each other in terms, in engineering terms and in an engineering manner, so that when we are in the industry we can*, ah, if we are having a discussion with somebody or if we are writing something down or whatever, *we know how to relay information to fellow engineers*. Cause I think the way we, the way you communicate, whether its orally or written with an engineer is different from the way you communicate with a friend who is not an engineer or a doctor.....

Five conceptions of technical report writing emerge from the above excerpts. For student1, technical report writing is about reporting on a process, while student 2 sees it as use of language characteristic of English for specific/academic purposes. Student 3 takes it from the point of view of the structure of the course, while student 7 sees it as one of the many ways of communicating engineering knowledge. Student 13 considers technical report writing as a marketing strategy while student 4 takes a broader perspective that looks at the relevance and need for acquisition of discourse to gain membership in a discourse community. It is also clear from the above that students drew their conceptions from their experiences in the course, hence the use of phrases like '*we kind of figured it out*', '*from what we did*' or '*what I got from what we did*'. This just goes to prove that indeed academic literacy is situated and contextual. Indeed, students' learn by doing and being. Difficulties arise, however, when the context and approaches to teaching and learning do not provide students with opportunities to fully engage with the discourses in their discipline of choice.

Students also indicated that at first they were not comfortable with technical writing as a representation of engineering knowledge. Examples of comments related to this idea are as follows:

Student 1: *I took it as an English subject*, so that's what it seemed like to me and at the beginning I was a bit sceptical about my marks.

Student 4: *Back then, we were just doing the Maths and the Physics, we didn't have to do any of the stuff, we were more like, Ah, we took it for granted so to say.*

Student 14: *Our brains are set on calculations and what not, when it comes to writing and English it switches off for the meantime.*

Student 15: *Well it was frustrating at first cause I liked English but I thought English was over from school, so just to write again it was pretty tough*

It is clear from these excerpts that the engineering students interviewed in this study did not see writing as something that they had to do as engineers. It was not a central activity of 'being an engineer' (Perelman, 1999 p. 65). However, their perceptions seemed to have evolved as time progressed and they realised that it was a necessity for an engineering profession. Students have also indicated that they have seen the need for the course much later in the academic life, in second or third year when they have had to do technical report writing.

Student 1: *....well throughout the years or throughout the 4 years, I think we are going to be a lot of doing report writing in some of our modules so by us having this module in the first semester it helps us to gain knowledge that we would require write those reports, the formatting, everything so it's gonna be useful (student interviewed one the following semester)*

Student 4: *Now we are faced with a situation where we have to do prac reports and um, it's difficult, I wouldn't say difficult, but you are expected to do things in a certain way, which I am, which I am pretty sure Technical Communications tried to prepare us for, on which it did on some level, but... since we were back then, we were just doing the Maths and the Physics, we didn't have to any of the stuff, we were more like, Oh, we took it for granted so to say.*

Student 14: *I never thought it was important the first few days ..until we realised this is going to help us in future even if the lectures end this semester as Dr xxxx said we will use report writing.*

6.5.4 Students' representations of the self

Students' perceptions of themselves in the context of academic literacy were also sought through interviews. Various representations of the self emerged. On the one hand there were students who saw themselves as categorically able to cope and hence not in need of any academic literacy development. For these students, taking

a course like *Technical Communication for Engineers* was seen as a waste of time, and was a view reinforced by some of the teaching agents. However, there were some students who, while acknowledging their knowledge of 'English' or 'writing', were also aware that that 'knowledge' was not enough to enable them membership in the engineering discourse community. The two comments below highlight this theme.

Student 4: Well, I am, *I am pretty good at writing ...my English is pretty good, but the, my technical report writing, I don't think was that good because I had never really done before.*

Student 5: my writing was mostly, it was ok, *I wrote mostly in essays, English essays and well I got good marks,...* I think my writing was... it was just fine *but it wasn't the report writing, it was essay format.*

There are also students who have been made to question their abilities and to accept their perceived 'deficiencies' as revealed in the following comments.

Student 1. *Well I know I am not a good writer like from high school.*

Student 16: *From my side it was quite hard since like, I was from high school, I was doing like second language so here like they needed more of like Home language...*

It seems as if students 1 and 16 have internalised their identities as 'incapable' writers, or 'English second language learners' and they portray themselves in a deficit model. This finding can be best explained in the light of the socio-cultural and educational realities in South Africa, which were "largely shaped by the inequitable distribution of resources in apartheid South Africa" (Starfield, 2002 p. 122). Walker and Badsha (1993) refer to this education system as the wastelands of apartheid because it was only meant to produce a subservient people who would be useful to the apartheid state (Boughey, 2012; Bengesai, 2010). Starfield (2002) also cautions that successful acquisition of academic literacies does not exist outside of the socio-political context in which it takes place. Thus, it is closely related to issues of identity and also has a social relation (Maton, 2010). It is not surprising therefore, that Students 1 and 16, who are both African students, did not regard themselves as successful, but rather framed themselves in a deficit mode. Yet it is significant in terms of this study since it highlights how membership is determined by access to codes that might not be available to these students. And as Mckenna (2010 p. 9)

puts it, “there is a high chance that such students will keep using literacy practices that are unacceptable” and will eventually be counted among the failures. This situation is worsened when access to the acceptable codes is mediated by Humanities tutors, who are by nature outsiders to the discipline and have probably not acquired the necessary academic literacy practices themselves.

However, Student 3, another African student, had difficulty accepting this identity as revealed in the following excerpt.

Student 3: At the beginning of the semester *I thought I knew how to write a report, but when I got my marks for the first seminar, no, but the report, I realised that I um, I am not a good writer, I don't know how to write a report..... It was difficult for me to accept that I do not know how to write a report.*

The same sentiments were also expressed by student 7 who said:

Student 7: *I thought I knew at the beginning but um after attending the course [I realised that] it was not much did I know... use of language, I thought I was good at using the punctuations, commas and full stops...*

It is clear that student 3 and 7 did not perceive themselves in deficit mode as did students 1 and 16. These students were confident that the literacies they had acquired prior to coming into the university were adequate to enable them to handle the curriculum, only to find that this was not so. To succeed in this course, these students had to reinvent not only their perceptions of themselves, but also their literacy practices. In other words, they had to negotiate their identities to fit the academy. This is definitely not an easy thing, hence student 3 emphasises, ‘*[it] was difficult for me to accept that I do not know how to write a report*’.

6.5.5 Engineering academics’ understanding of Technical Report Writing

In this category, only two engineering academics were interviewed. These academics were purposefully selected because they were directly involved with the course as the course coordinator or indirectly in terms of administration and management. In my view, these academics would provide an insider perspective of the place of technical report writing in the engineering curriculum and would provide

an interesting comparison with tutors who came from a different discipline and students who were newcomers to the discipline. This is what they had to say:

Lecturer 1: *Tech Com starts, it's the first step in two directions. First is in ECSA exit outcomes of professional technical communication, oral and written communication. The second function of the course is around academic literacy to start students who may come from all kinds of backgrounds, to start students on a path of being able to understand academic texts....so it's a fundamental course in building onto, onto the whole degree programme.*

Lecturer 2: *Ok well, in engineering as a profession, ... you do get a lot of technical reports to write and to read um, and so it's very necessary to have the skill to be able to achieve , to be able to produce an engineering report. So we needed to find an actual programme because we found that our students weren't able to write these reports based on the required outcome.*

ECSA is the accreditation body for engineering professions and hence plays an integral role in determining what appropriate knowledge is. As a result, Engineering Faculties across the country have an obligation to include this knowledge in their curricula for them to remain relevant. The engineering academics interviewed in this study saw technical report writing as professional discourse, an integral part of what engineers do. The second excerpt also indicates a realisation that technical writing is a semiotic system which represents engineering knowledge. This is in stark contrast to perspectives coming from tutors where technical writing is considered as an instrumentalised technical activity of writing, rather than a form of representing knowledge and of gaining membership into a discourse, that is a way of becoming part of a discourse. Figure 6-3 provides a summary of the dominant perceptions of technical communication drawn from the language tutors, students and the engineering academics.

Figure 6-3 Summary: perceptions of technical report writing and of students

Category	Students	Tutors	Academics
Perceptions of technical report writing	Technical writing is reporting a process of what you have done Technical writing is a way of communicating with fellow engineers.	Technical writing is different from other forms of writing in terms of structure and use of language Technical writing is factual Technical writing is objective Technical writing uses data to make a point	Technical writing is a professional activity, Technical writing is a requirement for professional accreditation
Perceptions of students	I thought I could write I thought my English was good I am a second language speaker I can write essays but technical report writing was new to me.	Students writing is significantly unsatisfactory Students who come from good schools tend to write better Unsatisfactory writing is often a result of not following instruction Students lack discipline, they don't have a good work ethic Student resist instruction	Students need technical writing because they 'battle' with academic writing'

6.6 Perceptions of the *Technical Communication* course

In this section, I consider the perceptions of students, tutors and engineering academics concerning the *Technical Communication for Engineers* course. I look at both the positive and the negative comments that emanated from the interviews with students and tutors.

6.6.1 Students' perspectives

The adequacy of the *Technical Communication* course in equipping students with the necessary skills was another discursive theme that emerged from the data. Responses from both students and tutors were mixed, with some suggesting that the module was achieving its purposes and others indicating shortcomings. Students who thought the module was achieving its purposes used their perceived success in executing the activities they were given in the module as a measure, while those who thought it did not meet their needs focused on their needs for the degree as a whole. Moreover, while students who had recently completed the module thought they had benefited from the module, students who were in their second or third year, where they had further report writing to do, felt the course had not adequately prepared them to handle this kind of writing.

Positive comments:

Student 1: I think *it's a good module to start off with in the beginning* because umm, we will obviously be doing report writing, I am sure it does help you, gives you a head start, when you get to that point you have an idea of how to do about writing

Student 2: Well, *I think it was very helpful because it introduced us to a different writing style that I never thought of.*

Student 14: *I think it's a very important course because it teaches you like more in-depth how to use language skills as an engineer....to speak well and um, write reports, that's one of the main things we do as engineers.*

Negative comments

Student 5: *the only problem is that they introduce it to us very early, while we not even, like first semester first year, we are still finding our feet.....if they were to introduce it to us maybe first year second semester to get us ready for second year, because second year is when we write reports, most importantly if we start with like second year semester two that's when we like really start report writing because second year first semester we don't really write even if they give it to us , first semester second year it will still be fresh in our minds.*

Student 4 and student 7 reiterated these sentiments regarding the adequacy of the course:

Student 4: Oh well, *I think, we didn't do it for very long, so I don't think we got much out of it, but doing eh, engineering modules now, I can see where it does come in* because now we have to do report writing , than we did then. Back then we just, we took it for granted as first years because we were at, we were at that stage where we thought we are never gonna use this, because we didn't use it then.

Student 7: ... *there is a time period between the the time in which I was taught Tech Com and the time in which I need to actually apply the knowledge I acquired during the Tech Com..*

The sentiments that students 4, 5 and 5 raise are very significant. They problematise the justification of 'stand alone' academic literacy courses which are separated from the content subjects students are doing at any particular time. They also raise a similarly important question about whose purposes are being achieved by providing the course in the first semester of the first year when, as the students said; they were just doing Maths and Physics (Student 4) and their brains were set on calculations

(Students 14 and 16). Other comments related to the course were focused on the tutors and the way in which the tutorials were structured.

Student 4: *I think it would have been better if we had engineers that took us for engineering... I remember we had a lecturer called xxxxx, he took us, and he wasn't really in tune with the whole engineering part of it, and he was not in tune with the manner in which, the way in which we had to, ah I think,... we didn't learn as much as we could have in terms of what to write instead of how to write. I think it's more important for us to know what to write than how to write.*

Student 5 [the tutorials]:.....*they were uncomfortable cause most of the time the tutor would be speaking and we were listening.*

Student 13: Well, um *some of us didn't really go for the lectures...It's kind of boring though, it's not nice... you do fall asleep.*

Student 4 raises some very critical issues concerning the pedagogy of the course, in particular the approach that is used in the tutorials. It is clear that the tutor's unfamiliarity with engineering discourse did not escape this student's attention, raising another question: who owns the discourse in the *Technical Communication course*? The language tutors or the engineering students? Student 4 clearly makes a distinction between 'they' (language tutors) and 'us' (engineers/engineering students) when he says "he [the language tutor] was not in tune with the ... way in which we [engineers] had to ... think". Student 5 highlights another critical issue concerning the pedagogy of the course. Her comment suggests that students were reduced to the role of audience in the tutorials with the tutor doing all the talking while students observed and listened. Unsurprisingly some students interviewed saw the role of the tutor as "*transferring their knowledge to us*" (student 3); or to give "*hints on how to write the reports like the conclusion, abstracts, introducing us to abstracts*" (student 2). From a Freirian point of view, one can argue that these students were reduced to *comatose receptors* of academic literacy information, mere objects who have no say in what and how they learn (see Freire, 2008). This has implications for the way in which students acquire academic literacy, as they do not get to learn on their own terms.

6.6.2 Tutors' perceptions of the adequacy of the course

From the teaching side, tutors too made a variety of comments related to the adequacy of the course. These comments related to the length of the course, the content of the course and their role or agency. With regard to the length, there was an indication that the course was too short and hence could not address all the 'deficiencies' that students had. A longer course would mean more grounding in grammar and technical aspects of report writing. These are some of the comments from the tutors:

Positive comments:

Tutor 9: *They all have an idea even if it's just a basic idea that an executive summary is a summary of your main finding as shortly as possible they have done it, they have an idea, and something they would never have been able to do if they didn't have the course.*

Tutor 7: *I think it's a well-designed module and definitely, I'm not sure if you have looked at previous years i know that even though I didn't teach on previous years but the what do call it, the course guide was much much much longer and I think the way we, it was changed so that all three writing or report writing focused on the same topic of the solar cooker I think that was an excellent improvement cause there were five readings in the course guide and I think that was more than enough for students at first year level cause they were supposed to do some of their own research....*

Tutor 5: *When they complete it, I suppose it has improved because even in class when they speak I tell them, I remember last week, the one guy says, he said, the one guy was talking about pollution and the other guy just said it's not clean, so from the class the tutor has to correct them and say refer to it as pollution, so use these terms, get familiar with these terms.*

Tutor 10: *Students do come out with better writing skills. They have an idea about referencing and editing their work to be much sharper and shorter. They also learn how to construct much better sentences which forms the basis of any academic essay or report.*

Implied in Tutor 9's comment is the idea that the *Technical Communication course* provides students with a 'basic idea' of what technical communication is. This basic idea is also described in terms of rhetoric conventions such as 'how to write an executive summary'. Whether, such knowledge, that is writing an executive summary, is what tutor 9 considers to be central in engineering writing is not clear. However, since this is the only example that was given to describe the adequacy of

the course it suggests that this knowledge takes priority in the mind of the tutor. Tutor 7 looked at the adequacy of the course from the point of view of the design of the curriculum and materials for the 2011 course, which she felt was well designed because it provided students with just enough reading material to allow them to do further research on their own. Only five readings were provided in 2011 as compared to 21 in 2009. However, students' technical reports (from 2011) that were analysed indicated that students did not use any other material besides what was provided in the course pack. This turns the comment by Tutor 7 on its head in showing that perceptions of curriculum developers or practitioners about the behaviours that students should exhibit are not necessarily reducible to events (i.e., what students actually do). This is a critical realist ontology that supposes that the three domains of reality, though interrelated, are not necessarily reducible to the other (Sayer, 2000). For Tutor 5, the adequacy of the *Technical Communication course* was best described in terms of the 'improvement' that students demonstrated as a result of the correction or input from the tutor. Hence, for this tutor, students are successful at the end of the course because they have been filled with academic literacy knowledge by the language tutors. The last comment by Tutor 10 is related to writing skills. She suggests that students come out with better writing skills, have an idea about referencing and self-editing, and can write good sentences '*which forms the basis of any academic essay or report*'. It is interesting to note how none of the tutors relate the adequacy of the course to the process of design which, as I mentioned in Chapter 2, represents benchmark knowledge in the engineering discourse.

Negative comments:

Tutor 10. *The course is short* – and they would benefit from a longer course.

Tutor 7: ... in terms of implementation *however I think there was a bit of a communication breakdown at times* because there were so many tutors so they, between the tutors themselves or *between the tutors and the lecturer*.

Tutor 10 perceived the length of the course (which is offered over a 13-week period) as a negative factor which impacted on the outcomes. She suggested that students would benefit from a longer course. This comment has an affinity with some of the comments made by students, who felt that the timing of the course was not appropriate because it was too far removed from the stage when they needed to

apply the knowledge gained. Tutor 7, on the other hand, chose to focus on issues of administration and felt that there was poor communication between the engineering academic coordinating the course and the language tutors. This was supported by Tutor 8 who also commented on the content of the course. For this tutor, the notion of Discourse (in the sense used by Gee and adopted in this study) was the metric for determining the adequacy of the course. Engineering students, he argued, are the kind of people who like challenges, and if given less challenging work, the chances are they get bored. This comment was directed at the solar cooker project which Tutor 4 did not see as challenging as it had to be done over a full semester, and especially as it consisted of using materials that absorb and retain heat, such as foil paper. This is what he had to say:

Tutor 8: I have noticed.....you a dealing with a group who want to be engineers, they want to be engineers right umm, and remember people only go into disciplines that work with the way they work, right,.....*So who are Engineers right. This is the question I'll start from. Well, first of all they are people that like having challenges that are nominally difficult, if not possible to solve right. Engineers in particular are tinkers; you don't go into engineering ... unless you like the idea of poking at stuff.... Look at it this way right, with building a solar plate and a coffee pot you could have had the students to do that in four days, easy, you could have got them ...I would have given them 3 days yah...*

There was also an indication that the course was 'too big' in that there were many students taking the course.

Lecturer 1: *My impression is the course is too big.* It is, there are too many students to get the kind of one on one contact that you really need to educate, although there are lots of tutors. *It's problematic to get uniformity for every... when you have a huge number of people doing.....* So it seems to me that the course is too big and as a result of that it may not achieve the purpose that it could achieve. Not that it's not achieving, it could be a lot better if it was taught in smaller classes.

It was difficult to ascertain whether learning opportunities were equitably distributed in such large classes. Research on large classes and how to deal with them has been gaining in popularity over the years. While innovative ways have been suggested on how to deal with large classes, there remains the need to deal with the physical distancing that large classes bring about. Perhaps a causal mechanism, as

one student puts it, could be that students thought the lectures and the tutorials were not as exciting as the project itself (student 6). The large class numbers also meant that more tutors were required making it “problematic to get uniformity from every tutor” (Lecturer 1).

In this section, I have presented evidence that highlights the representation of academic literacy and students in an engineering context. The evidence suggests that the different agents (tutors, engineering academics and students) have different understandings of what constitutes technical report writing as a form of academic literacy. Tutors draw on the discourses of English language proficiency and underscore the importance of surface skills such as grammar, presentation, referencing and structure. Moore (1998) refers to this as the instrumental approach where writing is seen as a technical process of transmitting finished thought to paper. In this case writing is seen as a simple conduit by which students simply prove that they have learnt what is required of them, and failure to do this immediately places them in deficit. Engineering academics, on the other hand, draw on the discourse of ‘professionalism’ in their understanding of technical report writing, highlighting the importance of discourse acquisition for participation. Students’ understanding of technical report writing is derived from their experiences in the course, the forms of participation that they have been exposed to. From these broad findings, I identified the following issues of discourse:

- The deficit discourse
- Assigning agency in learning to students
- Technical communication as entrée into the engineering profession.

These discourses factors fall in line with the critical realist methodology adopted in this study and bring us a step closer to uncovering the mechanisms which configure social exclusion in an Engineering Faculty.

6.7 The deficit discourse

In the South African education system, it is a widely accepted that students from socioeconomically and educationally disadvantaged backgrounds tend to perform below their peers from more advantaged contexts (see Scott *et al.*, 2007). As a consequence, the challenges they face have been explained through discourses of 'deficit' which are characterised by difference as well as socio-economic (structural) inequalities. Although not unreceptive to such explanations, this study suggests that they have come to be taken for granted and, as Lillis (2001) and Boughey (2009) have suggested, have also been used to explain away issues of teaching and learning, thus passing the blame to students and absolving institutions from responsibility for these students' failure and dropout rates. Data from the interviews with both language specialists and engineering academics reveal that these agents complain about the kind of students that are admitted to academia. The discourse takes the form: 'send me good students and I will do a better job'. At the risk of being accused of racial essentialism, I am convinced that 'good' will mean anyone other than black or ESL students. Let us consider the following comment from Lecturer 1:

So if you have an English first language student who got straight sevens in matric, they find it boring and tedious to be involved and on the other hand, you have an English second language learner who has not adapted to the university, is a first generation university student, they may struggle like crazy with the module (Lecturer, 1).

This discourse exposes the entrenched socio-cultural stereotypes of difference between English first language speakers and English second language speakers. It is clear that Lecturer 1 in this case, has discursively marked students as different based on their linguistic backgrounds. Moreover, this discourse essentialises EFL as the 'only' acceptable standard of literacy. Related to such an understanding is the construction of difference in academic ability as a consequence of linguistic and cultural backgrounds. In the same excerpt, these differences in linguistic and cultural backgrounds are also used to explain student motivation. English first language learners are constituted as being less motivated to do the course as it is of little use to them, hence the use of words like 'tedious' and 'boring' to describe their relationship with the course. At the same time, ESL learners are constructed as the ones who are most likely to benefit from the course because 'they struggle like crazy with the module'. In this way, ESL status is correlated with 'deficit', suggesting that

only ESL students are outsiders to the technical communication discourse (Boughey, 2008). Drawing on Bourdieu's notion of cultural capital (Bourdieu and Passeron, 1977/1990), I am convinced that by linking success in higher education primarily to language proficiency, rather than to the acquisition of concealed practices and values, these discourses normalise the discipline-specific forms of knowledge construction, and give insufficient heed to the fact that access to these concealed practices and values is more readily available to certain socio-economic groups than to others. Bourdieu (in Hillier and Rooksby, 2005) also saw the scientific field as being hierarchically structured in the sense that it afforded exclusive rights of entry (p. 9) to certain groups only. By representing white students as the ones who are naturally inclined to pass with straight As, Lecturer 1 was in a way suggesting that these students had a legitimate place in the Engineering discipline as opposed to the non-English speaking students.

It is clear that talk about students' 'experiences in the *Technical communication for Engineers* occurs in a context which stereotypes difference by focusing on black students only. This militates, however, against the goal of improving academic literacy practices of these students. This is because these stereotypes affect the confidence and motivation with which the students approach their work; hence they begin their education career already with a 'deficit'. Research has demonstrated that in contexts where issues of race, racism and stereotypes are triggered, students' performance is affected (Gee, 1999). This perhaps explains why the black-white divide has been rather static, with black students continuously failing to meet the requirements of higher education. Thus it would not be erroneous to conclude that stereotyping of difference gives an unfair advantage to students of other races, and hence that issues of power, social practice and identity are implicated in the context of the *Technical Communication for Engineers* course.

Curry (2002 p. 48) refers to the kind of representation that emerges from the utterance by Lecturer 1 as a cultural model and cautions that such models "generally operate unconsciously- therefore identifying them is not a simple or transparent task". Citing Gee (1996), she adds that we must infer from the person's beliefs, actions and words what theoretical frame they are actually using. This corresponds with the realist notion of *abduction* where analysis involves the recontextualisation of

data within theoretical or conceptual frameworks (Danermark *et al.*, 2002). This leads me to question why Lecturer 1 associates English first language students with greater academic ability, as if suggesting that ESL students cannot attain such higher grades. Is he implying that there are inherent racial limitations to acquiring academic literacy and, ultimately academic success? It should not be taken for granted that linguistic background is a barrier to learning – a position which assumes that ESL students' experiences of learning are homogeneous. Research within the socio-cultural tradition has shown that students' experiences differ even within the same cultural group. This makes it unethical for academics to make such sweeping assumptions about students without an understanding of these students as individuals. Drawing on the theoretical construct of participation adopted in this study, I am convinced that this way of representing students' profiles constructs English L1 learners as closer to full participation in the academy, while it constructs ESL learners as outsiders' to the discourse. I am further convinced that these comments perpetuate the notion that although the *Technical Communication for Engineers* course is useful, it is not necessary for all students and should rather be reserved for a certain group of students. These widely held beliefs about students' profiles are called in question by research based on literacy biographies or narratives (Leibowitz, 2004; Hutchings, 2002) which concluded that that academic literacy is a problem that cuts across educational or linguistic backgrounds suggesting that it is not native to anyone. So to assign agency to learn to the students is considered in this study to be a limiting factor in the development of discursive identity. Leibowitz states that "to make statements about language and race could be essentialising, and extremely dangerous, or at least, let us say, simplistic" (personal communication, February 8, 2009).

The data also reflects the idea that the 'problems' students experience with writing are perceived as merely textual, and hence explainable through the linguistic mode. Let us re-consider the following excerpt from Tutor 7.

Tutor 7: My experience with the students is that *I did not have any UNITE group*, I had a *Chem Eng* and a *Mech Eng* group, and I found the students to be reasonably *grammatically sort of satisfactory*, that is they were *able to put sentences together*.

Tutor 7's description of students pivots on linguistic features such as being "grammatically sort of satisfactory". This description is also used to mark the difference between UNITE students and the Chemical Engineering students. As indicated earlier in this chapter, UNITE is an access programme for students from 'disadvantaged backgrounds'. Considering the long-standing divides along racial lines of socio-cultural and educational realities in South Africa, with black people as underdogs, it stands to reason that UNITE students are predominantly black. They are also often described as ESL. Bearing in mind that the choice of description and association is considered an essential discursive practice in CDA, I am compelled to unpack this utterance. An essential question that needs to be asked is: Why did Tutor 7 refer to UNITE students if she was not teaching them? Surely, this was an uncalled for comparison? Furthermore, this was the first time that Tutor 7 was tutoring on the *Technical Communication course*, suggesting that she had never taught UNITE students. So what was the basis of her knowledge of students? The fact that she was able to generalise about UNITE students without having interacted with them illustrates the taken-for-granted assumptions about students that are common in higher education. I am convinced that this utterance was produced to highlight difference by privileging certain groups of students, while undermining others. I am further convinced that this comment by Tutor 7 can create an effect of distance between the tutor and the 'other' students who were not "*reasonably* grammatically sort of satisfactory"; "*reasonably*" as used by this tutor implies that acquiring a language is a transparent and easy process. Also implied is the idea that those who fail to attain 'reasonable' levels are outsiders. A further signifier of this difference between Chemical Engineering, Mechanical Engineering and UNITE students as explained by Tutor 7 is the Matric point system. Research has long shown the poor reliability of matriculation scores, suggesting therefore that "success in school English does not necessarily indicate proficiency in the language" (McKenna, 2004a p 152). The same tutor further states that "*most of the students I had were from good schools*". In so doing, she subscribes to the widely held perception that students from disadvantaged schools are a homogenous group whose educational ability can also be described homogeneously.

By highlighting the limitations in such an understanding of students as products purely of their home and school, I am not overlooking the fact that educational

background can influence academic success. I remain concerned, however, that such taken-for-granted perceptions “are imbued with discourses of difference and deficit views” and that “what is cultural about people’s practices is presumed by virtue of their membership in a cultural community rather than by their history of involvement in everyday practices” (Gutierrez *et al.*, 2009 p. 218). Such views consequently fail to recognise that as students interact between home, school and the larger community, they also acquire other discourses that might not necessarily be in deficit. For instance, students interact with other students from different schools; they also learn discourses through popular culture – listening to the radio, watching television, or reading newspapers. Much as English may not be their home language, this does not mean the students are *tabula rasa*. Suffice to say that acquiring discourses involves both linear transitions such as home to school, and lateral transitions where discourse acquisition occurs simultaneously – what Gee (1996) has termed borderland discourses. According to Boughey (2012a p. 144),

Social accounts of learning would argue, therefore, that what is often cited as a ‘second language problem’ in higher education is actually a matter of students making choices for language use based on contexts other than the academic contexts in which they find themselves

This makes it difficult to speak of students’ discourses as solely the product of their home and school, but it does call upon scholarship to address the holistic nature of discourse acquisition.

6.8 Assigning the agency to learn to students

From the preceding discussion, it is evident that discourses within the Faculty commonly assign the agency to learn to students. Although the schooling system has been identified as a causal mechanism for the challenges students face with writing, the dominant practice has been to speak of these challenges as if they were an ‘epistemological problem’ which is all about “acquiring knowledge and beliefs, changing the mind, and moving from intuition to rules” (Lave, 1996 p. 156). In other words, academic literacy has been regarded from the perspective of learning rather than of teaching. This is clearly reflected in the excerpt below.

Tutor 3: *Some of them resist and persist in making the same mistake over and over again. Referencing for example, is a, is, it's not difficult to grasp because I give them examples of how you reference, citation and things like that and even though they read the examples and I go over and over and over, they still come up with.*

In this excerpt, Tutor 3 makes the assumption that 'failure' by students to follow conventions is an act of resistance. Moreover, she goes on to suggest that these conventions can be easily learnt through overt teaching. Another signifier of this discourse that assigns agency to learn to students is the way in which students are positioned as moral agents who could self-regulate their actions. Tutor 3 suggested that there was a lack of discipline in the entire country. These sentiments were also echoed by Tutor 7, whose descriptions of students centred on the concept of '*work ethos*', pivoting around a student's obligation to follow instructions.

Gutierrez *et al.* (2009) refers to such practices as "blaming the victim", a strategy which focuses on the individual student with the intention of changing them rather than the system in which they operate. Given the dominant discourse which equates academic literacy with English language, resulting in a deficit representation of students, I am persuaded that what is considered by tutor 3 to be a 'learner problem' is actually a problem with the way knowledge about academic literacy has been recontextualised (Bernstein, 1990) by this tutor. Can academic conventions be learnt in such a de-contextualised way, where students are simply given examples and expected to master the practice? Lillis (1999 p. 127) calls this "institutional practice of mystery" which assumes that these conventions are unproblematic and 'common sense'. Jacobs (2007 p. 62), citing Gee (2003) and Geisler (1994), argues that "knowledge of the 'rhetorical process' has a tacit dimension, which makes it difficult for experts to articulate, and therefore difficult for students to learn". There is no denying that the tutor has mastered these practices (such as referencing) but the teaching approach described does not make them explicit. Bartholomae (1985 p. 403) comments that students are expected to "appropriate a specialised discourse" which often as not they have not previously encountered. Hence when they enter the university they have to "reinvent the university by assembling and mimicking its language, finding some compromise between idiosyncrasy, a personal history and the requirements of convention, the history of the discipline" (1985 p. 403). In other words, what is perceived by Tutor 3 as failure to acculturate is in the context of this

study taken to be a result of the an 'expectations gap' between students' understanding of the requirements of the tasks and tutors views (Lea and Street, 2000). This position is supported by research from South African which also provides explanations for the gap which include misunderstanding of the task or inexplicit instructions or strategies inherited from school (Esterhuizen, 2001; Oliver-Shaw, 1996). While accepting all of these reasons as causal factors for what tutors may see as acts of resistance, I would like to extend the argument, based on my theoretical framework, to incorporate issues of identity. Gee (2001; 1996), McKenna (2010; 2004a, b); and Bourdieu and Passeron (1965/1994) all note that students bring with them their own identities or cultural capital. Cast in this way, the issue becomes one of how students negotiate their home and school identities (primary discourses) with the new identity they are to acquire at university (secondary discourse) (Gee, 1996). For me, this is the heart of the matter, and I contend, in agreement with McKenna (2004a), that it is difficult for students to learn a new Discourse with which they cannot identify. It is for this reason that students probably resort to what they know when they are faced with tasks that they find challenging, resulting in them being labelled deviant.

It is my contention that paying more attention to factors such as educational and linguistic background, identified as major factors impacting on academic literacy development, does not problematise the teaching of academic literacy (the pedagogic device). Hence, technical report writing is regarded as a neutral activity, failing to consider that ways of reading and writing at university level work to favour some students while excluding others.

In the next subsection I discuss the discourse which links technical communication to the profession of engineering.

6.9 Technical communication as entrée to the Engineering profession

The last of the dominant discourses emerging from the interview data is what I have termed technical communication as entrée into the engineering profession. This discourse stands in opposition to the discourse that reduces technical

communication to English language, and while the discussion in section 6.4 suggests that technical communication is generally seen as synonymous with language acquisition, the data in this chapter also suggests that it is linked to entry into the engineering profession.

Simpson and van Ryneveld (2009 p. 801) refer to technical communication as the “literacy gate” which they explain in the form of a question: “What does a candidate engineer need to do with literacy so as to become a professional engineer in the chosen engineering sub-field?” This question also lies at the heart of the theoretical framework adopted in this study, which puts meaningful participation in the student’s discipline of choice centre stage (see Gee, 2001; Lave and Wenger, 1996). Understanding how students are initiated into disciplinary practices also requires us, however, to ask an equally important question about what counts as knowledge and who determines this knowledge (Bernstein, 2000). The engineering academics interviewed highlighted the importance of technical communication in meeting the demands made by the ECSA, the engineering accreditation body. ECSA clearly defines acquisition of engineering discourse as one of its exit level outcomes. In defining these exit level outcomes ECSA also insists that these skills are “required for further learning towards becoming a competent practising engineer” (ECSA, 2004, 2). In this way technical communication is considered to be “the end-goal of engineering literacy” (Simpson and van Ryneveld, 2009 p. 801). It was this central role that ECSA plays in determining what is worthwhile knowledge in engineering that was affirmed in the interview with Lecturer 1 who stated that the *“Tech Com module was the first step in two directions. First, in ECSA exit outcomes of professional technical communication.”* Accreditation of engineering programmes as well as professional registration of engineers is controlled by ECSA. In a discursive sense, ECSA exit outcomes work as a mechanism to promote the teaching of engineering discourse. Hence, ECSA plays a role in pedagogising knowledge by determining the outcomes that engineering students should have attained. It is not surprising therefore, that in line with both the Faculty’s mission and the ECSA exit outcomes; academic literacy has been packaged into a course such as *Technical Communication for Engineers*.

6.10 Conclusion

This chapter has presented a descriptive analysis of the participants' empirical experiences of the academic literacy context. The data for this analysis was drawn from documentary evidence and the interviews that were conducted with language tutors, engineering students and engineering academics. From this analysis, four dominant discourses were identified: reducing academic literacy to English language proficiency, the deficit discourse, assigning agency to learn to students, and technical communication as entrée to the engineering profession discourse. Broadly speaking, the main finding in this chapter suggests that ESL status is perceived by the key agents in this Faculty and course as an obstacle to learning. The effect of this construction has also been highlighted as a negative representation of ESL students. I have mentioned elsewhere in this thesis that I know how it feels to be labelled and spoken of in the same way that students in my study are referred to. I have never liked the feeling and I strongly believe it creates an emotional distance between students and their teachers. This is especially so in a wounded country like South Africa where race and racial issues remain centre stage. These assumptions that academics have of students have implications which can be limiting for instructional possibilities. For instance, if tutors believe that language is the problem, they spend most of the time grounding students in the linguistic and structural aspects of report writing, at the expense of the Discourse. The next chapter focuses on the actual experiences of the academic literacy context drawn from two sources of data: documents and classroom observations.

Chapter 7

Actual Experiences of the *Technical Communication* course for Engineers

*Realised events are **conjectures** of all of the mechanisms operating in a system (Bhaskar, in Miller and Tsang, 2010 p. 145).*

7.1 Introduction

Chapter 6 provided first a descriptive account of the participants' empirical reality. Four notable empirical outcomes were noted. Firstly, the discourse within the Faculty tends to reduce academic literacy and technical communication to English language proficiency. This came out saliently in the course readers for the *Technical Communication for Engineers* course from 2008 to 2012. Secondly, and also as a result of the discourse that reduces academic literacy to English language proficiency, there is a tendency amongst the tutors and academics to frame students in a deficit mode. Thirdly, there is evidence that the agency to learn is placed solely on the students with little consideration of institutional and pedagogical practices. Lastly, the connection between technical communication and professionalism was also acknowledged. Developing the tripartite critical realist framework of analysis necessitates a shift in focus from the domain of the empirical to that of the actual: the events produced by and reflected in mechanisms and experiences. This shift required the analysis of another set of data, namely, the students' technical reports and classroom observations. Students' reports were taken to be located at the level of events and as a culmination of students' conceptions of appropriate ways of participation in the discourse, along with the socio-historical and socio-cultural contexts that confront them in and out of school. The second data set – classroom observation – enabled me to analyse the context in which academic literacy development took place. A key concept for this analysis was the notion of *participation* drawn from the socio-cultural theories of Gee (1996) and Lave and Wenger (1991). Cast in this way, this data was instrumental in answering research question 2: What dominant practices do these discourses (identified in Chapter 6) give rise to?

7.2 Overview of the chapter

The first section of this chapter presents data emanating from students' technical reports and describes the findings from this source. My working rationale for including students' technical reports as a data source was based on the understanding that writing is a form of representing the self: "Each act of writing, regardless of the topic of the written piece, is an act of conveying messages about the self" (Martin, 2000, p. 2; see also Ivanic and Camps, 2001; Hyland, 2002b). Students' reports thus reveal the textual identities that they adopt as they negotiate technical report writing. Students' technical reports were accordingly analysed for evidence of self-representation – how students represented themselves and also how they represented their knowledge and belief systems. The feedback that students received from the language tutors was also considered for elements of representation, since I believe that these comments are an index of tutors' perceptions of literacy as well as of students. The second section of the chapter reviews data emanating from the observations of both the lectures and tutorials. As the second stage of the realist framework, data analysis in this chapter moves from a descriptive analysis (as was done in Chapter 6) to a more critical analysis of the events. This is done by contextualising the events "within a conceptual framework or a set of ideas" (Danermark *et al.*, 2002 p. 80). In other words, theoretical knowledge and previous empirical findings are used to explain the events.

7.3 How students represent themselves in technical report writing

A total of 100 students' technical reports were analysed for representations of the self: 25 from each year in the period 2009–2012. A number of scholars working in both socio-cultural and socio-political strands (Fairclough, 1992; Ivanic, 1998; Ivanic and Camps, 2001; Hyland, 2002b; Gee, 2001) argue that adopting a socially situated view of language is essential to comprehend the relationship between the writer and reader. In Chapter 3, I mentioned that Hyland's (2002b) understanding of self-representation is guided by the way writers make use of first-person pronouns. Ivanic and Camps (2001), while recognising the role of personal pronouns in authorial identity, incorporate Halliday's macro functions of language for analysing voice types

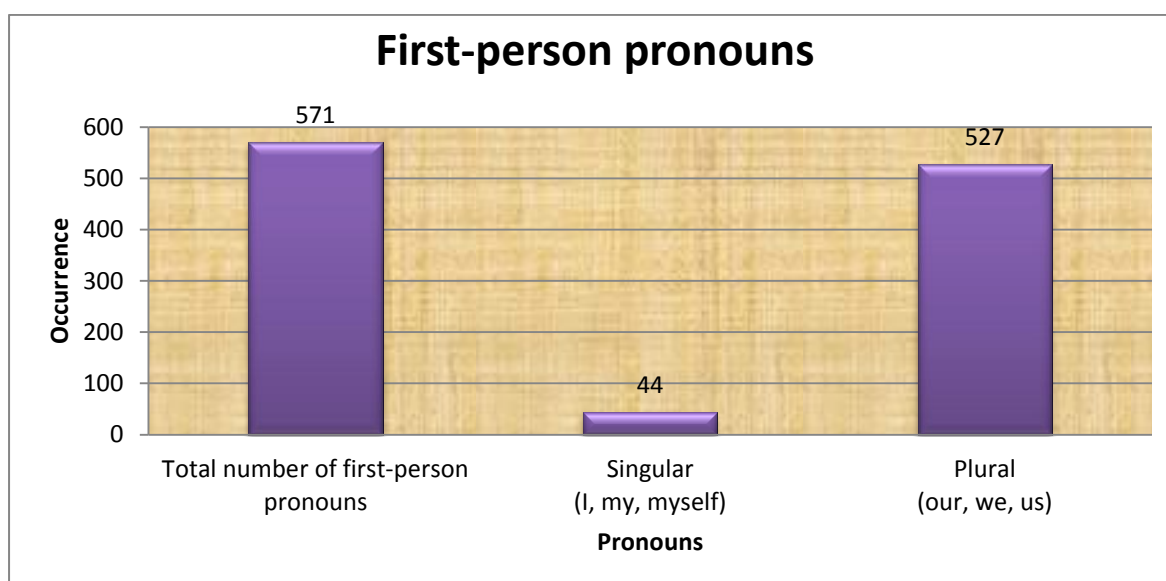
as ideational positioning, interpersonal positioning, and textual positioning. For Fairclough (1992), texts reveal social identities, relations and systems of knowledge and beliefs. Newkirk (2000) argues that writing is not just a way of representation but also a performance of the self, and he recommends that we explore some of these forms of self-performance. To understand how students represent themselves in their writing, I developed an analytical tool drawn (see Figure 5.5 in Chapter 5) from the work of these scholars as discussed in Chapter 3, while at the same time remaining open-minded towards any other categories of representation that might emerge. I began by examining the frequency of first-person pronouns in student writing that corresponded with Hyland's framework. This was followed by a closer analysis of the role of these pronouns in the students' texts. This was guided by the work of Fairclough (1992) and Ivanic and Camps (2001) on voice and positioning. A closer reading of the texts also revealed other forms of representation that did not involve the use of pronouns. Figure 7-1 gives the number of texts in the entire corpus which contained first-person pronouns.

Figure 7-1 Student texts with first-person pronouns

Year	Student texts with first-person pronouns	Student texts without first-person pronouns
2009	15	10
2010	18	8
2011	15	10
2012	17	8

Out of the 100 students' texts from all four years that were analysed, 65 had first-person pronouns. Instances of the first-person pronoun in a single text ranged from 1 to 46. A close analysis of the corpora looking at the frequency of first-person pronouns generated the results presented in Figure 7-2.

Figure 7-2 Frequency of first-person pronouns across corpora



A total of 571 first-person pronouns were identified in the corpus. Out of these, 527 were plural pronouns (we, our, us, ourselves) while only 44 were singular pronouns (I, me, my, myself). The high number of plural pronouns can perhaps be explained by the fact that students had to work in pairs or in groups in all their projects. Since the object of this study depth of understanding of the phenomenon at hand (representation) rather than breadth (Henning, van Rensburg and Smit, 2004), my analysis further involved a close reading of the texts to determine the discourse functions of the pronouns. This analysis is summarised in Figure 7-3.

Figure 7-3 Examples of first-person pronoun use

Category	Example	Discourse function
Our	Lets' Party appointed our company called Group 4 Engineers_ Our team of engineers expected our cooker to work well Our group has been approached by a company	Self as representative of the group-identifying group – who we are
	Our task is to research bubbles This report will explicitly outline our hypothesis Our objective[s] in designing in building this design is to	Recounting purpose
	Our basic ideas are being used	Ownership of ideas
	Our device, the Zephyr Charger is a small attempt to improve the lives of many South Africans	Self as contributor to /ownership of design
	During our brainstorming, the following main points arose as alternatives	Recounting process
	The state of our world is slowly deteriorating As many of our energy sources are non-renewable	Self as representative of humanity
	...some of the popular designs within our budget were considered-	

Category	Example	Discourse function
We	We will prove our hypothesis We concluded that our design was successful	Stating claims/results
	We can find g is we know the mass of the earth and the height We find that as distance increases, time decreases and vice versa. We ignore small effects due to earth's rotation We can further derive equation (1.1) knowing that for every drop v_0 is equal to zero	Self as guide –guiding the reader to understand relationships and scientific principles
	We look at Isaac Newton's law of motion	Explaining procedure
	.. we can see that a direct relationship is present This does not make sense if we are trying to prove that its velocity is increasing-	
	Thus we had to outsource these components from other cheaper sources	Recounting process
	We did research; we designed The design we have selected; we tweaked the design	Recounting process
	We are engineers from the company called Unite Bubble	Identifying self as engineers/Claiming membership
	... the earth, as we know it will be undergoing and is undergoing tremendous change We, as South Africans are often faced with effects of living a life with a shortage of electricity	Self as representative of the world/south Africa
	It is a chance for us inhabitants of Earth to make a change	Encouraging action
	The increase in demand of bubble machines at parties ... has resulted in the Lets' Party approaching us to design a bubble blowing machine We were required to investigate what materials each component needs to be made of.	Recounting purpose
Us	As children most of us have blown bubbles- They make our partners laugh at us when we pour champagne after a romantic dinner-	Source of background information
	It took us an hour to construct this solar cooker A measuring tape which helped us to measure the height of the building	Recounting process
	The log-log graph shows us the linear relationship between distance and the average time	Self as guide- guiding the reader to understand the scientific principles
	Solar energy exploits the constant energy by the sun to provide us with electrical energy The average temperature increases make life miserable for all of us	Self as representative of humanity
an opportunity to advertise ourselves	
	I recommend that this project should carry on to the next first years because it is interesting	Expressing opinion
	In this task I am expected to design a mechanical bubble blowing machine-	Recounting purpose
I	I conducted a brief survey and researches But I realised that I wasn't raising the bar very much most of time After the 1st test I added more batteries to supply sufficient power to the motor and fan	Recounting process
	Why did I choose this particular bubble blowing machine for my literature survey I have chosen this design because this is the least costly design	Recounting process
	Conclusion-Alterations could have been used but I think this is the best choice	Expressing opinion

Category	Example	Discourse function
	My partners and I divided the manufacturing of the cookers into collaborative parts	Recounting process
	Through the research of solar cookers in the seminar paper, I found out that there are different types of solar cookers- recounting process	Recounting process
	In this report I will be discussing about the good and bad of the panel cookers in South Africa	Guiding reader through the report
	I sat on one end of the see-saw; I have prepared and completed experiments that will help clarify the results of physicists	Recounting procedure
	Noting that the manner in which I have placed these colours is their ascending order of wavelengths	Providing reader with extra information to help understand scientific principles
Me	The company Lets Party! Has approached me with the task of designing a bubble	Recounting purpose
My	There are certain articles that have been read which provided insight on the theories behind my design	Ownership of design
	In preparing such a design, my partners and I To conduct the experiments, myself as well as my partner (name) visited Mitchell park in Durban	Recounting process
Myself	To conduct the experiments, myself as well as my partner (name) visited Mitchell park in Durban	Recounting process

The “I/we” in all the examples is followed by action verbs like ‘tested’ or ‘prove’ which refer to some engineering activity, or like ‘designated’ or ‘expected’ which refer to the expectations the students were given of the task. This way of reporting shows a ‘discursive’ inclination towards engineering activity while at the same time placing the ‘self’ at the centre of that activity. Similarly, the pronoun ‘our’, which had the highest occurrence, was mainly used with nouns such as team, group, prototype, country, to show ownership and membership in a discourse community and in society. Tang and John (1999 p. S27) suggest that the plural first-person pronoun is usually used as a proxy for a larger group of people, such as a disciplinary community, and that “By using this pronoun, students are signalling their ‘desired membership’ by displaying knowledge that is valued and accepted by those communities”, rather than merely conforming with the rhetorical expectations of the discipline. In summary, the data in Figure 7-3 suggest that use of first-person pronouns by these engineering students was prompted by several different objectives, conscious or unconscious: to recount the purpose of the assignment, to capture the processes they went thorough to complete the task, to represent their groups, and to show ownership of ideas and design. These findings lend support to Hyland’s (2002b) claim that academic writing not only conveys disciplinary ‘content’

but also constructs the writer and his/her place in the discipline. In a similar vein, Ivanic (1998) suggests that by using certain discourses, people are identifying themselves with the interests and value systems associated with such discourses. This is to adopt a socio-cultural and socio-political perspective; from a realist perspective, examining students' writing enables us to glimpse either the dominant or the marginalised discourses which come into play (Ivanic and Camps, 2002; Gee, 2001).

Engineering, like most pure and applied sciences, is considered an objective science; hence, the engineering persona highlights the phenomena under study rather than the agent (Hyland, 2001). In other words, the discourse does not allow for use of the personal (or subjective) pronoun, "I" or "we". Hyland comments that "Such a strategy subtly conveys an empiricist ideology that suggests research outcomes would be the same irrespective of the individual conducting it" (2005 p. 181). Commenting on the scientific field, Bourdieu (1993) saw objectivity as a form of habitus which organises practices and representations of the external world as well as how individuals relate to it. In consequence, objectivity in writing was explicitly mentioned in the course material for the *Technical Communication for Engineers* course reader and was also reiterated in the tutorials. Even so, the data analysed in this study reveals a high occurrence of the first-person pronoun in students' texts. Considering also the process of *retroduction* in a realist framework, why then is the personal pronoun so seductive for engineering students in this corpus? Hyland (2001) states that while objectivity may be institutionally sanctioned, as is the case with the Engineering Faculty at the UKZN, it is often transgressed. What this suggests is that the dominance of privileged literacy practices in engineering rhetoric are contested. While this contestation might not necessarily be a conscious activity, the discussion in section 6.7 has shown that this contestation is often assumed to be an act of resistance. Such an analysis draws both from Street's ideological model and from Gee's (2001; 1996) interpretation of power as discursive practice. I believe explanations for this 'transgression' can be gained from an in-depth analysis of pronoun usage in this corpus. I will use a few examples taken from Figure 6-3 that have the plural pronouns 'our' or 'we' to interrogate dominant occurrences of self-mention.

1. Our team of engineers expected our cooker to work well

2. Our task is to research bubbles
3. The state of our world is slowly deteriorating
4. We will prove our hypothesis
5. We tweaked the design
6. We can find g if we know the mass of the earth and the height
7. We are engineers from the company called Unite Bubble-identifying self

Clearly, the pronouns in these examples were used by students to signify a variety of issues. For instance, in example 1 there are two occurrences of 'our'. The first denotes affiliation with a group or profession, while the second instance is used to represent ownership of prototype. In example 2, 'our' is used to signify collaborative work; in example 3, the author positions himself as an interested part of the global community. The students also used 'we' to recount process and to identify themselves as 'engineers'. By so doing, students were representing their interests and affiliation with the engineering profession by locating themselves at the centre of the activity. In the context of this study, this is considered to be an example of *habitus-in-operation*, given students' use of the personal pronoun was not a practice that was learnt explicitly, but was gained through tacit and embodied dispositions (Bourdieu and Passeron, 1977/1990). But perhaps the most interesting use of the personal pronoun is in example 6, where the student uses 'we' to recount the process of solving an equation. Implied in this usage is a shared understanding of the process and results, suggesting that the processes involved are universal amongst scientists. However, a closer look at the extracts from the physics textbooks that students used reveals the same discursive use of the pronoun 'we' (see Chapter 6, sections 6.3.1 to 6.3.4). It is also important to note that similar uses of pronouns, as in the other examples, were also found in the other readings that were provided. Hyland (2006) notes that the university textbook is a pedagogic device which defines the discipline. Paxton (2007a p.112) adds that the textbook "introduces the novice to the epistemology of the new discipline". This suggests that the textbook is generally considered as a 'canon', an exemplar of the discourse that students are learning. If textbooks and by logical extension course readers, have this power to initiate the newcomer into the discourse, it follows that textbooks extracts used in the *Technical Communication for Engineers* course should follow the same guidelines as the ones that students are given for the production of texts. Broadly speaking, the textbook

extracts or readings used should not deviate from the 'acceptable' forms of representation.

Given this backdrop, it is reasonable to conclude that rather than presenting a "well balanced ideological and methodological picture of the discipline" (Paxton, 2007a p. 113), the extracts in the course readers actually sow confusion amongst students, whose use of personal pronouns to represent themselves simply mimicks the textbook. This is because students often get the impression that the textbook is an appropriate model for them to follow (ibid). The implication is that the context in which students experience writing cannot be separated from the texts that they produce. On a similar note, Fairclough (1992) notes that prior texts can transform and restructure and construct existing conventions in the production of new texts. This idea is closely linked to the notion of intertextuality, popularised by Bakhtin (1986) and developed in the South African context by Kapp and Bangeni (2009) and Paxton (2007b). For these scholars, text production is mediated by other texts or voices within the social context in which the text is produced. It is also precisely these concerns that have led Pennycook (1996) to argue that that writing is a process of recycling language from different contexts: "All language learning is to some extent a process of borrowing others' words" (Pennycook, 1996 p. 227). In the light of such arguments, it becomes unethical for practitioners involved in the *Technical Communication for Engineers course* to penalise students for using the first-person pronoun in their technical reports. This is because as the evidence in this study shows, students' representations are relative to the way in which knowledge is constructed in the official discourse, which in this case is, the course reader.

A further explanation of the dominance of the personal pronouns in the corpus analysed here probably relates to the centrality of design in engineering discourse. The analysis in Chapter 6 indicated that the *Technical Communication course* was introduced as a hands-on introduction to engineering in a team-based setting. In this sense, the design element in the course linked knowledge with agency. Hence, the students of design were consciously aware of their role/agency in the process of knowledge production. This made it difficult for them to maintain the authorial distance that is required in the engineering discourse. From a socio-cultural point of view, "learning and a sense of identity are inseparable: they are aspects of the same

phenomenon” (Lave and Wenger 1991 p. 115). Therefore, as students engage with content at an ontological level, they also invest their identity in their writing. By adopting the first-person pronouns, students were not only expressing themselves, but were constructing an identity, presenting the identity and also performing for the reader.

As stated earlier, the analytical framework I developed also allowed for other forms of representations to emerge; apart from noting the first-person pronouns reported in literature, I extended my reading of the texts to incorporate clauses, sentences or phrases that point to representation of the self. More specifically, I looked at how students constituted their identity through the way they relay their knowledge and beliefs, the way they refer to themselves, and the way they address the reader. The criterion adopted here was influenced by Fairclough’s functions of language as constitutive of social identities, social relations and systems of knowledge and beliefs (Fairclough, 1993 p. 134). Figure 7-4 below presents the different categories that emerged.

Figure 7-4 Other forms of representation

Category	Manifestation	Purpose
Self as extending knowledge (20)	<p>Our basic ideas were being used in order to make this machine</p> <p>The testing of the machine proves that it has met and exceeded objectives</p> <p>We will design a highly improved model of a bubble machine... to get such an opportunity to advertise ourselves and show that we are capable</p> <p>The design we have selected goes beyond the given criteria, it displays accuracy, efficiency, and leaves very little room for errors</p> <p>The scope of this prototype in the future is great</p> <p>Thanks to a well-researched design, the very first test proved to yield positive results</p> <p>For future designers out there, improvements could be made by using even more reflective foil...</p> <p>The design put forward in this report is by far the most eco-friendly, efficient and cost efficient</p> <p>This resulted in an eye-catching, simple and easy to use prototype which will take the world up by storm</p> <p>The team extended on Robertson's (2004) hypothesis which states that...</p> <p>This experiment is an extension of Newton's experiment since he used one object which is an apple.</p> <p>The results have proven the Newton's law although there are some variations</p> <p>... so they are directly proportional which proves Galileo and Isaac Newton's findings that he was correct</p> <p>In this new project, the world is being changed</p> <p>.... The machine designed is the best of its time.</p> <p>The design is conducted under the restriction that it is completely better than the first prototype of 1997.</p>	To convince the reader that the design/experiment has extended knowledge
Directives? giving instructions (41)	<p>Experimental procedure and or construction of prototype given as instructions for example:</p> <p>Start by cutting a piece of wood</p> <p>Allow time for glue to dry</p> <p>Start by drawing a shape of the container</p> <p>Place the wooden board on a flat surface</p> <p>Take precautions when soldering</p>	To get the reader to recount the procedure

Category	Manifestation	Purpose
Self as contributor to society (31)	<p>Since the solar cooker has been designed, it is better because since it will reduce the amount of fuels</p> <p>We are trying to eradicate the use of wood as fuel</p> <p>By using the solar cooker, you are decreasing the size of your carbon footprint</p> <p>The new generation of eco-conscious people are needed to implement methods of generating cheap and clean renewable energy</p> <p>Hence the demand for electricity will be marginally reduced</p> <p>It is a chance for us inhabitants of the world to make a change</p> <p>It is time we stopped being idealistic about being environmentally friendly; it is time we become green realists</p> <p>The design put forward in this report is by far the most eco-friendly, efficient and cost efficient</p> <p>This resulted in an eye-catching, simple and easy to use prototype which will take the world up by storm</p> <p>With minor modifications, this prototype may be the answer to lighting up new avenues into a healthier environment for all.</p>	To convince the reader that the writer has made a significant contribution to society
Self as an engineer (23)	<p>The Engineering team of the UKZN bubble machine co. has produced the following design</p> <p>Group 4 Engineers</p> <p>The Engineers decided to use 9 volt battery to power a fan</p> <p>A group of junior engineers</p> <p>Our team of engineers</p> <p>As engineers working in a company (SAB) we have been asked to make a bubble blowing machine</p> <p>As an engineer it is a wise idea to do a research on others</p> <p>The innovative engineering group has designed the solar that was commissioned by Arcade Fire Enterprises</p>	To show membership in a discourse community

From Figure 7-4 it can be seen that students made claims to knowledge which positioned them in the role of experts. They interpreted their work and findings as significant contributions that had the potential to alleviate challenges facing the world, as well as to extend engineering knowledge. “In claiming a right to be heard, and to have their work taken seriously, writers must display a competence as disciplinary insiders (Hyland, 2005 p. 175-176). Their writing communicates “the ‘kind of person’ one is seeking to be and to enact here and now” (Gee, 2010 p. 30). Thus, students approached their tasks not just as an academic assignment, but rather as a professional activity, as indicated by the fact that they identified themselves as members of a ‘company’ that was commissioned to come up with a

prototype, or as extending, for instance, Robertson or Newton's theories. Another way in which students represented themselves as experts in their field was in giving instructions about the manufacturing and or testing and validation of the prototype. Technical report writing manuals indicate that these sections (manufacturing and testing and validation) should be written in the passive voice and past tense (see for instance Winckel and Hart, 2002). I believe that students' adoption of instructions in these sections produces an illocutionary effect of giving a directive. This way of communicating positions the writer of the text as a knowledgeable member of the disciplinary community (Hyland, 2001) and the reader as the consumer of the text. It also attempts to bring the reader into the discourse. Hyland (2005) believes that such positioning is a process of audience/reader evaluation where the writer chooses what the readers will need to understand the argument or process. This, he concludes, points to the way in which language is related to specific cultural and institutional contexts (Hyland, 2001). Giving directives suggests that the author of the text has the authority to do so.

A third way in which students represented themselves was in terms of their perceived contributions to society. Related to this was the fact that students also represented themselves as members of the engineering community. Students wrote as if they were part of the engineering discourse community. They saw themselves as engineering researchers who were communicating their findings. Figure 7-5 presents a summary of the self-representations evident in students' texts. Following Street (1999 p. 198), these findings show that issues involved are those of epistemology (who controls knowledge and how; who has the right to give voice) and identity (what person of self is being expressed in different forms of writing rather than technical or study skills).

Figure 7-5 Summary of self- representation in students' texts

Type of voice	Denotes	(d)iscourse realisation
Social identity	I am an engineer/we are engineers I am an originator/inventor	Referring to self as engineer Personal pronoun (I, we, our)
Social relations	Relationship with group members Relationship with readers	Personal pronoun – (our/we/ us/ourselves) Recounting/explaining research procedure for reader to understand
Knowledge and beliefs	Role in knowledge production Role in society	Personal pronoun (I, we , our) Making claims about advancing knowledge Giving instructions

In this section, I have explored the various identities or forms of representation that students bring to their texts through the use of the first-person pronoun. This manner of representing the self is 'unacceptable' in the engineering discourse community and is well documented in the course readers, which in the context of this study represent the empirical outcomes in the course. This finding proves the realist assumption that the empirical cannot be reduced to the actual, in other words, conceptions about what is acceptable do not necessarily correlate with actual events (i.e., what students actually do). I now move on to the analysis of the written feedback that tutors gave to students.

7.4 Feedback as a form of representation

From a socio-cultural perspective of learning, the university is considered a social space (Boughey, 2010). Within this social space, students and their lecturers/tutors and administrators converge. In this study, I was interested in the student–tutor discursive space. The most salient manifestation of this space is feedback, which I am convinced can promote or hinder the development of an academic literacy. Feedback also represents the actual reality, in the sense that it is an actual discourse event at the level of context of situation and context of culture (Lillis and Grainger, 1998). The academic literacies approach attempts to capture both these dimensions by considering feedback as both a discursive and a social practice (Lea and Street, 2000; 1998). Drawing on the literature on representation (see Fairclough, 1992; Hall, 1996), I believe that when tutors provide feedback to students, not only

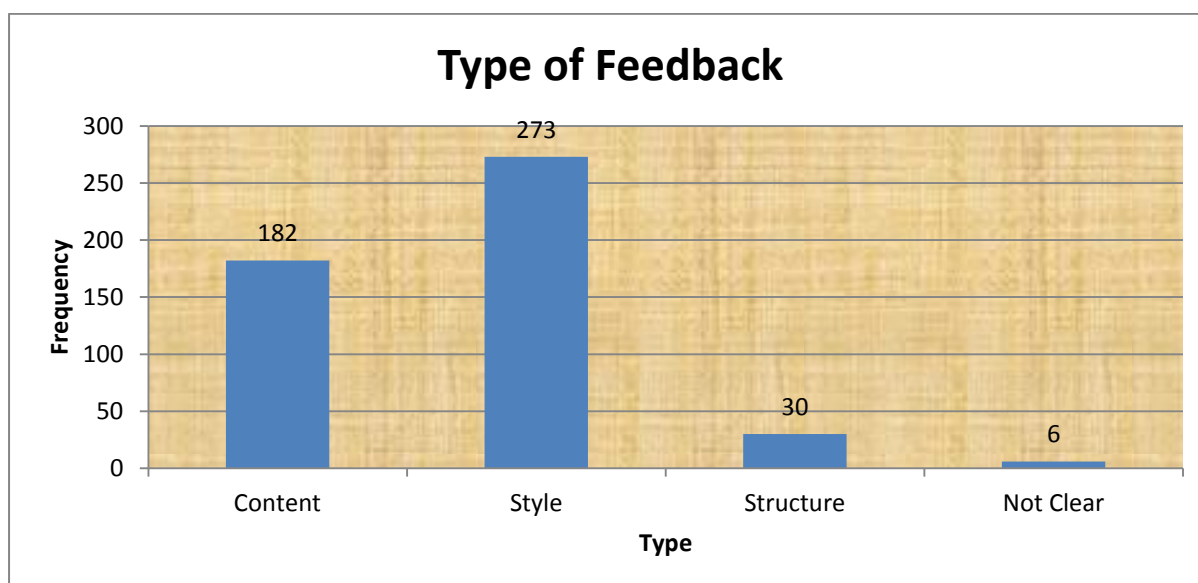
do they represent their views about writing, but in the types of feedback they provide they also indicate their perceptions of students. In other words, the comments are a reaction to the way students represent themselves and their knowledge. Consequently, the relative agency behind these comments cannot be taken for granted because they are also an important index of the discursive space that exists between students and their tutors. Lea and Street (1998) suggest that different interpretations of student writing

[a]re constituted both in the linguistic form of the texts – the written texts and the accompanying feedback- and in the social interactions that exist around them- the relationships of power and authority between tutor and student.

In view of this situatedness, they further contend that feedback should be regarded as a specific genre. In this study, two forms of feedback commentaries were initially considered: the comments on the feedback sheets and the in-text comments. Analysis of the comments on the feedback sheets indicated, however, that they were encoded under the specific tiers (content, structure and language); which meant that tutors had no choice but to comment on these. Because these comments were used principally to justify marks awarded for each section they were mainly evaluative and summative. Furthermore they were inserted on the final draft that was not given back to the students, though there was room for script viewing. A further complication with this data set was that not all the reports had written comments on the feedback sheets. Comments on the feedback sheets were therefore disregarded for the purposes of this analysis and it was in the end only the in-text comments that constituted the corpora. In total, 490 feedback commentaries were considered. As a genre, this feedback is considered only in the context in which it occurs (i.e., the *Technical Communication Course*).

The first step in the analysis of these feedback commentaries was to draw criteria from the structure of the *Technical Communication course*. As stated earlier, the course follows a four-tiered approach which consists of the design/experiment element, the structure of technical reports, and technical or style aspects such as referencing and the language/grammar component. Consequently, I examined the extent to which commentaries focused on these tiers. Figure 7-6 presents a quantitative analysis of the feedback commentaries that were found.

Figure 7-6 Types of feedback

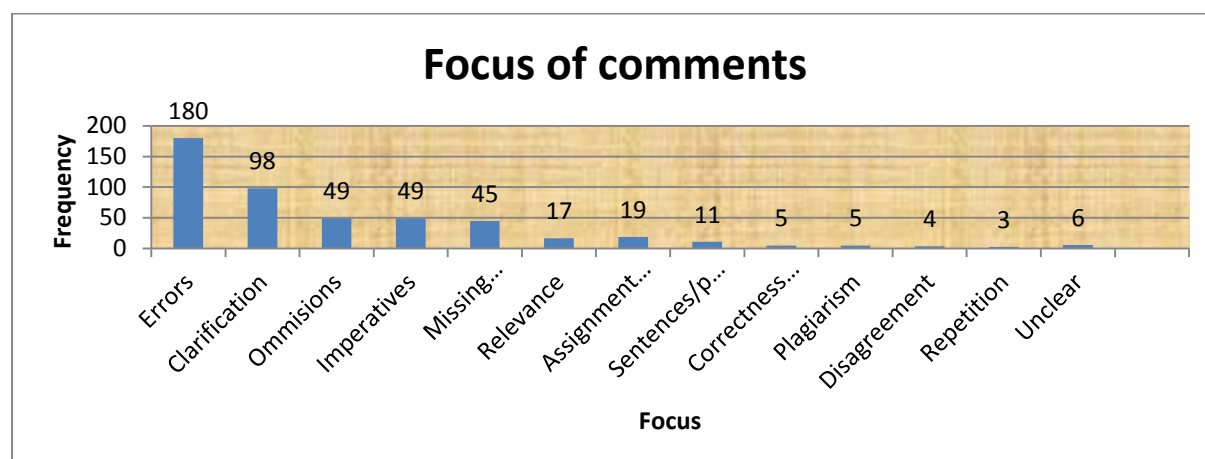


Comments classified as stylistic were those which focused on presentation of academic language and would include subcategories such as punctuation, lexis, syntax, voice, register and general grammar elements such as tenses or use of articles. In the same category, I also included technical aspects of writing such as referencing, citation and presentation (for example page numbering and spacing). With regard to structure, the focus was on comments related to the structure or organisation of the technical report as a whole as well as the organisation of individual sentences and paragraphs. For content, I considered comments that were focused on the objectives of the assignments. Initially, I assumed that these comments would be basically evaluative comments which denoted strengths and weaknesses of the assignments in terms of presented information. Figure 7-7 below shows this was not so as other characteristics of the comments emerged. Of the 490 in-text comments shown in Figure 7-6, 273 (56%) were concerned with style, 182 (37%) were content-related, while a smaller proportion, 29 (6%) were concerned with structure. Six of the comments were difficult to classify, hence they were coded as unclear.

The academic literacies approach problematises the content of feedback at the level of both epistemology and ontology (see Sutton, 2009; Lea and Street, 2000). At the level of epistemology, feedback should promote further learning and feed forward. At the level of ontology, feedback should encourage dialogic communication between

the tutor and tutee. Taking the academic literacies position, therefore, forced me to go beyond the analysis of the type of feedback to an analysis of the depth of the feedback in terms of the dialogic principle.

Figure 7-7 Focus of comments



Out of the 273 comments on style, 117 (43%) were basically editorial commentaries which consisted of tutors restructuring students sentences, crossing, inserting, circling or underlining words or phrases, in most cases without any explanation given for the comments. In other words, these comments were focused on highlighting linguistic errors in students' texts. Fifty-eight of the stylistic comments were on references and citation, and generally signalled missing citations (45 out of 58) or errors (13 out of 58) in citation. Only five of the comments on referencing provided an illustration of the correct form of referencing. Fifty of the comments coded as style pointed to errors in presentation. Forty-nine of the style comments consisted of what Lea and Street (1998) call categorical modalities, which included imperatives such as 'avoid!'; 'never use first person!', or words like 'vague' or 'awkward', as well as orthographic signs such as (? ! ^ x). These comments also acknowledged errors in students' work, "with little mitigation or qualification" (Lea and Street, 1998 p. 167). However, for the purposes of analysis, they were coded as a different category because they point to a different discourse. Commenting on his own use of the word "vague" in giving feedback, Myers (1996 p. 4) demonstrates that he used it with different meanings such as to suggest a more precise alternative to a word; to criticise organisation, to ask for evidence for a generalisation or to point the failure to spell out the implications of specific findings. In this study, similar instances of "vague" were also observed, without any comment or clarification as to why or to

whom it was vague. Hence, use of the word *vague* in the feedback commentaries in this corpus was in itself vague. The implication is that such superficial feedback does not provide students with an opportunity to learn because it is ambiguous and mystified. There is need for language tutors to demystify their feedback language so that it is accessible to students.

Of the 182 comments coded under content, 98 were either questions (such as “was this repeated?”) or statements (“you said it did not garner any results”) that required students to reflect on their content and provide explanations or clarifications. Forty-nine of the comments were focused on missing information and were less detailed: for example, “results?” or “testing methodology?” Seventeen of the comments pointed to the relevance of the content to the topic or section of the report. Five comments pointed to the correctness of information, four indicated tutors’ complete disagreement with the content, for example; “No! You didn’t prove that”. There were also five comments which suggested plagiarism, and the remaining three comments were on presentation of content in terms of repetition. Twenty-nine comments were coded under the category of structure. Of these, 18 were concerned with organisation of the assignment as a whole (i.e., at the discourse level). These comments would query why certain information was in a certain section: for instance; “this is messy! And should be in materials and apparatus”. Eleven of the comments were concerned with sentence structure, in terms of length, relations with other sentences, paragraphing: for example; “Keep sentences short and clear”. In the entire corpus, there were only two comments which complemented students indicating tutors’ positive evaluation of students work. The rest of the comments were mainly concerned with highlighting the deficiencies in students’ writing, though most of these comments did not have a negative valence.

Sutton (2009) argues that feedback can challenge students at the level of meaning, identity and power and authority because of the various ways in which they can interpret it. It can challenge students’ self-knowledge, and the asymmetrical relations between the student and tutor can also affect the meaning and identity of the students. Cast in this way, the socio-discursive space in which this feedback is given needs to be critiqued. The main finding related to the socio-discursive space relates to the dominant type of feedback that was evident in students’ texts. It is clear that

the feedback that was given by tutors over the four-year period focused on technical and stylistic aspects such as grammar, referencing and presentation – what Lea and Street (2000; 1998) call technical or academic skills. It is important to note that the focus on academic skills is not useless in itself. After all, the academic literacies approach privileged in this study incorporates the study skills approach, but, as Lea and Street (2000) would argue, addressing these skills takes on different meanings when the context is entirely that of study skills. This is because in the study skills approach, it is assumed that these academic skills can be easily learnt and transferred to other literacy contexts. Analysis of the feedback corpora indicates that the comments classified as stylistic (focusing of academic skills) were mainly concerned with either noting or fixing ‘errors’ in students’ writing. It is a fact that fixing students texts will enable both the tutor and the student to achieve the goals of a particular task, in this case, students pass the *Technical Communication course*. Seemingly, the goals of learning have been achieved, but do students understand the feedback? Basing his argument on the existing literature on error correction, Truscott (1996 p. 328) has argued that error correction is ineffective in that it does not produce better writers, and harmful because students do not learn for themselves. I also believe that fixing students’ academic skills problems does not encourage further learning. Rather, it creates learners who will depend on writing consultants and editors for the rest of their academic life. Moreover, the data in this study suggests that while students incorporated the corrections made by the tutors in their final drafts, they made the same errors in the other instances in the final drafts where the similar linguistic structures were used.

What was also evident in the feedback corpus was that most of the comments were task- focused; they focused on the task that students had already done, and were thus meant to help students achieve the goals of the *Technical Communication course*. Considering that the *Technical Communication for Engineers course* is considered developmental in the sense that it is meant to prepare students for the writing that they do in subsequent Engineering courses, this raises a very critical issue related to whether it is achieving the purposes for which it is meant to. Using Lea and Street’s (2000) terms, feedback in this course fed *backward*, not forward, where a forward-pointing feedback would be less concerned with tasks that have already been covered. Feedback from tutors in the *Technical Communication course*

was mainly focused on the immediate task of giving evidence to students of errors in their work, such as the need to provide more information, and was implicitly related to the quality of a particular text. Such an approach is characteristic of what Rose (1985) has referred to as the 'myth of transience', the belief that if we can just do x or y, the problem will be solved. In this case, x or y is characterised by the fixing of errors in student writing.

The type of feedback that was given by the tutors suggests that they considered that students were representing themselves in ways that were unsatisfactory. From an academic literacies perspective, such feedback is counterproductive, and follows what Sutton calls the "transmission model of learning which supposes that tutors transmit feedback messages concerning the strengths and weaknesses of assessment which students then receive and put into practice" (Sutton, 2009 p. 3). There is no question, however, that feedback is an indispensable element of the teaching and learning process and that it can encourage and consolidate learning. It is also a key element in the co-construction of a discursive identity (Gee, 2001) and of legitimate participation in a discourse community (Lave and Wenger, 1991). But if it is to be useful, it has to be perceived as part of a dialogue or conversation between students and their instructors. Superficial feedback regarding features of language does not aid the development of meaning.

I now move on to the analysis of the second data set that relates to the critical realist domain of the actual; the classroom observations.

7.5 Classroom observations

A second category of data at the level of events which was used in this study was classroom observations. As already stated, classroom observations enabled me to analyse the context in which literacy development took place. A key concept in this analysis was the notion of participation, drawn from the socio-cultural theories of Gee (1996) and Lave and Wenger (1991). Classroom observations enabled me to explore teaching and learning as an activity rather than focusing on students or academics as individuals. In this stage of the research I took down notes on forms of participation and engagement that I observed in lectures and tutorials. I also audio

recorded the lectures and tutorials to compliment my field notes. Classroom observations of both tutorials and lectures were conducted in the first semester of 2012. I will first discuss the data drawn from the observations of the lectures.

7.5.1 The lectures

A total of 700+ students were registered for the course in 2012. A single lecturer was in charge of the course and as there was no venue that could accommodate the whole class at the same time students were split into two lecture groups according to their majors. This resulted in two 45-minute lectures being held per week; one on Mondays and a repeat of the same lecture on Thursdays. The Monday group consisted of Chemical Engineering, Electrical Engineering, Electronic Engineering, Computer Engineering and Mechanical Engineering students, while the Thursday group were UNITE, Civil Engineering, Land Surveying and Agricultural Engineering students. There were 12 lectures for each group over the course of the semester. Only eight of these lectures were observed for the purposes of this study, according to an observation schedule.

In terms of the pedagogy, the lectures followed the traditional lecture format where the lecturer stood in front of the class and gave notes for the entire duration of the lecture. In other words, there was a one-way transfer of information from the lecturer to the students, what Freire (2008) would refer to as the banking model of learning. With regard to the input, one lecture was dedicated to the concept of green design, one was concerned with the 'how to' of oral presentations, while the other six lectures observed were concerned with the 'how to' of technical report writing. This input was to be reinforced in the tutorials. On a couple of occasions, slippage was experienced with regard to objectivity of the engineering persona. As the lecturer was giving an oral illustration of how to structure written sentences in the technical report, he said:

(Lecturer 2) Simple example – we have two problems which are going to affect the coal mining industry in the near future.

In the excerpt above, the lecturer unconsciously uses the first-person pronoun while trying to give students an oral example of how to write an introduction. Below is another example:

Lecturer 2: First of all what my experiment procedure is going to be and then as you work through the experiment know this what we do here and this one there, this one there.

In this excerpt, the lecturer was giving an example of how to write the experimental procedure. Although the lecturer was not suggesting that students use the first-person 'my' in writing this section, there is a possibility that students would have taken this utterance as a valid example to mimic as they negotiate writing. Research has proven that students, especially at the first-year level, consider d/Discourses (Gee, 1996) presented to them through the textbook or during lectures as factual and they attempt to reproduce the same d/Discourses in their writing.

Students were not expected to take down any notes during the lectures as these were provided on a learning site called Moodle. Thus, all students had to do for the entire 45 minutes was to sit and ideally assimilate all the information. The pictures below represent typical lecture scenarios.

Figure 7-8: Typical lecture scenarios



What was clear from class observation is that the large class posed a significant barrier to the teaching and learning of this course. Students seemed disinterested and sleepy, and were very passive during the lectures. Some were noisy and disruptive and the lecturer had to caution them on a number of occasions. There were also students who used the lecture time to do their Mathematics, Physics or

Engineering courses tutorials. Others played games on their laptops or cell phones. What was interesting was that students tended to be more attentive when the lecturer focused more on the design of the prototype and passive when he went on about how to write a report. An example of a transcript for the lecture can be found in Appendix H.

7.5.2 The tutorials

A total of 31 tutorials were observed over a thirteen-week period. Students were divided into tutorial groups based on their majors. There were 11 tutors on the course. Each tutor, except for one, had more than one tutorial group. The student numbers also varied per group, with some groups having between 35 and 40 students while others had around 15 students. Figure 7-8 gives biographical data for the tutors that were observed.

Figure 7-8 Biographical details of the tutors

Tutor	Qualifications	Experience	Observed/Interviewed
Tutor 1	Master's student in literature	Three years teaching the <i>Technical Communication</i> course	Both
Tutor 2	Bachelor's degree	Three years tutoring on the course	Both
Tutor 3	Bachelor's degree	Four years tutoring on the course	Both
Tutor 4	Master's student in sociology	First year tutoring on the course, had been tutoring in Sociology for five years	Observed
Tutor 5	Master's student in creative writing	Second year tutoring on the course	Both
Tutor 6	Master's student	First year tutoring on the course	Both
Tutor 7	Master's student	Second year tutoring on the course	Both
Tutor 8	PhD student in Linguistics/Philosophy	Second year tutoring on the course	Interview only
Tutor 9	Master's student	First year tutoring on the course	Interview only
Tutor 10	Master's student	Second year tutoring on the course	Interview only

All the tutors were from the Humanities and could be broadly categorised as language specialists. Because it was in the tutorials that the writing and designing of the prototype was supposed to take place, one aspect that I particularly sought to discover from the classroom observations was tutors' discursive practices and how these might help them address students' technical report writing needs. From all the

tutorials attended, it was clear that tutors saw their role in the course as that of fixing students' linguistic and technical 'deficits'. Twenty-five of the tutorials observed began with a language or writing focus, where the tutor would stand in front of the class 'telling' students about the pros and cons of good writing. Just like in the lectures, students were not expected to take down notes from the tutorials as these would be sent to them via email. Only two of the tutorials began with a discussion of the concepts of green design and renewable energy. This would be followed by group work in which students were expected to write their texts based on the input given in both the tutorials and the lectures. However, students' responses to instructions given for class activities were varied amongst the different groups. Some groups simply disregarded the tutors' instructions and were often disruptive. However, in most of the groups, students used the time to discuss their prototype rather than actually writing up the texts as was expected. An example of a transcript of the tutorial can be found in Appendix I.

The language tutors employed a number of techniques which were meant to normalise academic discourse, while at the same time disciplining students to conform to this discourse. Among these techniques were 'pep talks' about acceptable and non-acceptable technical writing and the penalties thereof. The discourse (small d) during tutorials and at times also evident in the lecture took the form "You will lose marks if you do not do xy". The following excerpts from classroom observation reveal this trend.

Tutor 1: *You must prove to your marker that you can write in an academic style that is agreeable to the conventions of university writing*".

Tutor 1: *You will lose marks if your marker is dissatisfied with how you write*

Tutor 2: *I am marking your paper, if I am not pleased*

Tutor 4: You will submit your proposal to Dr... and *he will either approve it or throw it out*

Tutors also felt compelled to continuously remind students of due dates for submission of assignments. Students were also expected to send their reports to the tutors before the tutorial so that whatever 'problems' might be found could be 'fixed'.

In a discursive sense, such techniques were meant to discipline students within the discursive parameters of the understanding of technical writing as perceived by the tutors in this course. From a Foucauldian point of view, normalising techniques of this kind force agents (students in this case) to learn self-surveillance. Self-surveillance is scrutinising one's actions as if they were being observed by others, especially those in power (Vaz and Bruno, 2003). By consistently making students aware of the penalties they could face if they 'transgressed' certain academic conventions, the language tutors assign agency to learn entirely to the students, paying little heed to the fact that such conventions may be a complete mystery to students encountering the discourse community for the first time (Lillis, 1999). Assigning the agency to learn to students reflects wider societal discourses related to the marketisation of higher education (see Belcher and Trowler, 2001). As a commodity, education is seen as something that students can consume, and as consumers, students are considered to be responsible for the choices they make.

Another interesting theme that came up during the tutorial observations relates to the notion of identity. Both the field notes and the transcripts show that tutors in this course consistently reminded students of their affinity with the Humanities Faculty, as a way of showing where their expertise lay. The tutors made it clear to the students that they were not engineers but were brought into the course for their 'English' language expertise. Consequently, tutors made explicit and at times implicit claims that the *Technical Communication course* was an English proficiency course. The following excerpts from the tutorials reveal these issues:

Tutor 1: By the way, *I am not a technical expert* at all. ... I come from the humanities. *I am a master's student in literature. So I specialise in writing and speaking.* So if you tell me that if I could put two potatoes in my ears I can get an electric circuit running, I will most probably believe you. I trust you with your technical expertise.

Tutor 4: *I will learn a lot because I am not from a science background as you will discover. I know nothing in science.* But *I am here to help you with your technical communication skills*, your writing skills and to prepare you for once you are in the real world.

Similar sentiments were also expressed by Tutor 3 and Tutor 5. In these excerpts we find tutors acknowledging their limited understanding of technical concepts while acknowledging their expertise in language-related issues. This *status quo* is

particularly problematic because it has pedagogical implications which can limit students' opportunities to fully engage with learning content. In the context of this study, it means that students are robbed of the opportunities to fully participate in the discourse. Hence, Jacobs (2010a; b) advocates collaboration in the entire teaching and learning process, starting from syllabus design to material preparation. Unfortunately, for these tutors, their only engagement with the course was in the delivery of the tutorials. Returning to the classroom discourse excerpts above, it is evident that tutors' acknowledged students' expertise in technical aspects of the course while at the same time foregrounding their own expertise in the language issues. In other words, there was a negotiation of both identity and knowledge by the tutors. This negotiation also impacted on the interactions that existed between students and tutors throughout the course with some students not handing in drafts to the language tutors for 'correction'. The same students did meet their deadlines for submitting their work to the content course lecturer.

In Chapter 5, I indicated that CR consistently asks why a certain result has been found, because the observed findings are merely "outcroppings" of a deeper unobserved and unobservable reality (Sobh and Perry, 2005 p. 1201). In seeking an answer, realists use prior theories or research to explain social phenomena. In a similar vein, theoretical knowledge and previous research findings were sought to explain the main findings coming from the classroom observations. It is obvious from the data presented in this section that the focus on academic skills discourse (Lea and Street, 2000; 1998) was the main feature of the tutorial. It was in the tutorials that students were grounded in the technical aspects of grammar and academic writing, as was manifested in a number of ways. First, it was evident in the explicit teaching of linguistic aspects that took place mainly in the tutorials, and with all tutors emphasising that the purpose of the course was to improve students' language skills. Bernstein (2000) suggests that the teaching of technical skills is a pedagogic discourse that atomises and deconstructs the real world of communication, language and literacy in order to codify a set of skills and academic processes (Hallet, 2011). Because tutorials were mainly concerned with explicitly teaching how to write rather than with content, student 3 felt technical writing was about "How you express yourself not what you are writing about". This comment shows that this student sees the *Technical Communication course* as privileging technical skill ('how to write') at

the expense of content. I have indicated that academic literacy in this study involves access to a disciplinary discourse as well as new ways of knowing and making sense of their experiences (Gee, 1996, Sutton, 2009). Clearly engineering knowledge goes well beyond familiarity with writing skills in full appreciation of what engineers do. It is therefore not surprising that students who were interviewed in their second and third year of the engineering degree deplored the skills approach that was used in the course as they felt it did not adequately prepare them to handle the writing they had to do in subsequent years.

The tutorials were also an opportunity for students to negotiate their understanding of engineering concepts. As students interacted in their groups during the tutorials, they employed a number of discursive practices in an attempt to co-construct knowledge. These included drawing on prior knowledge that had been gained in high school or through reading and or use of vernacular language to convey meaning. With regard to prior knowledge students made references to their Matric syllabus. Concepts that came up in discussions included using a dynamo to create electric current, the chemistry of the car battery and Faraday's Law. Students spoke of these concepts as common knowledge and assumed that all members of their group understood them in a similar way. The following excerpts reveal this theme.

Extract from Tutorial 1 : *We might also want to consider the car battery ... we studied it last year. We do know the chemical reactions and stuff that take place. So it does eliminate our... but if we can create that much power*

In this extract, the student makes the assumption that all the students in his group understand the chemical reactions in a battery. The use of 'we' suggests a common knowledge and background.

Extract from Tutorial 3: *You see what I researched as well is that there is this, you can use the hydroelectricity, but, basically you have to, it's a simple, it's a simple device that you have to create. You take a pipe and at the end of the pipe you have to put a computer fan, so what happens is that if you stick it[pipe] in the ocean, ok, basically, but you have to fix it in the ocean, as the water comes in the fan turns at the top and in front the wires, if the fan turns, it shown on the video, we can get electricity from it, something like that...*

In this excerpt, the student made the assumption that the concept he was explaining to his peers was simple to understand and to make. Another resource that students

used to negotiate meaning and knowledge among themselves was their vernacular language. This happened mainly where the group was composed of students from the same linguistic group. Explanations of concepts and processes were done mainly in the dominant language of the group although at times this was interspersed with a few English words. An example of an interaction following this trend is given below:

Student: So, let's get started
 SS2: So..solar charger
 SS3: Solar charger, sizocharger hini nayo?
 SS4: Nokia
 SS: Solar charger , Nokia
 SS: ..masisebenzisa isolar charger
 SS: first thing is isolar charger is a renewable source of energy and can use electricity from the sun
 SS: which energy does a solar panel convert into electrical energy? Is it light or heat?
 SS: It's heat, isn't it?
 SS:... light radiation
 SS: its converties bani energy into electrical energy. Heat energy
 SS: yaah, heat energy from the sun not from thee ... not anything like...It depends on
 SS: icalculator ziyasebesnzisa amasolar. Isolar is universal
 SS: Kodwa heat iyakwanisa uku..
 SS: Buka mufowethu, kuma uthi iheat, utsho...iheat haiku... fanele ukuthi iheat yelanga
 SS: masisendlini lapha, nansi icalculator esebensisa isolar, so liyiphi ilanga endlini?
 SS: ku solar panel
 SS: Ungathatha isolar uyibeke endlini mauzocharger amabattery ayabekwa pandle
 SS: Nansi iquestion mufowethu, zikhona izindlu ezi... haliko ilanga kodwa isolar iyasebenza..haloko ilanga
 SS: akhona amabattery awo
 Mfowethu, hantso ukubone ukuthi umhlaba
 Yiyo yaya into isolar isebenza ngayo

In this instance, isiZulu-speaking students were conceptualising the project in their first language, IsiZulu. Boughey (2005:167) describes this as the ability to use “prior knowledge to interpret a work”; and to ‘internalise the knowledge through the medium of a [first] language. The medium of instruction for the *Technical Communication for Engineers course* being English, the question arises as to why this group of students were discussing the project in their L1. The conventional understanding would be that these students resorted to the language they were familiar with because of limited proficiency in the English language, but Mgqwashu’s

(2009) autobiographical narrative (first recounted in 2007 as part of his PhD thesis) relates how conceptualising ideas first in a vernacular language and then translating to a second can lead to increased understanding of concepts. This casts doubt on the 'limited proficiency' argument, and suggests that students have certain resources of their own that can help them in their construction of knowledge, that Gee (1996) terms primary Discourses.

7.6 Conclusion

In this chapter I have presented evidence that highlights dominant practices that agents in the *Technical Communication course* engage in. The discourses that were found in Chapter 6 were found to influence the practices identified in Chapter 7. For instance, the focus on 'limited English language proficiency' has influenced the practitioners to focus on explicit teaching of technical skills such as grammar, referencing and sentence structure. These aspects were also the major focus of the feedback. The 'professionalism' and 'participation' discourses gave primacy to the disciplinary practice of design as the focal point of the course. Notwithstanding this focus, students have had to learn these practices through a process of 'socialisation' in which for years they have been expected to produce texts that they have only heard of (that is, being described in the tutorials and lectures) but never seen. Issues of identity also emerge in the data, where expertise is negotiated by both tutors and students. Tutors also foregrounded their language expertise while acknowledging students 'own' the engineering discourse. These themes will be considered in detail in Chapter 8.

Chapter 8

Real experiences of academic literacy in a *Technical Communication* course

Explanation depends instead on identifying causal mechanisms and how they work, and discovering if they have been activated and under what conditions (Sayer, 2000 p. 14).

8.1 Introduction

This chapter presents the final analysis in the critical realist framework adopted in this study. The analysis moves from the domains of the empirical and the actual to that of the real. In Chapter 5 I indicated that the domain of the real is concerned with generative mechanisms which, by enabling or preventing change, produce events that we see in the domain of the actual (Miller and Tsang, 2010). To get to this real reality, one starts with an empirical problem.

1. What are the dominant discourses framing the representation of academic literacy in a *Technical Communication* course on in an Engineering Faculty?
 - a) What dominant practices do these discourses give rise to?

From this empirical problem, one proceeds to *abstract* the relationship between the phenomenon (in this case the representation of academic literacy) and causal structures (Yeung, 1996). The process of abstraction demands that one focuses on prior theories because “reality is external; hence other people have likely researched or experienced that reality before” (Sobh and Perry, 2005 p. 1201). In CR, theorising about concrete phenomena is a way of suggesting mechanisms that explain events (Miller and Tsang, 2010). This suggests that the object for theorising in this study is not necessarily the events or the empirical reality, but rather the underlying mechanisms that enable or prevent the phenomenon of social exclusion. In this study, Discourses are considered to have causal powers, in the sense that they are used to explain and categorise social phenomena (Gee, 1996; Foucault, 1994; Fairclough, 1992). Chapters 6 and 7 identified these Discourses through a descriptive analysis of the experiences and events in the context of the *Technical Communication for Engineers* course. An attempt was also made to theorise why

such findings were found (Danermark, *et al.*, 2000) and so a gain a deeper understanding of the reality. In the context of this study, these mechanisms or discourses lead to social exclusion. Hence, the analysis in this chapter moves a step further from simply identifying discourses and their resultant practices, to an exposé of how they work together in enabling and/or preventing the social exclusion of agents in the Technical Communication for Engineers course. This analysis is in line with the second sub-question in this study:

- How do these discourses and practices serve to include or exclude students from the engineering discourse community?

The data presented in Chapters 6 and 7 is in the first instance considered as a single sign, namely, representation of academic literacy. This sign signifies technical communication as a form of academic literacy. The data drawn from the different sources in the study also indicate different signifiers of the sign *representation*. For instance, it was clear that students, language tutors and the engineering academics have different notions about what constitutes knowledge in technical writing. It is the purpose of this chapter to bring together the different signifiers so as establish a coherent analysis of the sign *representation*. The discussion in this chapter is closely linked to the notion of social exclusion and epistemological access – and more specifically, to discourses and practices in the Engineering Faculty connected with technical communication that serves to include or exclude students from the engineering discourse community. In this study, social inclusion/exclusion is considered from a socio-cultural point of view where personal experiences of teaching and learning are brought to the fore. More specifically, *exclusion* in this study is a matter of participation within the academy and hence primarily a horizontal spatial metaphor, although issues of social class are also implicated. This is because the main focus of this analysis is on the distinction between the marginalised and the included.

8.2 Organisation of the Chapter

This chapter picks up the discourses and practices that were identified in Chapters 6 and 7. Overall, the analysis of empirical and actual experiences suggests the presence of both inclusionary and exclusionary pathways. The first section will discuss discourses and practices that seem to promote social inclusion of students. Gee's (2001) understanding of identity and Lave and Wenger's (1991) notions of participation are central to this discussion. The second section will focus on discourses that potentially contribute to the social exclusion of students. One of the central attributes of dominant discourse is its power to interpret conditions, issues, and events in favour of the elite (McGregor, 2003). In this vein, dominant discourses marginalise 'other' people's discourses in favour of those of the elite. Consequently, discourse analysts working within a CDA framework seek to bring connections between these discourses and exclusion to the fore.

It was evident across all data sets that all the agents (language specialists, engineering academics and students) equate technical communication with English language proficiency. This discourse has also influenced another discourse related to the way students are represented in the School. There is ample evidence to suggest that students are constructed in a deficit mode. In this discourse, agency to learn is placed on students and their experiences and background are faulted. The literature reviewed in Chapter 3 suggests that these discourses have guided educational provision for many years and continue to be prominent (Boughey, 2000; Barton, 2007; Scribner, 1988). The intellectual roots of these discourses have also been traced to the concept of the great divide popularised by Goody and Watt (1965) in their article entitled "The consequences of literacy". A further discourse that seemed to be dominant amongst engineering professionals and students relates to technical communication as *entrée* into the world/profession of engineering. This discourse is akin to participation and illuminates Gee's (1996) metaphor for academic literacy as drinking from the bar with experienced people in the discourse community.

These discourses have also produced certain practices. Concurrent with the conflating of academic literacy with English language and with the deficit discourse is the teaching and learning of academic literacy as a set of transposable skills (Lea

and Street, 2000, 1998). This practice prioritises the explicit teaching and learning of technical skills of writing as if they were easily transferable from one learning context to another. This was evident in interactions that took place during tutorials and in the type and focus of feedback that was given by the tutors. Furthermore, it was these discourses that led to the packaging of academic literacy into a course: *Technical Communication for Engineers*. Technical communication being understood as entrée into the Engineering discourse community constitutes a practice I have termed *design as participation*. Other practices that emerged include the performance and representation of 'self' in student texts.

8.3 Design as participation in a discourse

A running argument in this study is that learning entails progress along 'trajectories of participation' (Lave and Wenger, 1991) and growth of identity within a given community of practice (Gee, 1996). To develop this identity, students need to 'crack the code' and use appropriate academic literacy practices to be considered members of an academic discipline (McKenna, 2010). The upshot of such an understanding is that learning activities need to be as authentic as possible, while at the same time recognising that students are still newcomers to the discipline. What forms of participation were evident in the *Technical Communication course*? Gee (2001) and Lave and Wenger (1991) have shown that people learn by participating in the socio-cultural practices of discourse communities. Gee (2001) refers to this type of participation as *discursive identity*. Gee (2001) refers to this type of participation as *discursive identity* which "reflects an understanding that speakers apply as they select genres of discourses with the knowledge (tacit or implicit) that others will use to interpret their discourse as a signal of their cultural membership" (Brown *et al.*, 2005 p.783). Thus, to be accepted in an academic discourse, one has to demonstrate that he or she can act, speak and share the same values as the older and more experienced members of the community (Boughey, 2000; Gee, 1996). This understanding of discourse is what Gee (1996) characterises as capital-letter Discourse, which entails ways of saying, being, acting, believing and behaving in an engineering discourse community. In Chapter 2, I indicated that the discourse of being an engineer will involve the practice of design to solve real-world problems

(Wolmarans and Collier-Reed, 2010; Allie *et al.*, 2010; Perelman, 1999). Drawing on these theoretical constructs, I anticipated finding a relationship between students' development of discursive identity and the discursive practices they engaged in the course.

The problem-based approach that was used in the course from 2009 to 2012 allowed students to experience the design element of engineering, a practice that is essential for their academic as well as professional lives. Wolmarans and Collier-Reed (2010 p. 29) show that this kind of practice gives students an opportunity to become "recognised by their peers and lecturers as legitimate student engineers". It is a model that enabled students to engage in cooperative learning where they co-constructed knowledge together with their peers. Winsor (2003) notes that knowledge construction in the engineering discourse community is characterised by distributed cognition where people work together to construct meaning. She believes that such an approach makes cognition robust and, in the context of this study, increases opportunities for students to participate. The following excerpt highlights this idea.

Student 13: Working as a group and me as their leader made it much easier because the amount of work was a lot so by spacing it up among your members it made it much easier for me as an individual and *I also felt that by working as a group you get other ideas instead of one mind.*

Engineers in the field seldom work alone; hence this component of the curriculum exposed students to some of the realities of being an engineer. Wolmarans and Collier-Reed (2001) consider both problem-based and team-based learning to be authentic learning experiences for science and engineering students. The theoretical constructs of situated learning suggest that patterns of relationships that are created in CoPs, as was the case in the above excerpt, represent socially and culturally legitimate participation (Boylan, 2010; Lave and Wenger, 1991). This is because students were engaged in activities where there was a shared sense of values. All the students taking this course were engineering students and it was through participation in these practices that students managed to display their tacit knowledge of engineering design. This was especially manifested in the design of the 2012 course where students were given the autonomy to choose the design for themselves. Interesting green designs ranging from ones that used piezoelectricity to

hand-cranked torches were created by students. Hence, through participation in valued Discourse practice of design, students had the opportunity to put into practice the knowledge they had gained.

The effect of the team-based approach and the design element of the course was manifested in a related discourse that was evident both in the interview data and in students' reports. Students represented themselves as members of the engineering community, speaking and identifying themselves in their writing as if they were part of the engineering discourse community. For example:

As young engineers **we** appeal to contribute in a certain way

As [a] group of engineers **we** did a research...

Allie *et al.* (2010) acknowledge that in a participatory pedagogy such as an engineering design class, students' use of discourse is influenced by awareness that other students will perceive this as an indication of their membership to the discourse community. By so doing students acquire new identities (McKenna, 2004a,b; Gee, 2001). This suggests that acquiring a discursive identity goes beyond acquiring knowledge. In an Engineering context, it entails engaging with engineering content in a way that is recognised as legitimate in that discourse community. Engaging with Engineering content requires an awareness of the multimodal approaches of representing the knowledge (Archer, 2007). As mentioned in Chapter 2, these would include particular ways of speaking and or writing, together with symbolic systems such as mathematical calculations and modelling, practices such as collecting and analysing data using empirical laws and correlations, and presenting one's results to a range of different audiences (Allie *et al.*, 2010). Through engaging in design processes, students experienced this type of participation. They were expected to present their activities textually and orally in a range of modes that included prose and graphical representations of results as well as mathematical modelling of scientific principles. The effect of such an approach was that students also saw themselves as legitimate engineering researchers who were communicating their findings. This is borne out in the following comment:

After the experiments were done, the results were then compared to those of [other] international people['s] findings on solar cookers.

This statement from a student's report shows that the student perceived his position in the discourse community to have same status as that of the researchers in the literature that was reviewed. The phrase 'other international people's findings' suggests that the student saw himself as part of this global community. The word 'people' in this example could be substituted for the phrase engineering researchers, since the student was basically comparing his results to those of engineering researchers in the literature. Inherent in the text is thus a sense of belonging to a discourse community. Students also indicated their affiliation by affixing to their group names terms such as 'engineers'; 'engineering' or 'technology' as in the following example:

The device was designed and constructed by five people who are members of the African Engineers Co, Howard College, UKZN.

While this data indicates affiliation with the discipline, I also believe that it is closely linked to the notion of discursive identity (Gee, 2001). Taken as a single sign of representation, the data related to the design component of the course suggests that at some level the *Technical Communication for Engineers course* does give students access to the engineering discourse. It might be said that students taking the *Technical Communication course* developed discursive identities (Gee, 2001) which are constituted through participation in the discursive practices of the discipline. This is because learning in the *Technical Communication course* was defined with particular reference to the sorts of identities that students develop and how these relate to identities in the world of work (Allie *et al.*, 2010 p. 1). Indeed, students in this study acted, felt and behaved like the engineers in their discipline. Gee (1990) proposes that membership in a discourse community involves a saying-(writing-) doing-being-valuing combination). Thus, the design element satisfied the doing-being and valuing combination.

The next section focuses on the saying (writing) component of developing a discursive identity and argues that discourses that emerged in relation to this aspect proved to be in competition with the discourse of design as participation. These discourses are considered in this study to be linked to the notion of social exclusion.

8.4 What are students excluded from?

To understand the process of social exclusion in the *Technical Communication course* the starting point must be to ask what is at stake in the technical communication field in an engineering context. This compels the researcher to interrogate the knowledge to which students seek epistemological access and how this knowledge is constructed (Mgqwashu, 2011). Bourdieu (1977) argues that only those who can mobilise the relevant resources are able to take part in the struggles which define a field (Peillan, 1998). These resources – this cultural capital, – become symbolic capital when their possession becomes legitimate and further legitimates membership to a particular discourse community (Bourdieu, 1983/1986). I believe that the resource or capital that is at stake in the engineering context is the acquisition of engineering discourse in all its modes (design, textual, oral). To gain membership through textual discourse one has to make sure that the language of the text is recognised as legitimate by the discourse community. By so doing, students prove their membership. Hence, it is acquiring this discourse that enables students' epistemological access.

8.4.1 Exclusion from epistemological access

What happens then when the discourse is reduced to English language proficiency? There is ample evidence emerging from all three data sets that links academic literacy to the 'English language problem'. The dominance of the words 'English' or 'language' and related terms such as grammar in the interview excerpts illustrates this understanding. For instance Tutor 1 indicated to the students that *'the purpose of the module [was] to bring [their] standard of English to an academic level'*. The implication is that the focus of the course was on improving students' English language proficiency. Unsurprisingly therefore, students approach this course as an English language course. For instance one student who had done the course in the previous year and failed reiterated this point to his peers. His understanding of the course was that *"it's all about the report, you can make something and it does not work but you can pass on the report. Like he said, it's all about English"*. This status quo can be explained through Bernstein's (2000) pedagogic discourse which relates

to the way other discourses are appropriated for the purposes of their selective transmission and acquisition. In this case we see the 'English language proficiency' discourse being appropriated as technical communication. By critiquing the focus on English language, I am in no way ignorant of the fact that some basic competence in the language of learning in the *Technical Communication course*. On the contrary, I am keenly aware that success in higher education is largely dependent on the student's ability to convert their cultural capital into the legitimated capital (which is academic literacy). Focussing on English language proficiency as an end, and not a means to an end, the pedagogic device reproduces the unequal distribution of the capital that is accepted in the university.

The intellectual roots for discourses on English language proficiency can be traced in the origins of the ESL/EAP or TESOL discourse (Afful, 2007; Lilis, 2003; Boughey, 2000) which arose in response to the growing numbers of international students in the United Kingdom. The problem that arises is that academic literacy becomes atomised and deconstructed in order to codify a set of language skills and academic processes that are deemed appropriate in the ESL field. For instance, in describing students, Tutor 3 felt that their '*standard of English is abysmal*'. This perception was also affirmed by Tutor 9 who felt that "*for some students even just writing correct [sentences]...was sort of a battle*". There is no denying the negative valence in the word abysmal. It constructs students as objects that have little or no ability at all. But most importantly, it casts a shadow of hopelessness on the students. It also represents the tutor's low expectations of what students can do. Cast in this way, the utterance represents not just students and or academic literacy, but also the tutor's world view. Rose (1985 p. 341) stresses that:

This kind of thinking and talking is so common that we often fail to notice that it reveals a reductive, fundamentally behaviourist model of the development and use of written language, a problematic definition of writing, and an inaccurate assessment of student ability and need.

This raises the question of what the language tutors do when they consider students' writing to be "abysmal". The data presented in Chapter 7 indicated that they resort to "fix[ing]" problems with student learning, which are treated as a kind of pathology" (Lea and Street 2007 p. 159). The use of the term "abysmal" illuminates the idea that challenges that students face are treated as some kind of sickness. To treat the

sickness, as the data in Chapter 7 revealed, tutors corrected surface features such as spelling, punctuation and syntax while at the same time grounding students in linguistic rules about good or bad writing. Lea and Street (2000) show that feedback has a dual role. It works to construct both academic knowledge and the power relations between students and the more experienced academics. This is because through providing feedback, practitioners assume the power to construct students in a certain way, based on their textual identities, while at the same time constructing accepted norms and values. Lea and Street further describe feedback which focuses on error correction as an autonomous model of learning, which supposes that fixing problems with students' writing will automatically assist them in developing literacy practices that are required in the university. However, Gee (1999) cautions that Discourses are not mastered through explicit teaching as was the case in the tutorials for the *Technical Communication course*. Rather, he argues, they can be acquired through a process of apprenticeship, where students learn to drink from the same bar as their teachers by doing authentic activities in their discourse community. Such a view brings to the spotlight the legitimacy of using Humanities tutors to teach courses on academic literacy in the Engineering Faculty. Moreover, it highlights the need for academic literacy to be imbedded in every single course taught in the Engineering Faculty. By so doing, academic literacy serves the role of enabling epistemological access "to the ways in which knowledge is constructed in the university" (Bharutham and McKenna, 2012 p. 581). Thus, academic literacy conceived in this way, enables students to use the language of the discipline in ways that are accepted by members of the discipline. Unfortunately, these socio-cultural norms and gaining access into a discourse community are rarely made explicit to students who are then excluded for not taking on the appropriate way of being (Gee, 2003, p.9).

On the whole, the focus on skills is counterproductive for effective learning and, in the context of this study, is implicated in the exclusion of students from effective participation in their discourse community. Considering Lea and Street's (2008) understanding of academic literacies, such an approach is seen as insensitive to students' needs because it does not promote learning. Freire (2008) confronts the issue by characterising similar approaches to teaching and learning as the "banking" system of education where teachers (in this case tutors) assume the role

of depositor of knowledge about good and bad writing, with students constructed as passive receptors – objects with no autonomy and or ability to rationalise and conceptualise knowledge on their own. Consequently, the approach becomes a system of oppression and control, giving the academic literacy practitioners or teachers unnecessary powers to exploit the process of knowledge acquisition and generation by the students.

Student 2 provides a picture of how these academic skills were taught: *“They said it must be simple, understandable English, not complicated, understandable English that makes sense”*. In other words, the tutor presented academic writing as a transparent mode which students could easily decode. Comments from the other students also suggest that the tutorials were concerned with overt instruction in academic skills. There was general consensus amongst students that tutors, and at times lecturers, taught by giving hints. Student 1 stated that tutors and the lecturer *“gave us hints and some ideas on how to go about writing the reports and additional information”* such as giving *“an example of the first sentence of a paragraph that we are supposed to write in the report and that would give you an idea of how to continue writing your entire paragraph”*. Another student said that tutors *“said we must reference our work and when we write the reports it must logic”* (Student 3). The student could not explain what “logic” meant, though she indicated that she understood. This way of teaching academic literacy is a classic example of what Lillis and Grainger (1998) describe as monologic talking space, in the sense that information transfer is one way from the tutor to the student, which does not clarify for the student where to build bridges between existing and new knowledge/practices. Lea and Street (2000) comment that ways of presenting academic literacy knowledge as represented in the above excerpt may be mystifying to students who are new to academic writing. For instance, what does ‘understandable English’ mean? Nor is it clear whether the student really understood what this meant. It is therefore not surprising that students who were interviewed in their second and third year of the engineering degree deplored the skills approach that was used in the course as they felt it did not adequately prepare them to handle the curriculum in subsequent years. As one third-year student puts it:

one person can write better content with a bad format, and one person can write good format and bad content, and I am pretty sure that the professional

engineer will be frustrated with the bad format, but would rather have the good content because in the end.. what you want to know is ... the information that you are going to get out of it, (Student 4).

Taking the academic literacies perspective therefore, (Lea and Street, 2000) or the socio-cultural practice framework, helps practitioners to see student writing, feedback practices and the entire teaching and learning context as contested spaces in which assumptions about what constitutes valid knowledge and the authority that resides in the communication of these assumptions should be questioned (Bernstein, 2000; Lea and Street, 2000; Ivanic, Clark and Rimmershaw, 2000). Street (1999 p. 198) remarks that

It is at this level – identity, selfhood, personality – rather than simply at the level of writing technique, skills, grammar etc., that the conflict and miscommunication around academic writing often occurs between students and tutors.

An essential concern of this study is to uncover causal mechanisms for such discourses and practices. This raises the question of why tutors are seduced by the skills approach to the teaching of academic literacy. My analysis of the context suggests that tutors coming from a humanities background act as members of the discourse community they come from and employ ‘*orders of discourse*’, in a Faircloughian sense (2007) that they are familiar with to influence their teaching. As a consequence, their experiences of the humanities rhetoric, to a greater extent influenced the way they approached technical writing. Tutor 10 confirms this view in this manner:

Tutor 10: this is something that deeply alien to humanity tutors and that is something that is difficult to break them off because they have to believe that those things are critical for their own work you see. Like if you are a master's student in any discipline, like if you are a Masters Philosophy student it matters that things hang together the way they have to hang in philosophy. If you are a Masters student in English it matters that you have narrative coherence rather than logical coherence you know umm, and so that's what you teach...Because because, not because you have this commitment to it but because you are doing and you are shaped by what you are do, that kind of thing.

Perelman (1999) notes that humanities rhetoric is concerned with the consumption of textual objects. As a consequence, the text becomes the central artefact, placing

high importance on textual aspects such as narrative coherence and interpretation. Lillis (2001) acknowledges that in most writing courses, problems with students' writing as well as the solution are both constructed as being textual. Perhaps this is because writing courses are usually taken by language tutors and, as 'custodians' of the text, it is possible to argue that the humanities writers seek to preserve textual purity; hence their teaching is focused on correcting every textual error. Engineering rhetoric, in contrast, is concerned with the production of real objects, and the text becomes just a medium for explaining how the object was produced. In terms of Bourdieu's concept of habitus compels one to argue that favouring the skills approach to literacy indicates a lack of understanding and perhaps appreciation of students' [engineering] habitus, which includes dispositions and other processes of socialisation that enable them to have a "feel for the game" (Bourdieu, 1993 p. 5) of technical communication. This analysis suggests that the discursive practices prioritised in the humanities field become recontextualised (Bernstein, 2000) for the Engineering Discourse community. Fairclough (2007) suggests that recontextualisation can be seen as the colonisation of one discourse by another. This colonizing recontextualisation of the deficit discourse has been incorporated in the Engineering Faculty to explain motivation and ability. For instance Lecturer 1 suggests that what he terms English second language speakers "struggle like crazy" with the *Technical Communication course* while English first language speakers, on the other hand, were perceived to find the course "tedious and boring". This compels one to ask whether academic literacy is reducible to speech or linguistic background. Accepting such a view, unfortunately "allows true interests and injustices to be concealed" (McKenna, 2010, p. 11). Where the code modalities constituting students' discourses differ from those structuring the secondary discourse, it is inevitable that students will encounter problems. It becomes the moral obligation of those in the academy to ensure these codes do not remain mysterious rather than to shake heads and shift the blame.

Curry and Lillis (2004) also caution that English has hegemonic powers; hence, the use of English is not neutral or objective. This is supported by Tsuda (2000), who argues that the use of English should not be taken for granted as it causes linguistic and communicative inequality for the speakers of languages other than English as well as discrimination against non-English-speaking people and those who are not

proficient in English. Mgwashu (2011 p. 163) contextualises the issue and contends that “students who speak English and Afrikaans as first languages have been experiencing and enjoying epistemological access given they have been taught in their mother tongue since primary education”. This gap suggests that there is inequality in the acquisition of epistemological access, with some students habitually disposed to easily take on practices that can maximise their capital (Bourdieu and Passeron, 1965/1994). Thus higher education succeeds in reproducing subject positions.

Indeed, reducing academic literacy to English language proficiency definitely results in negative representations of students. Students are labelled as ‘second language speakers’ who are by default underprepared for learning. Unfortunately such labels silence the students’ voices, making them powerless to resist such labels and probably to improve their communication. By default, they accept their powerless position. This is exemplified by Student 16 who states that

From my side it was quite hard since like I was from high school I was doing like second language so here like they needed more of like Home language.

The student is keenly aware that he has been relegated to a certain position throughout his schooling life and is faced with the reality that his marginal position also continues within the university. Skutnabb-Kangass (1988) refers to this as “linguicism” (i.e., linguistically argued racism). It appears, therefore, that racism in the context of the *Technical Communication course* has been euphemised through terms such as “linguistic ability”, and “ESL”, a position which perpetuates the notion that non-English-speaking students are academically weaker than their English-speaking counterparts. This understanding is typified by the comment made by Lecturer 1 where obtaining “straight A’s” was seen as a natural characteristic of English first language students. By making this utterance, Lecturer 1 was taking us back to the apartheid mentality where the dominant discourses ascribed inherent cognitive differences between students of different linguistic backgrounds (see McKenna, 2004a). While I recognise that these representations are not deliberate efforts by the language tutors and the engineering academics to silence students, I am also keenly aware that they are a reflection of “deeply held beliefs” (Rose, 1985) which unfortunately restrict the way they think about academic literacy and the place

of writing in the university. In the context of this study, such beliefs are considered to affect students' self-efficacy and ultimately their academic success. Therefore, language tutors or discipline lecturers need to be aware that although unintentional, these harmful representations of students have the potential to shape how students perceive themselves (their empirical reality) as participants in higher education. Unfortunately, representations about students have become commonplace in academic thought and only a few practitioners question such discourses.

My discussion of social exclusion has so far focused on epistemological access as it relates to the possession of primary Discourses/codes/cultural capital (Gee, 1996; Bernstein, 1990; Bourdieu, 1983/1986), resources which I have argued are necessary for the acquisition of academic literacy. I have indicated how discourses that are used to legitimate the dominance of English language as the main cultural capital in the acquisition of academic literacy serve to marginalise other students while granting privilege to the position of others. However, the data also presents evidence of a disjuncture between students' needs and the Faculty of Engineering's understanding of these needs. To explain this, it is important to reiterate the conditions under which the course is offered. The *Technical Communication for Engineers course* is offered in the first semester of the first year. During this time students are basically doing Mathematics, Physics and Chemistry. In this regard, the course is not related to anything that they will be doing at that time. Consequently, four of the students who were interviewed in their second- and/or third-year levels of study felt the course did not adequately prepare them for the technical report writing they had to do in subsequent years. Student 5 felt that the course was introduced too early when they were "*still trying to find [their] feet*". Similar sentiments were raised by student 4, student 7 and student 6. Student 4 was rather more direct and indicated that they "*didn't do it for very long, so I don't think we got much out of it*". These students felt that there was a long gap between the time that they did the course and the time that they were expected to apply the knowledge gained in subsequent courses. The sentiments that these students raise are very significant in this study. They question the justification of stand-alone writing courses which are separated from the content subjects which students are doing at any particular time. Van Heerden (2000 p. 3) feels that such an approach is "theoretically indefensible" and therefore unjustifiable. It robs students of the opportunity to engage with literacy

in context and to meaningfully participate in the discourse of their discipline. More specifically, it points to the need for academic literacy to be embedded in the curriculum (i.e., in the mainstream modules) rather than being taught as a stand-alone course. This leads on to the discussion on the packaging of academic literacy as an exclusionary pathway.

8.4.2 Packaging of academic literacy into a course as an exclusionary pathway

The evidence presented in Chapter 6 suggests that the Faculty of Engineering's mission is to empower students with the necessary skills they will need in their professional lives as engineers. This view is articulated in the Faculty Handbook and reiterated by the engineering academics interviewed in this study. It is not surprising therefore, that in line with the Faculty mission, as well as ECSA exit outcomes, the result has been the packaging of academic literacy into a course such as *Technical Communication for Engineers*.

The packaging of academic literacy into courses has been widely criticised by scholars working within an academic literacies approach. An academic literacies perspective, would however, conceive technical report writing as a practice embedded in the entire curriculum, rather than being taught in isolation. This situation is not unique to the University of KwaZulu-Natal or to the Faculty of Engineering, as Boughey (2009) found this was common practice in a number of institutions in South Africa. Mgqwashu (2008 p. 316) argues that

introducing modules to address these needs, however, is the manifestation of an inherently common-sense idea that the difficulties experienced by students as they engage with tertiary study are attributable to issues related to 'language', and not to their failure to master a secondary (academic) discourse.

Notwithstanding this critique, Mgqwashu (2008), citing Jacobs (2006), suggests that the issue of whether academic literacy is better acquired through initiatives integrated within the disciplinary courses or through separate courses remains unresolved. This is partly because claims such as those made by Boughey (2009) or Mgqwashu (2008) are not based on empirical evidence of the two approaches, but more on perceptions (empirical reality) of the nature of academic literacy.

Nonetheless, an awareness of these arguments is important because it provides another window through which academic literacy is perceived. An essential question however is: How then has the Faculty interpreted and translated this aim into pedagogic practice? This question is significant in the light of Bernstein's pedagogic device. Bernstein (2000) suggests that the pedagogic device serves to convert assumptions about knowledge into pedagogic communication. Suffice to say that the assumptions that engineering academics have of technical writing, inevitably influence what is taught in the *Technical Communication course* and how it taught. Two discursive practices seem apparent from analysing the data in this study. It appears as if the Faculty is torn between making provision for social justice and the traditional second language discourse. The social justice element is satisfied by the Faculty realising that there is need for academic literacy development. Boughey (2012b) sees this concern for equity/social justice as a cultural condition which drives academic practice, yet it has marginalised and 'marked' students as different. Janks (2000 p. 177) suggests that this "difference tends to be organised in dominance, and it can lead as easily to domination and conflict as to change and innovation". Hence, in spite of good intentions on the part of the Faculty, the data analysed in this study has highlighted negative and harmful representations of students. A similar sentiment has also been echoed by Guitierrez *et al.* (2009) and was also a subject of critique by Bengesai (2010). However, despite these concerns for equity, the traditional second language discourse seems to have taken precedence as the discussion in Section 8.4.1 has indicated.

But perhaps a more critical question that needs to be addressed is: What did the outsourcing of the course from the Faculty of Humanities tell us about the Faculty of Engineering's understanding of its role in developing academic literacy? Is it possible that the Faculty was reverting to escapism by indirectly denying the responsibility to teach academic literacy? What emerges from the interview data with faculty is that there was recognition that 'students had difficulty with writing reports', a phenomenon which was attributed to linguistic background. As such it made sense that language specialists take over the course. Lecturer1 put it in this way:

Lecturer 1: *Using engineering competent academics to teach courses that were essentially literacy courses, it, was not an efficient use of time.*

What this comment implies is that although a need was envisaged, the Faculty did not perceive it as their responsibility to teach academic literacy courses, it “was not an efficient use of time” (Lecturer 1). Rose (1985 p. 346-347) helps us understand that by characterising

[l]iteracy as a ‘skill’ or ‘tool subject’, it was not being represented as ‘an integrated body of knowledge’ but as a technique, something acquired differently from the way one acquires knowledge.

It was thus not regarded as an efficient use of time to have content lecturers (therefore knowledge lecturers) wasting their time with teaching skills. This understanding positioned the two Discourses, Engineering Science and Engineering rhetoric, one against the other, with Engineering Science deemed superior. Belcher and Trowler (2001) note that engineering disciplines are considered ‘higher status disciplines’. This understanding also mirrors government and societal Discourses which place (Science, Technology, Engineering and Maths , STEM) subjects above other subjects (see Department of Higher Education and Training, Green Paper for Post School, Education and Training, 2012). Thus Lecturer 1 was just reflecting larger societal discourses in articulating the role of engineering academics in the development of academic literacy.

The debate on who has the chief responsibility to teach academic literacy is not new. Subject specialists (such as engineering academics) have always relegated the role to language specialists (see Jacobs, 2006). The upshot of such a practice has been that students are not exposed to the disciplinary ways of communicating, a situation that is counterproductive in the development of discursive identity (Gee, 2001) or manner of participation (Lave and Wenger, 1991). Simply put, students who are taught language (small letter discourse) instead of Discourse (in this case technical language and ways of being, writing and acting like an engineer) are robbed of the opportunity to participate in the Discourse of their discipline.

Lea and Street (2000) confirm that the reason why literacy is taught as a course in many universities is because it is perceived as a ‘skill’, and something that can be explicitly taught. Jacobs (2010a) also suggests that dominant discourses which conflate academic literacy with mastery of the English language gave rise to dominant institutional practices such as academic literacy teaching through add-on,

autonomous modules/subjects/courses. Conceived in this light, Jacobs argues that such courses are marginal to the mainstream curriculum. It is for this reason, that there have been calls for infusing into all aspects of the educational experience. For example, learning the discourse of engineering is central to learning engineering and therefore it is in the core 'engineering' courses that the responsibility for developing academic literacies needs to reside (Allie *et al.*, 2010). In the context of this study, the *Technical Communication course* was offered by the School of Engineering, although the tutorials were facilitated by language specialists. From 2010 to 2012, however, the lecturer for the course was an Engineering academic. Whilst this would seem to indicate collaboration between language specialists and content lecturers, a situation advocated by Jacobs (2010a, 2006), it is important to note that the *Technical Communication course* tutors are marginal. Consequently, the course has remained marginal to the mainstream and has not gained the same status as the engineering courses. Comments from students as well as classroom observations support this view. For instance, student 13 and student 14 mentioned that they did not attend the lectures for this course because they found it to be boring. These students also indicated their preferences for doing 'engineering stuff' such as Maths, Physics and Chemistry, courses that they were confident added value to their curriculum.

In concluding this section, it is clear that students are excluded from meaningful participation as a result of the dominant discourses and practices in the *Technical Communication course* context. Students are excluded from meaningful participation because they do not possess the capital (English language proficiency) which is legitimated in the Faculty and by the language tutors. This lack of capital prevents them from making "sense of the game" (Chouliaraki and Fairclough, 1999) or "crack the code" (McKenna, 2004b). This state of affairs gives an unfair advantage to students who already have access to this language. Unfortunately, when this state of affairs result in differences in performance, it is generally believed that non-English speaking students are weaker academically than English speaking students without any doubt being cast on the pedagogies that tutors/lecturers or institutions promote. Moreover, the timing of the course is also implicated in the exclusion of students given the time lapse that exists between the time they do the course and the time they are expected to apply the knowledge gained. It is important to note that it's not

only the students who experience exclusion in this course. The tutors also experience what it means to be outsiders. This is discussed in the section to follow.

8.5 Tutors: outsiders looking in

According to Gee (1996), Discourse is not just language, and hence cannot be reduced to language. It involves ways of thinking and being that are associated with a specific discipline, resources that the language specialist tutors do not naturally possess. As a consequence, they are limited in terms of the support they can give the students. This situation not only robs students of the opportunity to learn the Discourse, but also excludes tutors from fully engaging with students. In this regard, it becomes a question of who owns the Discourse; the language tutors or engineering students. More specifically, which discourse becomes privileged in the context of the *Technical Communication for Engineers* course? The following extract from Tutorial 4 (Tutor1) deserves attention in this regard:

Tutor 1: By the way, I am not a technical expert at all... so if you tell me that if I put two potatoes in my ears I can get an electric circuit running, I will most probably believe you. I trust you with your technical expertise (Tutor 1).

Here we find Tutor 1 acknowledging his limitation in accessing “more technical disciplinary content” which, unfortunately, is the deeper level of discourse where students really need linguistic access (Jacobs, 2007 p. 76). I mentioned in Chapter 6 that the tutors for the *Technical Communication* course were mainly from the Humanities. As such, they inhabited an outsider position (Jacobs, 2010a; 2005) where they had to learn the discursive practices of the engineering discipline at the same time that they had to teach the same practices. Whilst this presented a challenge, as some of them mentioned, it attests to the fact that there are multiple literacies which are socially situated (Barton, 2007; Lea and Street, 2000). Being literate in the language of communication does not necessarily translate into discursive practice in another field.

Tutor 7: Coming from the humanities, this was my first time teaching on the course, so technical report writing was rather foreign to me.

Another tutor put it much more clearly when he said that technical writing was “something new for myself and [yet it was] something I had to instil in the students’ (Tutor, 8). Although students saw tutors as experts in the linguistic aspects (small letter discourse) of technical communication, they were aware of their limitations in the Discourse of Engineering. This was made worse by the fact that when students asked questions regarding the technical side of the project, some tutors responses were either inconclusive and punctuated by phrases such as ‘*I think*’, suggesting unfamiliarity with the discursive practices of the course. Thus tutors were aware that as far as the engineering discursive practices are concerned they were ‘outsiders looking in’. There are challenges that arise when students are taught writing by an ‘outsider’.

Student 4: I remember we had a lecturer called xxxxx, he took us, and *he wasn't really in tune with the whole engineering part of it.*

This perception should not be easily dismissed. It is the student’s empirical reality. Clearly students need someone who also has content knowledge so that they can identify. Engineering as a semiotic system that constitutes a body of knowledge generated by a community of scientists using particular codes (Jamani, 2011). Bernstein (2000) suggests that knowledge is encoded in complex Discourses (I appropriate Gee’s (1996) interpretation of Discourse), which are available to insiders. Access to these codes positions social agents differently; hence, tutors in the *Technical Communication course* are positioned and also position themselves in respect to their epistemic relation and social relation (Maton, 2010) with engineering practice. Agents acquire a voice and message through their ability to use these codes. Within a scientific community such as Engineering, there are certain codes that construct and validate scientific knowledge (Jamani, 2011); such empirical laws, modelling and mathematical calculations (Allie *et al.*, 2010) which the tutors coming from Humanities did not necessarily share with the students. Consequently, this was reflected in their teaching and did not go unnoticed by students, as exemplified in the utterance by Student 4. This points to a need for training of the language tutors so that they are familiar with the multiple semiotic systems that are used in Engineering. Van Heerden (2000) states that when she realised that students made a distinction between her, a language practitioner, and “engineering faculty” it worried her and made her to realise her limitations. She describes her feelings as follows:

I have not myself experienced acquiring the discourse of engineering. My understanding of engineering discourse is peripheral-from an outside perspective. My understanding of discourse acquisition is theoretic-from reading and attending conferences, (Van Heerden, 2000 p. 1)

Clearly, these challenges have an influence on the tutor's self-efficacy and most importantly, the relationship that exists between students and their tutors. If students think the tutor is less knowledgeable than them as typified in the comment from Student 4, the chances are they will not take the tutors seriously. Perhaps that explains why some tutors felt the students resisted and persisted in making the same mistakes (Tutor 3), in spite of the tutor's attempts to teach them otherwise. Moreover, as I mentioned in Chapter 7, there were some students who did not submit their drafts to the language tutors for 'correction', but sent them directly to the engineering academic responsible for the course. This could be a sign that students felt they owned the Discourse and saw language tutors as outsiders.

8.6 Concluding remarks

The analysis in this chapter has revealed that there are multiple Discourses in the teaching and learning of the *Technical Communication course*. Some of these Discourses are influenced by social agents' backgrounds and experiences. It is also clear that some of the Discourses are enacted and are influenced by disciplinary knowledge and forms of participation. The notion of academic literacy has also been used to recontextualise discourses of deficit and differences. While accepting the understanding behind such discourses, the discussion in this chapter has revealed that these discourses in many ways hinder agents from fully participating in the teaching and learning, with practitioners making assumptions about what needs to be done to address such deficits. This limits learning opportunities for students and has been implicated in the social exclusion of these students.

The findings further reveal that, theoretically, the way in which the course is designed can potentially develop students' discursive identities, thus enabling them to participate in the discursive practices of their discipline. Indeed, some of the features advocated in the academic literacy as a social practice theoretical framework were evident in the course. For instance, the design process which was

incorporated in the course developed in students a sense of affiliation with the engineering discourse community as revealed by their reference to themselves as 'engineers'. Yet certainly, other features of an academic literacy pedagogy were absent. This is because the data also revealed that the pedagogical practice, to some extent, was an obstacle to the development of this discursive identity. This is because the practice was framed within an academic skills approach, which unfortunately does not allow students to meaningfully participate in the discursive practices of the discipline. The skills approach is characterised by telling, which as research has proven, is not effective. Thus, despite the best intentions towards social justice for students who have been traditionally excluded from higher education, the pedagogical approach leaned towards the more traditional approach which sees literacy as a skill.

Chapter 9

Conclusion

9.1 Introduction

The purpose of this study was to examine the way academic literacy is represented within a course on academic literacy in an Engineering Faculty by both students and academics, and how this representation produces discourses that can be used to legitimise particular practices. In this chapter, I reiterate the processes that I engaged in in my exploration of the representation of academic literacy in an Engineering Faculty. I also provide broad conclusions and appraise the implications of the findings for the current understanding of the relationship between the representation of academic literacy and social exclusion. Given that the study framed within a CR framework, the aim is therefore, not to simply understand the phenomenon, but to advocate for change from current understanding. I will first reflect on the research process.

9.2 Revisiting the research problem

The research objectives of this study were to:

- Explore students' representations of an academic literacy course, *Technical communication for Engineers* academics' representations of academic literacy and engineering academics' representations of students in relation to academic literacy within an Engineering Faculty.
- Determine how these representations permeate into academic practice in the course; inform pedagogical practice in the course and the acquisition of disciplinary literacy practices.
- Determine how some discourses that arise from these representations can potentially exclude social agents (both students and academics) from effectively participating in the teaching and or learning of academic literacy.

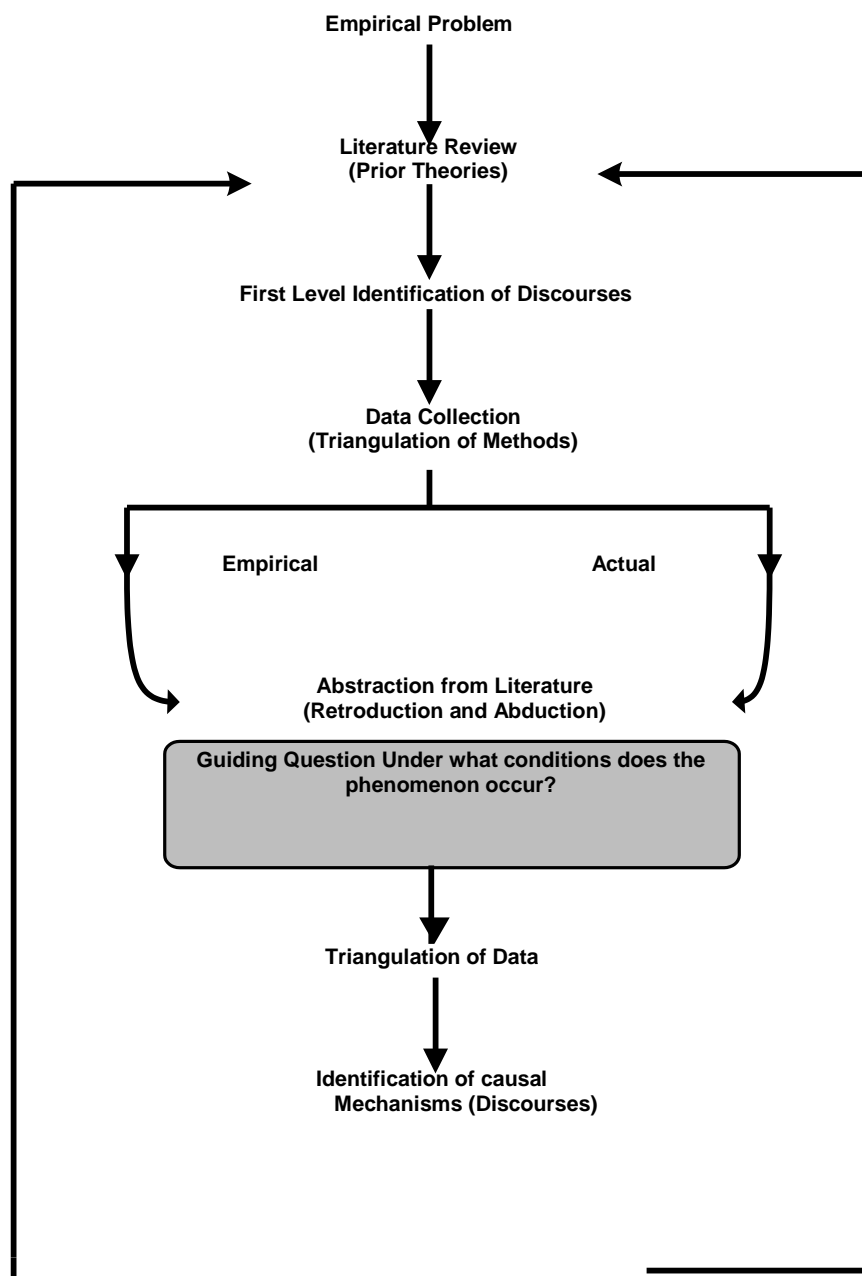
The study was also guided by the following questions:

1. What are the dominant discourses framing the representation of academic literacy in a *Technical Communication course* in an Engineering Faculty?

- a) What dominant practices do these discourses give rise to?
- b) How do these practices serve to include or exclude students from the Engineering discourse community

To achieve the above objectives and to answer the research question the research design summarised in Figure 9-1 was adopted.

Figure 9-1 Summary of research design



9.3 Methodological Considerations

The present research was guided by the ontological meta-theory of CR which draws from the understanding that reality is multidimensional and stratified. Critical Realists make a distinction between three domains of reality, the empirical, the actual and the real. The empirical is the domain of perceptions of experiences, while the actual is the domain of experienced events. The real is the domain of the generative mechanisms that produce social reality. In the context of this study, the phenomenon of social reality was conceptualised as the relationship between discourses that are used to constitute academic literacy and students and social exclusion. Given that this study was about teaching and learning, social exclusion was defined as access to codes (Bernstein, 2000) or cultural capital (Bourdieu and Passeron, 1994) that is highly valued in higher education. Hence, social exclusion was conceptualised as the extent to which discourses in the teaching and learning context enable or prevent epistemological access to the codes or cultural capital. Reflecting on the stratification of reality within a CR framework, data was collected to correspond with these domains (empirical, actual). However, the domain of analysis was the real, given its focus on generative mechanisms that structure events and experiences. Figure 9-2 presents the summary of the findings.

Figure 9-2 Summary of findings

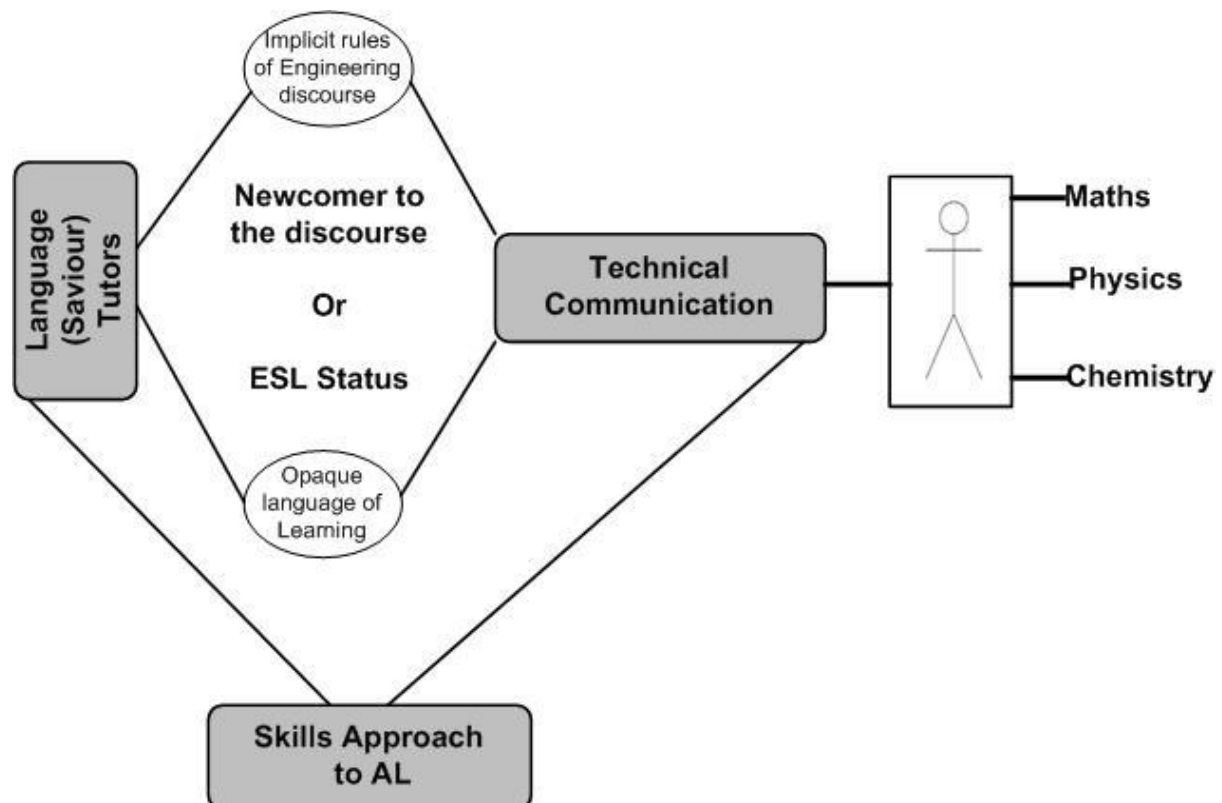
Data collection	Domain of Reality	Summary of findings
Interviews with language tutors	Empirical	The notions that students cannot write, have limited 'English' language proficiency emerged as major reasons why a course such as technical communication was necessary. Technical communication was perceived in terms of rhetorical and textual issues such as use of language and structure
Interviews with engineering academics	Empirical	Technical communication was defined as a way of representing engineering knowledge. Technical communication was also perceived as writing is about entry into the professional field
Interviews with students	Empirical	Technical writing is about reporting a process The course is not aligned to students needs since it is offered too early and at a time when it is unrelated to everything that the students are doing
Faculty documents and course packs	Empirical	Two discourses emerged from the Faculty documents. a) Technical communication was reduced to English language proficiency. b) Engineering design was ... as a central activity in engineering education
Students technical reports	Actual	Students employed various personas related to the way they perceived their role in the production of prototypes. The following social identities emerged: I am an engineer I am a producer of engineering knowledge I can make a change through knowledge
Students technical reports-Feedback	Actual	The feedback provided by the tutors was task focused in that it helped students to achieve the purposes of the <i>Technical Communication course</i> , but was not as useful in helping them become independent learners. The feedback was also mainly concerned with error correction
Classroom observations-lectures	Actual	Information transfer was a one way street from the lecturer's podium to the pews where students were sat. Students found the lectures boring and did not attend some of the lectures because the material was provided online.
Classroom observations-tutorials	Actual	Tutorials were mainly concerned fixing students' linguistic, rhetorical and technical 'deficits'

The analysis of the findings suggests that it was important in the context of this study to adopt a CR framework. The different instruments yielded different though related findings which were instrumental in understanding the notion of representation and how it relates to social exclusion. For instance, focusing on interviews only would not have revealed how embodied beliefs about the nature of academic literacy are enacted in the teaching and learning context. From a realist point of view, it would have conflated perception with object. In so doing, such research would have rejected the independent existence of reality outside of our perceptions (Miller and Tsang, 2010; Sobh and Perry, 2006). Similarly, a focus on classroom observations would have eliminated the possibility of gaining insights into students' conceptions of appropriate ways of participation in the discourse as well as the socio-historical,

socio-cultural contexts that confront them in and out of school which were evident in their technical reports. Therefore focusing on one data collection method, and consequently, one domain of reality would have been limiting.

From the findings presented in Figure 9-2, the first-year engineering student's context can be illustrated as follows:

Figure 9-3 The context of a first year Engineering student at UKZN



The first year engineering student seeks to be a member of the engineering discourse community. Technical communication is the literacy gate through which he has to pass through to gain this membership. Yet the Discourse of technical communication is characterised by implicit rules and is further mystified an opaque language of learning for many students. This is worsened by the fact that the *Technical Communication* course is in separate course on academic literacy which has no relationship with the other courses that students are taking at the same level. In the next section, I discuss the broad findings emerging from this study.

9.4 Representation of academic literacy/Technical Communication

Ivanic (1998) points out that academic literacy should be considered as both less and more than language. It is less than language because it is derived from language. People use language to convey their disciplinary knowledge. In its more than language aspect, it is embedded in the socio-cultural, cognitive and disciplinary nuances. Gee (1996) calls similar distinctions between discourse (small d) and Discourse (big D), where discourse refers to language in use while Discourse refer to the saying-doing-being-valuing combination (Gee, 1990). The overall conclusion that can be drawn from this study is that 'orders of discourse' (Fairclough, 2007) related to academic literacy seem to conflate technical communication with English language proficiency. It is for this reason that language tutors are appointed in the course so that they can address the linguistic deficits that students bring with them. There appears to be general belief that that through acquiring the language, students will automatically assimilate the socio-cultural and disciplinary nuances of engineering writing. Nonetheless, this practice imposes a number of constraints on the students. First, disciplinary practices and language as a medium of conveying knowledge are both opaque knowledge. Furthermore, academic discourse is governed by discourses which are entrenched in institutional cultures which are often mystified (see Lillis, 1999; Bourdieu and Passeron (1965/1990). Yet, in this study, these discourses were often taken as transparent and students were expected to reproduce them without difficulty in their writing. Failure to do so was seen as a form of resistance. By privileging English language as the dominant form of literacy, students were denied access to target engineering knowledge, which unfortunately was mystified in the opaque language of instruction.

Although the English language proficiency Discourse seemed to be the most dominant way of defining academic literacy, other forms of representation were also evident. The data shows that design was also considered a central form of engineering activity and knowledge. As such, notions of academic literacy also included the non-textual aspects of technical communication. This discourse seems to be in contradiction with the English-proficiency Discourse which privileges the teaching of academic skills. The design as participation Discourse privileges the socialisation of the novice student into the disciplinary discourse. The presence of both discourses in the teaching and learning context of the *Technical*

Communication course goes to prove that the discourses about academic literacy are not in any way constant and continue to evolve according to the context. Hence, there is not a singular view of academic literacy, but rather multiple perspectives. From a realist perspective, this could mean that although structures and mechanisms are enduring, the way they combine to produce events at the level of the actual and experiences at the level of the empirical where social interaction occurs cannot always be predicted (Boughey, 2012b) .

9.4.1 Representation of students

Descriptions of students also tended to draw on understandings of the nature of academic literacy. Because literacy is generally equated to English language proficiency, students' ESL status was seen as the main cause of the academic challenges they face. Hence students were represented in a deficit mode and the language tutors were framed as saviours who had the ability, through grounding students in grammar, to save them from their deficient linguistic and educational backgrounds. Concentrating on students' deficiencies, however, simply magnifies these challenges they face, rather than minimising them through an inclusive, socially situated pedagogic practice. Minimising such deficit representations of students can be achieved through practitioners interrogating the conditions that caused these problems in the first place (Street, 2003). This will require demystification of academic discourse and pedagogic practice that can bring marginalised students into conversation with others in their discipline. Failure to do this perpetuates an autonomous model of literacy which "disguises the cultural and ideological assumptions that underpin [academic literacy]" (Street, 2003).

But maybe a critical question to ask is "what is an ESL learner?" Is there anything like English Second Language and if there is, what are its characteristics? When practitioners talk of students as being in deficit by virtue of their being second-language speakers, what are they saying about themselves? Are they suggesting that they are any better than these students? I believe that these Discourses of 'othering' are in fact closely related to practitioners' perceptions of the self. When they represent students as disadvantaged, they are in fact communicating their understanding of themselves in relation to these students. Thus one only needs to look closely at the discourse of the other to find traces of the self (Hulsse 1999, p. 2).

Undoubtedly, this discourse constitutes an ESL/EFL identity of incapacity. In other words, ESL students are perceived as those who cannot learn and therefore need a thorough grounding of language before they can proceed. Moreover, such talk about students constructs the identity of academia and EFL as closer to full participation in academia, while marginalising that of the ESL learner. As a result statements such as “Students do not know how to write” or “They battle to write because of their ESL status” are commonplace. If learning is a trajectory, how then can academics expect students to know how to write: a state which denotes expertise? The whole purpose of teaching and learning is to provide students with opportunities to enable them to move slowly from the periphery towards the centre. Yet the problem in the academy is that we expect students to be experts before they have gone through the teaching and learning process.

9.5 Representations of self

The dominant representation of the self in the corpus that was analysed in this study relates to the use of the personal ‘I’ as opposed to the passive engineering persona. This was in spite of the fact that technical writing guides and the tutors during tutorials advised students to desist from using the personal pronoun. Ivanic (1998) argues that every act of writing is a representation of the self. That is to say, writing reveals textual identities that writers adopt. The design element of the course is considered a powerful habitus (Bourdieu and Passeron, 1965/1990), which influences students to adopt the personal pronoun rather than the passive engineering persona. This is because students are active agents in the construction of engineering and hence find it difficult to maintain the authorial distance demanded by the engineering persona. Students also represented their knowledge and beliefs about engineering education and foregrounded their expertise and affiliation with the engineering discourse community. This identity was made possible by the design element of the course. In contrast, the language tutors foregrounded their limited understanding of engineering practice, though they were also quick to highlight their expertise in the rhetorical processes, mainly as this related to English language proficiency.

9.6 Conclusions of the study

With regard to these findings, I make the following conclusions.

a). Although the course on which this study draws is designed in such a way that students acquire the discourse of the discipline through participation both practically and textually, the socio-discursive space of students as writers and of tutors as readers of technical reports and facilitators of the teaching and learning of technical communication can hinder this acquisition. A number of reasons can be given for this. First, this space is characterised by the belief that academic literacy can be taught in a class on academic literacy using tutors from the Humanities, who do not themselves have access to Engineering Discourse and ultimately have not acquired the necessary academic literacy practices themselves. This misperception is driven by the underlying belief that literacy is a set of neutral skills that can be explicitly taught. For the *Technical Communication course*, the result was the explicit teaching of technical aspects of writing. Such an approach “rationalises student failures” since it assumes that “accessing meaning is solely dependent on students’ language proficiency in the medium of instruction and their reading/writing/listening/speaking skills” (McKenna, 2010 p. 10). However, the fact that students come from diverse ‘habitus’ and will possess or lack literacy practices that can enable the acquisition of disciplinary discourses, has got ethical implications for practitioners. It is believed that failure to choose grammatical structures and to make the ‘accurate’ rhetorical choices as determined by the discourse results in exclusion of students as they either fail the course or feel disabled.

b) Having established that the idea that academic literacy can be taught as a course is flawed both on the level of epistemology (it hinders the acquisition of Discourse) and ontology (it is contrary to the nature of academic literacy as a set of practices emerging from the discipline), this study also makes the assumption that the timing of *Technical Communication for Engineers course* is not justifiable. It is offered in the first semester of the first year, at a time when students are mainly doing their general science courses (Maths, Physics and Chemistry). As such, there is a long gap between the time when the students take the course and the time when they are expected to apply the knowledge gained in the course (which is usually in the second year). Cast in this way, the course does not address the long term needs of

the students. This assumption also illuminates one of the arguments made in this study that academic literacy should not be a once off event, taught in a course over a semester, but rather, should be imbedded within every course in the curriculum. That way, students learn the beliefs, attitudes and values of the discipline in context (Gee, 1996).

c) Although the design of the course is aligned to Engineering Discourse in that it incorporates the design element and textual representation of the design through technical reports, the mode of delivery is at odds with this as it fails to acknowledge that acquisition of academic literacies is tied to norms, values and knowledge structures of a discipline, which tutors coming from the Humanities might not necessarily possess.

9.7 Future Directions

In line with Jacobs (2010 a, b; 2007) I am persuaded by the findings in this study to argue that the Faculty of Engineering at UKZN needs to consider redefining the roles that both academic literacy tutors and disciplinary lecturers play in literacy pedagogy. This can be done through language tutors and disciplinary lecturers working together in determining the literacy practices of engineering as a discipline and by developing joint classroom activities to make these practices explicit to students (Jacobs, 2010a). In the present state of affairs, the course content is determined by an engineering academic and the tutors are expected to 'assist' students with the grammatical aspects. "This distinction bifurcates expertise into distinct components – domain content and rhetorical processes, creating in effect a Great Divide between expert and layperson" (Geisler, 1994 p. 36). In the context of this study, this separation is seen as both artificial and counterproductive to the acquisition of disciplinary knowledge within the literacy practices of Engineering. This is because such a practice mystifies the Discourse of Engineering. Expertise or rather full participation can only be achieved through collaboration between the so called domains and to effectively do so, there is need to ascertain the extent to which language tutors have control over the Discourse and therefore determine the extent to which they can be used to induct students into such discourses. While these

practitioners might bring with them pedagogical approaches that can enable better acquisition of the necessary academic literacies, there is need for these practitioners to be inducted into the Discourse of Engineering. This can be achieved through on-going training and or collaboration between engineering experts and academic literacy experts. Coming from a Humanities background does not automatically qualify one to be an academic literacies practitioner.

Related to this is the need for initiatives that encourage academic literacy practitioners to shift from the dominant understanding which reduces academic literacy to English language proficiency and the resultant skills-based approaches to alternative ways of thinking about academic literacies-situated social practices, embedded in disciplinary Discourses (Jacobs, 2010a). This can be done through engaging academic literacy practitioners in research that interrogates students' lived experiences of academic literacy so as to build new areas of knowledge about what constitute academic literacy.

The data in this study has shown that engineering students are generally drawn towards making things than they are towards words. As a result, they approach courses such as technical communication unenthusiastically. This is worsened when Technical Communication is reduced to language. It is therefore, important to change perceptions about the nature of technical communication from a language-skills approach to a focus on Discourse (following Gee, 1996). This can be done by incorporating Technical Communication in mainstream courses such as Design, so that students might see its importance of academic literacy within their curriculum.

9.8 Concluding remarks

This study demonstrates that representations of academic literacy and of students which prevail in the Faculty of Engineering derive from competing definitions of what constitutes literacy. This study shows that academic literacy is a fluid and contested concept with varied meanings to various people. This fluidity is revealed in the diverse conceptualisations of what constitutes technical communication, all of which seem to be influenced by the participants' backgrounds and experiences. There is also evidence that the common-sense notions that link academic literacy to English

language proficiency are still prevalent in the Engineering Faculty, and the resultant effect is that the skills approach to the teaching of academic literacy becomes the norm. When students fail to benefit, they are placed in deficit. These deficit understandings of students are framed within a discourse of difference and have, in this study, been implicated in the social exclusion of students. In conclusion, the study argues that discourses in the Engineering Faculty need to move from a practice that privileges difference towards one that favours equality and the empowerment of students by adopting strategies that demystify the Discourse of engineering and take into account the diverse ways in which students attempt to re-invent their primary Discourses to match the ones favoured in the university.

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Appendix A

Participant Consent Form

Dear Participant

My name is Annah Vimbai Bengesai and I am a PhD student in the school of Language and Media Studies at the University of KwaZulu-Natal. You are invited to take part in my study which seeks to examine the way academic literacy, as a discourse is represented in an engineering faculty by both students and academics, and how this representation produces discourses that can be used to legitimise particular practices. You have been chosen to take part in this study because a) You have been a lecturer/tutor on the Technical Communication for Engineering module b) You are a lecturer/academic in the Faculty of Engineering c) You are a student in the Faculty who has completed the Technical Communication for Engineering module. You will be interviewed on your beliefs and perceptions about the technical communication and the Technical Communication module as well as on your practices of academic literacy. However, your participation in this process is entirely voluntary, and should you wish at any point not to participate, you are free to withdraw, upon which any contributions you will have made will be discarded. If you choose to participate, any information you provide will be treated with confidence and your identity will be kept confidential. Where necessary, pseudonyms will be used to conceal your identity. The data will also be kept in a secure storage and incinerated once the project has been completed. Your responses to these interview questions is very important, as a result they will be tape recorded. Information gathered from this study might be used to write papers for presentation at conferences or publication in academic journals.

If you are willing to participate in this project, please complete the consent form below. If you have any questions regarding the project and the nature of your participation, please feel free to contact the researcher and the supervisor for the study:

Annah Vimbai Bengesai
031 260 1595
bengesai@ukzn.ac.za
Dr Emmanuel Mgwashu
031 260 3411
mgqwashue@ukzn.ac.za

I _____ have read and understood the above and consent to participate in the above mentioned study. I understand that my participation is voluntary and that my responses are completely confidential and my name will not be used in the write up of the thesis or any papers emanating from this research.

Name of participant

Signature

Date

Investigator

Annah Vimbai Bengesai

Appendix B

Interview schedule with the tutors for the *Technical Communication for Engineering* course

1. What is your understanding of technical report writing in an engineering faculty?
2. What do you think is the role of technical report writing in an engineering faculty?
3. How would you describe students as writers when they come into the *Technical Communication course*?
4. How would you describe students as writers when they complete the *Technical Communication course*?
5. What is the most important aspect in technical report writing?
6. In your view, do you think the *Technical Communication course* is effectively improving student writing practices?
7. In your view, what influences student writing?
8. What, in your opinion is the lecturer's or tutors' role in developing student technical writing?
9. In your view what is 'acceptable' report writing?
10. What is your experience as a writer?
11. Do you think that your experiences as a writer have influenced your views about writing?
12. Respond to stimulus piece. Which piece is written better? Explain your answer.
13. Any other comments on report writing
14. Any other comments on the *Technical Communication for Engineering course*?

Appendix C

Interview schedule with students

1. What is your understanding of technical report writing?
2. What do you think is the role of technical report writing in your curriculum?
3. How would you describe yourself as a writer when you came into the *Technical Communication course*?
4. How would you describe students as writers when they complete the *Technical Communication course*?
5. What was most challenging aspect of technical communication?
6. What influences your writing?
7. What, in your opinion is the lecturer's or tutors' role in developing student technical writing?
8. What is your experience as a writer?
9. Do you think that your experiences as a writer have influenced your views about writing?
10. Any comments on the *Technical Communication for Engineering course*?

Appendix D

Interview schedule with academics in the engineering faculty

1. When was the *Technical Communication for Engineering* course introduced?
2. Why was it introduced?
3. What are the factors leading to student success and or failure in your department?
4. What is the role of technical report writing in an engineering faculty?
5. How would you describe students as writers when they come into the *Technical Communication* course?
6. How would you describe students as writers when they complete the *Technical Communication* course?
7. What is the most important aspect in technical report writing?
8. In your view, do you think the *Technical Communication* course is effectively developing student writing practices?
9. In your view, what influences student writing?
10. What, in your opinion is the lecturer's or tutors' role in developing student technical writing?
11. What is 'acceptable' technical report writing?
12. What is your experience as a writer?
13. Do you think that your experiences as a writer have influenced your views about writing?
14. Any other comments on technical report writing

Appendix E

Interview with Tutor 3

Interview with Tutor 3
AVB: I will be recording
T3: That's alright
AVB: What I want to know from you basically is let me just summarise , your understanding of technical report writing, your understanding of students and your general comments about the module as a whole.
T3: Ok
AVB: So my questions will be related to those 3 broad areas
T3: Ok
AVB: So maybe you could just tell me you know coming from maybe say a humanities, coming from a different kind of um um discipline, what is your understanding of technical writing and the differences between technical writing and any other writing that students do in you know other faculties
T3: Ok, technical writing is very different, writing reports and thing like that, than writing stories, creative writing or letter writing or business writing there is a specific format for technical writing
AVB: Ok, and what would you say is the major difference. What is it that makes it different from all these other ..
T3: Use of language
AVB: And maybe you could elaborate further [tutor laughing]
T3: use of language and layout and formatting...., you know the document and stuff like that
AVB: And ahh, and how would you describe students when they first come into the um, technical communication for engineering module
T3: Well, their standard of English is abysmal in most cases and I often ask, start off by asking students what their grades were for English and they are very corky, they all got As, they were wonderful but when it comes to writing, even simple sentence construction, use of ah passive voice ah, I can remember the things, you know the actual language, the actual grammar, it's not very good.
AVB: And what would you attribute such difficulties to?
T3: Well I don't think they are taught that at school, you know, I don't think they are taught to write properly um, any kind of writing, because you know, grammar is involved in any kind of writing –yah
AVB: So in
T3: Its poor, its poor in most cases
AVB: In your view do you think that writing is something that can be explicitly taught
T3: Yes, because, they, they um, you don't want to break the creative spirit of a person but there are what once children are taught to create themselves expressively without worrying themselves about spelling, punctuation and grammar, the they can be honed in on the grammar and how to best write.
AVB: Um, ok, so now how would you describe students after completing the tech com module? How would describe their writing?
T3: Better, its better. Many of them get the idea, some of them resist and persist in making the same mistake over and over again. Referencing for example, is a, is, its not difficult to grasp because I give them examples of how you reference, citation and things like that and even though they read the examples and I go over and over and over, they still come up with...

You know.
AVB: And why do you think it's like that with all of that information?
T3: I think it's a matter of discipline. I think it's a matter of discipline
AVB: Uhuh
T3: I think that you know, the country as a whole discipline is something, discipline and responsibility are concepts or aspects that are lacking in all fields and it comes out.
AVB: In terms of a technical report, of course there are different types of technical reports, what do you think, what would you as a tutor consider the most important aspect, you know of the report
T3: Of any report or..
AVB: Of a technical report, like maybe a design or an experimental report.
T3: I should think layout
AVB: The layout of the report
T3: Yaah, because the form of the report. But even though technical reports and design reports and experimental reports are different in some way, you know, basically they follow the same format, format really
AVB: Ok, and um, which part of the report did you as a tutor, you know, comment on most
T3: Referencing
AVB: Uhuh
T3: Citation, yaah, it's a long time ago, um [laughs]
AVB: ok, yaah, why referencing and citation instead of the other components of the report
T3: Well, because the, because the manual mostly set out the form of the report and the more intelligent students, the more diligent students will follow that because its in the book. Um, but then the basic things like referencing their own materials is independently done, so that's where they fall down
AVB: Uhuh
T3: It's not all the students, they are some good ones.
AVB: Ok, Um, what, what do you think influences student writing, what influences them when they write
T3: I don't understand what you mean?
AVB: Um, you know what kind of like, when we write, obviously there are certain things that influence our writing, there are certain things that influence you as well when you write, so now when you look at what students produce, what you would attribute their writing...
T3: Well I think that all writing is life experiences, isn't it, and where you are coming from.
AVB: And did you find that, did you find any of that in the kind of writing that they produced, or do you think that
T3: yeah, yeah, some of them were still huffing on, not many but some we still huffing on about apartheid, not in so many words, you know, but..you talk about. I can't remember what we had, but I know that instead of answering the question properly, they were describing what we should be doing as a country to improve the downtrodden and the rural people and that was ok, but besides the point, it wasn't the point of that.. You understand what I mean?
AVB: Yeah, I understand

T3: So you know, you can't help coming from your background, but somehow when you are doing technical writing, um, you have to divorce yourself from your own experiences and concentrate on what that actually is...
AVB: Um, ok and Um, what do you think was your role in the module?
T3: Well, I think the tutors' role is not teaching so much, but guiding isn't it? ..like a mentor trying to correct their mistakes and encourage the students to not make them [laughs].
AVB: And do you think you were adequately prepared for that role?
T3: Aha, I would like to think so. I am presently mentoring , I have a friend that I mentor who is Mexican and he r English is really bad and..... job interviews. .. I am mentoring her and helping her with her English and hopefully giving her the confidence that she can do it and it is the same with students.
AVB: So what would you consider appropriate, or acceptable or good um, report writing. I am using these terms because they are terms that you find in the guide
T3: Manual
AVB: as well as the aim of the module and also it's something that I have heard from the tutors in previous, you know, just talking to them. So what would you describe as acceptable, appropriate or good technical writing, technical report writing.
T3: I think simple language
AVB: Uhuh
T3: that can be understood> I don't think a student should try and use a whole bunch of long words which they don't really understand and are often inappropriate. Just simple language, Um, correct referencing and citation which is paramount, um , keep it simple. You don't have to go into extra details
AVB: Um, what are your personal experiences of writing?
T3: you mean what have I written?
AVB: Yaah, Whatever is that you can talk about of your past experiences of writing even what you have written, it doesn't matter.
T3: I have written a few book reviews, Um, which have to be impersonal, Um, I write newsletters, I have done some creative writing, Um, ok, I am not a great writer.
AVB...If you have written a lot of those kinds of writing
T3: yeah, but I am not a journalist and I don't work in the university in humanities, you know stuff like that
AVB: So would you say maybe, would you say your experience of writing have maybe in a way influenced your views about writing. May be I could rephrase and say what has influenced your views about students' writing?
T3: I don't know what influences my views. I like to teach, I enjoy it when I see students understanding and you know, they improve, um, urr, I don't know what else influence, what, what did you say? What influences....
AVB: Your views on
T3: My view on
AVB: writing, students' writing or just writing in general.
T3: Ah, I don't know. I can see what is the difference between different kinds of writing, you know, but I honestly don't know what to expect
AVB: Ok, any other comments on the module, on the technical communication module or the students?

T3: We should have done this as soon as we finished [laughs] that would have been much better.
Um, any other comments. Um I find that, there is a lot you can, because I have done this two or three years from the beginning, from the first one, I have done all of them as a tutor and I find that I am using past manuals whatever you call these things, as well as the current one because sometimes there is
AVB: Uhuh
T3: stuff in the older ones, I know that the current one was much thinner and smaller than the others, but ah, so I had , I went back and used the old manuals as well because the course is the same, just what they have to write about
AVB: Ok, I have got 3 summaries here from students. I am going t ask you to read each one of these and just give your views of them and how much, how many marks you would award for
T3: I would award
AVB: yeah, I
T3: Ok [reading]
T3: Ok, I don't know what mark. This one gives the infor that it should give, the language is reasonable, Um, you want actual marks
AVB; Yeah, because these were awarded marks out of 15. I took these from the final, you know students' reports.
T3: out of 15.
AVB: it was marked out of 15 and I just wanted to find out what you would, what you would
T3: what I would give to this one
AVB: yeah, that one
T3: Ok, for this none, I would probably give it 15, Um, this one, lots of passive voice, I would probably give it, it doesn't have the information that it should, I would give about 5. This one gives too much information, too wordy.... ok, I would give it about 8 or 9.
AVB: Thank you. I think you raised an important point, something important that I should follow up, that the module, the handbooks that, they have changed over the years and this years' one was thinner. What do you think was missing in this year's em, handbook.
T3: I can't remember [laughs]. I think in previous years, the year before last year, I think that um, there was a very specific layout ofI just don't think it was in this years'. You know... I and I know I used referencing from the past 3 years' book which lay out very clearly, how you reference a book, how you reference a journal article and so on.

Appendix F

Interview with Student 4

Interview with Student 4
AVB: What I want to know from you is..., what is, what do you understand by Technical communication
S4: Ah well what I got from what we did, is that, ah, basically the, we learning on how [ah sigh] to communicate with each other in terms, in engineering terms and in an engineering manner so that when we are in the industry we can, ah, if we are having a discussion with somebody or if we are writing something down or whatever, we know how to relay information to fellow engineers. Coz I think the way we, the way you communicate, whether its orally or written with an engineer is different from the way you communicate with a friend who is not an engineer or a doctor.....
AVB: Um
S4: Sorry, I think it's ah, I think it's ah, what we got it was its giving the information that's needed....
AVB: Ok and ah, in your view, do you think that the module, everything you did in the module adequately prepared you in terms of your own discipline to be able to communicate with engineers in the professional world?
S4: oh well, I think, we didn't do it for very long, so I don't think we got much out of it, but doing eh, engineering modules now, I can see where it does come in because now we have to do report writing, than we did then. Back then we just, we took it for granted as first years because we were at, we were at that stage where we thought we are never gonna use this, because we didn't use it then
AVB: OK
S4: and then and now we are faced with a situation where we have to do prac reports and um, it's difficult, I wouldn't say difficult, but you are expected to do things in a certain way, which I am, which I am pretty sure Technical Communications tried to prepare us for, on which it did on some level but... since we were back then, we were just doing the Maths and the Physics, we didn't have to any of the stuff, we were more like, Oh, we took it for granted so to say.
AVB:Uhuh
S4: and yah
AVB: So, do you think maybe anything could be done to improve, you know the the offering, you know, of the module, to make it more relevant to the students at that particular time?
S4: I think the only way they can do it is by having the module closer to a time we actually gonna do report writing..... We did it in the second semester first year
AVB; It was in the first semester first year
S4: first semester, first year and then there is no report writing, there is no, none of that stuff and the only time we started writing reports again was, um, I think, basically in third year or what I know for Mechanical Engineering second year second semester... There is a long gap and by then you have forgotten about it and you don't, you don't really take it for granted and you don't really appreciate what you did back then. So I would say move it closer to the time, align it more with the time when we are writing design reports, because I mean, we were in first year first semester and first year first semester we doing Maths, Applied Maths, Physics, Chemistry, um, there is a materials course, and tech com and none of these curses require any of the stuff that we did per se.
AVB: Ok, no, I understand, Ok, now how would you rate your own writing before coming into the
S4: My
AVB: Yeah: your own writing before coming into Technical report writing module?
S4: Oh my own or my literature and stuff
AVB: Your own writing, yes, yes
S4: Ok. Well, I am, I am pretty good at writing ...my English is pretty good, but the, my technical report writing, I don't think was that good because I had never really done before
AVB: Uhuh
S4: And I didn't really know the layout or what was expected and how I was to, how best to relay the information, you know... I didn't know how to do it.
AVB: Ok and, how would you rate your writing, your technical report writing after the module.
S4: Ok, well, definitely, definitely it increased because now we have to do certain things...
AVB: So you feel it improved
S4: yeah, it improved,
AVB: Yeah
S4... but not much back then because a lot of us took it for granted, what we were being taught

AVB: Ok
AVB: and what, because you said you are you know, a very good writer, what influences your writing.
S4: Oh me, Yeah
AVB: Yeah
S4: ah, I think, I tend to write like I say it
aVB: Uhuh
S4: and... I tend to, I think I speak fairly well,
AVB: Uhuh
S4: So I tend to write as I say it and that would make my writing better....,
AVB: Ok, now I want to talk about, you know the assessment. In terms of your report, your report, your technical report, what is it that was, that the tutors mainly commented on?
S4: Huh, well, we had a , we had to, um, I know what happened this year but when we had to huh...if I remember correctly, we had to make um, something ... and um, to be honest I can't really remember, but I remember we had to...follow a certain format
AVB: uhuh
S4: and the actual content wasn't really um, dug into, it was more of the format if I remember correctly.
AVB: Ok, um, and what do you think the role of the tutor should be in technical report writing?
S4: Well, getting the format is the easy part because you just follow the guidelines, ... one person can write better content with a bad format, and one person can write good format and bad content, and I am pretty sure that the professional engineer will be frustrated with the bad format, but would rather have the good content because in the end.. what you want to know is ... the information that you are going to get out of it
S4: Ok, thank you for that, any other comments
S4: Huh
AVB: On the module, on technical report writing in general, even what you are experiencing now and even on the module, the technical writing module
S4: well on the on the module, I can say, I think it would be fair to have ... I think it will be, sorry, did xxxx also take it
AVB: In 2009
S4: 9
AVB: I think he just took one or two lectures
S4: I am just trying to make sure that I am getting the right thing. I think it would have been better if we had engineers that took us or engineering... I remember we had a lecturer called XXX. He took us, and he wasn't really in tune with the whole engineering part of it, and he was not in tune with the manner in which, the way in which we had to , ah I think,... we didn't learn as much as we could have in terms of what to write instead of how to write. I think it's more important for us to know what to write than how to write, because if we know what to write then we can write it, then the format, like a said ,what we are given now is, when you write a report, we basically given a format, and they use use this format, copy in your name and then you write in your name and student number and then..... so the format shouldn't really be the essence
AVB: and also there is so much to writing than just the format,
S4: yah
AVB: There is actually a lot to writing that just the format or the content. There are lots of other things that um, you will you will definitely need to write; ... I think you will need to have both engineers only can give you the content
Alright, thank you for your time, that's all I had

Appendix G

Interview with Lecturer 1

AVB: Alright, um prof, the aim of the faculty, because I went through the faculty handbook, says it's to equip students with knowledge and skills to apply the fundamental principles in dealing with a wide range of practical problems they will encounter in their professions as engineers. Where does Tech Com fit in this aim?
L1: Tech Com starts, it's a, is a first step in two directions. The first is in the ECSA exit outcomes of professional and technical Communication, oral and written communication. So there is an Engineering Council of South Africa, ECSA, level outcome that is associated with a course that goes around professional communication skills. The second function of the course is around academic literacy to start students who may come from all kinds of backgrounds, to start students on a path of being able to understand academic texts, interpret academic texts and to be able to express themselves. So it's a fundamental course in building onto, onto the whole degree programme..
AVB: So now do you think this module as it stands right now is achieving those purposes
L1: I can't speak as a real expert because I only see the students long after that and I don't see what's going on in the course. Right. I can give you some impressions. My impression is the course is too big. It is, there are too many students to get the kind of one on one contact that you really need to educate, although there are lots of tutors. It's problematic to get uniformity for everyone when you have a huge number of people doing..... So it seems to me that the course is too big and as a result of that it may not achieve the purpose that it could achieve. Not that it's not achieving, it could be a lot better if it was taught in smaller classes of
AVB: In 2008, the academic literacy was outsourced from the faculty of humanities. Any reasons why?
L1: My recollection at the time was um that we had introduction to engineering practice type of courses in the faculty and they were not working satisfactorily. Using engineering competent academics to teach courses that were essentially literacy courses. It wasn't an efficient use of time and this course was designed to replace that. I was initially reluctant to have that course because it didn't seem to have; it didn't have the elements either sort of an English 1 course if you like proper academic literacy course... or engineering design course. So it was halfway between the two and I wasn't sure it was going to work but the difficulty we had is a huge class so we would, so it was for each individual discipline, it was better to share what they had and let somebody else take the big class. That might not be the whole of the history.
AVB: But it will be helpful: But how much of input did the Faculty have in structuring and coordinating that module?
L1: It was, If I recall correctly, it was designed in a bit of a hurry, in a bit of a chaotic way so then the template was changed in the board meeting in which it was approved and changed quite a lot, the breakdown of the formative and summative assessment, the percentage of mark that was for the class work. A lot of things were changed at the last moment and the course, it was assumed I think, that there would be a revision of the course but it hasn't happened since then. So the course is left to the course coordinator to sort out, so I think there was insufficient length of time for proper academic input.

AVB: And why was that? Any reasons?
L1: Because we came to the last faculty board meeting to come to changes.....
AVB: But
L1: So we did the wrong thing with good intentions
AVB: What prompted the change to Technical Communication in 2009?
L1: Ok, I am not sure; we will have to look in the Faculty handbook. My recollection is before that in electrical engineering, which is where I was at the time, we had an introduction to electrical design or some course like that and it was that course that was replaced by Tech Com. I think another literacy course may have been there in Chem Eng, but I may be wrong. We can check the whole ... book to find out how it was developed.
AVB: Currently, the module is coordinated by a faculty member from Engineering and tutors from humanities. Is there any specific reason for this?
L1: The first reason is we have been able, we have had a person with some education background and we have been able to do that. The second reason is that our faculty, because of the way in which we teach.... our faculty has problems acquiring full time... students numbers that other faculties have in their large first year classes. So we were in a position that we couldn't really share the FTEs that were associated with the class. There is obviously a third issue, which is the context of the tech com, the academic literacy should be . . .
AVB: What is the relationship between this module and ASAP?
L1: There should be none, eh, it's by chance that the coordinator for ASAP is by chance the coordinator of the course, but the academic support programme should be dealing with academic and literacy issues across the whole degree programme. ADOs maybe in a good position to assist with the Tech Com course but the ASAP SI programme should go across every....and... The other issues that ADOs deal with are around study skills, around time planning and so on. .. apply right across the whole degree, they not only apply to Tech Com.
AVB: Ok, how about in terms of funding. What has been the relationship between funding for ASAP and funding for the Tech Com?
L1: Eh, that's a , that's a bit of a messy question and some of it may not be quite suitable for your research.
AVB: Eh
L1: Eh, the tutors from Tech Com, because they were on a part time basis were funded from the DoHET grant. The DoHET grant, the purposes of the DoHET grant was to increase output of graduates. It is clear that if you have a very large class and if you can split it into lots of smaller groups you get much more effective teaching that may increase the output. But there is a sort of fundamental question that the subsidy income that we get for teaching large class should actually cover for teaching large classes. So instead of using the DoHET money to appoint tutors for the Tech Com because that really a main fund cost.
AVB: Ok, that was going to bring me to my next question, if the funding comes to an end, what

implications will that have on the Tech Com.

L1: Um Eh, The school has no choice to offer Tech Com and to provide all the tutoring... that makes it work. So one of the difficulties that we have with service courses provides, have a large class and if you allocate to them a few people it means that the course is under resourced. Eh, so all of the subsidy income will go... resource allocation and income goes to service providers but they don't provide the service at that level. So Tech Com for Engineers is in a similar position. We are going to set a whole lot of resource model income for the module. We have to invest a good fraction of the money to provide....

AVB: Any other comments on the module?

L1: As always we could do things better. We have to ...what its....the constraints that we have and the constraints are around the type of student, the number of students and the people that we can source as tutors on the programme and the administrative and coordinating you can provide. So I think we are better off improving the module than throwing it out. I think it serves a purpose. Um, I have had some insights from people from other universities who have had similar modules and one of the problems that these modules have is that they are dealing with students with a vast spectrum of background. **So if you have an English first language student who got straight sevens in Matric, they find it boring and tedious to be involved and on the other hand you have an English second language learner who has not adapted to the university environment, is a first generation university student and they may struggle like crazy with the module.** The module has a very high pass rate but you see the spectrum gives the module.... One of the possibilities would be to teach Tech Com in a second language to everybody. It's an interesting idea for the university language body to think about. So you take Tech Com in a language that isn't your first language.

AVB: That would be interesting. Ok thank you for your time

Appendix H

Lecture 4

Submission of project proposal to room 137 century building to be submitted by Friday 430.

Today, please don't go mixing chemicals if you do not know what they do because ... are more likely to xxxx, you must not use it with soda, if it doesn't kill you, it will choke you to appoint where you cannot speak. Once it's done that it will actually make you physically sick because its toxic, and because its gas but at the same time the damage... to the throat will probably mean you will not be able to speak again, not normally anyway.

So if you set something which do not do it, not a good idea. And if you want to use any chemicals make sure they are renewable and at the same time make sure you know what the reaction is before you decide to use it, this source of energy.....this is what you need to know about it before writing and this is(low tone)....

How I write the literature review that is actually covered in notes.... It's the same writing as writing an essay, only doing itin other words you do research and take the main ideas to.....that's research and you actually cite the reference of the person who did that original research. Now I'll talk more about this in a second, because this is a major problem for students that not an excuse, citation is necessary – you must cite your reference properly for two reasons,

1) If you use someone else's research or someone else's writing without their permission then you are effectively stealing their ideas. Now you might not think it is a major thing that you are reading someone else's bla bla bla or whatever, the power of this and vs power of that – but someone actually wrote it first and you are taking their ideas on board. You must cite the fact that you took their ideas from them, and this is common knowledge.

2) The other reason is for not doing that is , eh I don't know if you know the “credence and revival C&R” you heard the fact that for 20 years John Tot was not allowed to sing any of his songs because he sold all his rights to them. Copyright, now most published work is copy righted so if you sung a certain songs that where wrote....for the revival over a period where the rights where owned by another person then that person can theoretically sue them for all the money they made. Of the entire Credence collection.... he actually wrote a song on a solo album,..... he was accused by the owner of the rights to the Credence songs of plagiarising songs he had written 20years before as part of the agreement he had with Revival. So he took an idea of his own and was sue, in the end he had that it wasn't the same song. I'm making an example of it t.....music is another, wonder I would like to revert it. There is another group here in Durban, that didactually use symphonic songs from an album of symphonic version of the Rolling Stones greatest hits and what was ridiculous about it was that the person who had written the symphonic version owned the rights to the song. A very dodgy lawyer in America, his name remains nameless, if he is mentioned; in the music industry it can get an extremely violent reaction. He actually owned the rights to the original song as a result the.....was sued by a person who had previously written the symphonic version of what went public, so that's a very interesting topic. Plagiarism is a serious issue....so watch what someone submits

.....there is a software..... accesses websites for students to check and see whether the things have been copied from the internet. You all have to submit the final report, bring an alternative report, and what it will find..... is it virtually impossible for it to come back with zero % copied, the reason being that when you write references out then you use the same format that willas successfully copied your references but anything else in there that will say is copied– you must not copy any other quotes and texts. if you copy someone Turnitin will pick it up and say this quote comes from there and as long as you quote it correctly and you cite the quotation then that's no problem, it's when

you've got...(low tone).....in your report is coming copied from there copied and pasted from there, it's not allowed.....(8.05min)... so generally to accept we have to actually look at the actual report , the highlighted section and end if someone has quoted someone you can say well they have cited someone, that's not plagiarism. If thesections come back copied from somewhere or someone research then that's a problem, so you'll have to run through Turnitin in your final report. So bear in mind..... **Write in your own words do just go and cut and paste things from elsewhere or copy from friends, just make sure to use it as you work your own reports.**

So from examples of reports, let's say you've got your project proposal, why did we put the project proposal. It is simply because this is a very common form of engineering communication.....(faint)..

So I've got about six to seven projects which I'm actually writing proposals for because there's a funding that's suddenly being released in March or April, so we have to make sure we meet the deadline for the project proposal. In industries, these are often submitted to the superiors, boss, manager, where they will actually get the various cost.....At the same time external funding from professional research, there are professional researchers within the School of Engineering, they are often linked to universities, they are actually professional research organisations. This is what those engineers do for a living and they.....write project proposals..to foundations such as... A research group in engineering where we had a proposal accepted by theand that's R100k to play with in research for one year and we have to spend it in a way we said we will spend it in the proposal. We have to produce the deliverable material that we said we will produce in the proposal and we have to see to it that the timeline and deadlines we worked on in the proposal, also this is what the timeline in that project proposal is for because if we didn't know that in two weeks' time we got to actually have a report completed and submitted to this or the boss or to the boss's boss or in the case of my boss's boss's boss to finish my education then you've got to(low tone)...

A project proposal is very useful.....what is going to be achieved, how it's going to be archived, how everything will be achieved. That is another example which a lot of you know the stadium.....Civil engineers where on that project so you actually have to tender to get your jobs, you a proposal and produce.....thank you. When you produce a proposal, when you submit it, it has to be within a certain budget range and generally with tenders, the tender process opens on a certain date and closes on a very specific day. Tender documents are generally only accepted over a few or sealed envelope as sealed docs for consideration later. A tender which I actually came across was when a friend of mine ...set up to get funding, it was worth actually submitting tenders for, so I went to.....(low)... project we had and then I noticed the tender details very simply your tender has to be submitted to office number 512, the building, square and it was about the 15th of February 2010 between 9am and 9.15am. Tenders outside the time were not going to be accepted. Now since I was in Durban at that time, it was going to be difficult for me to actually submit that tender process in the end I figured well, it's not worth it.....so I sent the budget proposal to..... and they decided to do the proposal there. Tenders are very specific format are very specific..... always very crucial is the time of submission..... Ok one of the things you will spend your time doing is engineers training which you will do when you finish your degree is collecting and processing data, you record it, you check it you make sure there isn't a specific problem a specific..... if you are optimising a section with process you may have to be looking at what etc, all of this is reported to the main process ofandwe have reports coming at ourin academia you will need to be able to... reviews of some sort. Now we hope that you do research. We hope that all of you..... researchbut literature reviews use a variety of some sources of info trusted sources like(students making noise).....using Google scholar, Google scholar will give you patents , docs, journal papers that can be accessed through the UKZN email/ library system as such. It will give you proper reports. Reports on non-

government organisations. Be very weary when using these sources of information, never use Wikipedia for anything more than a quick check, you can use it to check whether or not Jackson died or whether Tina Turner is still alive. When it comes to data or info stay away from Wikipedia because it is.....sourced.

One great example of what you can do on wiki is search for various bands, names etc. get a YouTube video, one of the best On Wikipedia....is when crew who were a sort of hip hop type thing inwho had a couple number 1 hits, seemed to have 50 different members. Apparently there are really about 10 of them but they(muffled) so this went up and had over 200 members of solid crew including Phantom the famous internet dog.....noise.....

So you always have to be careful with your source data, where you get your source material from, newspapers, at least you can actually reference your newspaper properly, the information you are getting might beand quite possible and could be incorrect, they can assign quotes wrong people. I know because they quoted two of us in.....and I was attributed with the other person's quote and they are attributed that person with my quote, so be careful with that when youuse newspapers have quoted properly with scientific journal papers. You should find useful information, because it has gone through a clear review process. Other people researching that have actually looked at that paper and have decided whether or not it contributes to the knowledge in that field, same thing for textbooks and books, not fictional models.....information textbooks that is usually where you can get a good source of information. What you do iswhat points you want to make in your literature review. You need to ask the questions, why, how, when and what.... Using the published research.

Design reports: you are going to have to write a design experiment report, for your proposal project which contributes to your literature review, you have to do all designs regardless ofwe do always do a final design project, and you probably have other leading up to that. That is where you are actually creating new knowledge, whether new knowledge about actual gadgets, whether is an actual piece of equipment, or electrical circuit or whether it's a finished program you are designing something that will actually work in your field and you do the reviews why you actually want to design this, what have people done before, what ideas are youactually....your decision, how will you help. But also an important process, a process involving designs which can be a very creative process or it could be a case offollow step 1, step 2, step 3. First thing is to use your creativity, but still one process, first thing in design is decide what you are going to design, be creative as you like, look at feasibility, is it possible, is it safe to do so, is it going to give me electricity to power something. Very simply, so you actually write a report and then report on what you do with your design, how it was done, how something was constructed, in case of chemical engineers you don't actually construct anything in a design process because if you do so it will cost you millions of rands on the basis of re-designing, chemical engineers process plants so no, we can't have a design project which says built in SA....but what you can do is to have a project which says SA has had a problem in this section or part... optimise it. And it's the same rules applied to chemical engineers building something specific to make something happen.....(noise from student)

So design reports, you report on your process and actual process.....Low...Experiment reports: you've done reports, you've done physics pracs, you do chemistry pracs, unfortunately you don't have to write those reports. You fill in some numbers in a book, don't ever copy or borrow someone else's numbers, by the way because they always changing the reaction every week. They give you different concentrations, so if you just take your mate's answers for that prac a week before they will know you took your mate's answer from the practical of week 4. They change the concentration.....

So what we do at chem. H, the gas is natural So 40% methanol, 60% water, what happens over the course of the semester or when we distilling it, and then we mix distil it and mix together again and you lose a lot of methanol. So it went down to about 15%, so this group came in and started with

47% methanol. So we said where you did get the methanol, they said well it was in the thing. I said, goodbye, zero, plagiarism. So experimental reports, what you do is, you decide what experiment you can do, why you are going to do it and then write up how you did it. You achieve it..... First of all what my experiment procedure is going to be and then as you work through the experiment know this, what we do here and this one there, this one there. You will write up an experimental procedure, you will put an equipment list, your specific experimental equipment and then you put all your actual findings, data, not the whole data but the process data. If you find a melting point of a chemical substance in a chemistry lab then you don't actually do a little practice. You might actually want to do a little prac for a start and this time, this is on the temperature..... Not melted yet write all we want is melting point. If you on the other hand look at aexperiment something is reacting over a period of time then you look at the concentration vs time. That is what you actually quote. Concentration vs time will show you what is happening to that chemical reaction. And then you take your main findings in that discussion and the result, you don't just go, "results here, you have to actually say what they mean what do they tell you, use them for, you actually have to take your information from data from the number, this is what engineers do. They look at numbers and they read specific lines and see what process is actually happening, have you watched The Matrix, very silly film but the same sought of thing we looking at a string of numbers, that's what engineers tend to do. If you look at numbers and decide is that a right number, why is it the right number, is that the wrong number, is it too high, is it too low. Why is it too high, why is it too low. Now, this is what we actually do to make sure things work, so we report our findings, but in the report you need a structure. You have to start any story in the beginning, always has "once upon a time".....So you have to start everything from the beginning, have you ever watched a filmit makes very little sense, if you start watching the film from $\frac{3}{4}$ of the first hour, and then you decide I want to watch the first part now, and then I will watch the last 30min and I'll watch 5min.....you will not understand the film.

Same with a report, if you start by saying "my conclusion of the report is".... And then you go into of the procedure was this, then you go to the reason why we are undertaking this experiment is because.....it won't make sense you have to have a structure and follow a certain structure that makes it clear from the very beginning, what's the aim of the actual experiment, the design, the report itself, always have an introduction.....(faint).....

You should want to read it, in other words, the language used has to be of a reasonable level. You don't have to be the world's greatest at any language; I am by far the greatest speaker in language of English or writer of the English language in the world, but I can write pretty good engineering report which is short to the point and say that what you need to know and there you go. I try not to bore my audience when I write. I get 45min for my lecture and if my audience is not talking I do try to make an enjoyable group in the sense of it.....(background noise).... .. report. It must be in word processing; your final report in this module as well as your project proposal must be in word process.

The reason why it is that is nowadays typing is a necessary skill for every person not just.....but for every single person in the work place, you can typethey told me when I was at school when I was 12 and our teacher had left and they didn't have time to get a and had a bunch of old type writers, and they said, you use it to type, and we would spend the next ten weeks trying to type as much as possible and messing around and eventually(noise in background)..

You've got to use all your fingers for typing, yes so it must be word processing in all you do. Most importantly you must credit all non-original work, and if you didn't come up with the idea you've got to give the person who came up with the idea and credit him. This is common knowledge. Example of common knowledge, what is the boiling point of water; at 100 degrees, water boils if it is at atmospheric pressure. That is common knowledge..... boiling point of water at 10 atmospheric pressure.. you have to look it up. It wouldn't be common knowledge so you have to cite where you

found that information from. Just an example, simple example is water.....chemical engineers will have to know that the boiling point of water changes with atmospheric pressure and you will have to use those tables and charts. So all non.....must be credited and full references..... Noise...

If they are all jumbled up, your report won't make sense, say if you watch a DVD or don't watch a film, in right order then it won't make any sense unless of course its Momentum by Chrystal Nowlen, which is actually designed to be deliberately confusing and you will only find out what happened at the beginning at end, so you don't watch the end of the movie first, cause you will understand it's only a movie. But in general you won't make such a structure.....so most reports..... some kind of specified format a lot of you will require bursaries, those bursaries generally have a section whyyou have taken? Why should we give you the bursary? You have to motivate within a set report.....also tenders, have those sort of questions, so in case of ...the words basic costing, you will then have a cover page, its known. You will have a cover page which will tell you, name of office, this is the same with a proposal...title/ office or group.....(noise)

The most important thing about a proposal is we tend to give 20% of the overall mark for any project to the abstract. The abstract is 200words. This summarises the entire project. If it's done well then it means that the reader can pick up the report and go, I want to read the rest of this because it's got useful information for me. If it's not well written then we have to go if the outside looks like thisI am not going to be bothered with the report. It also applies with CV's if you are applying for a job, I know, I have been in short listing meetings where 500 applicants were applying for a job. So first thing we did is anybody who couldn't actually work out the who they were by looking at the front page of the CV for two minutes and couldn't find their name, date of birth, worst of all their address and phone number from the email, simple stuff, if we can't find that then we bin the CV and we managed to get rid of 200 CV's that way. We do so with reports, if I can't find all things I require.....(low tone)..

I need to look at the abstract and go yes I want that paper, no I don't want that paper.....when I did my PhD, they didn't have all these.....and online search, we had to go through the book for abstracts so I sat in the library, first report, this side, that side looking for what may be useful for my PhD, I spent 2 months going through every single abstract and book.. [Low tone]. I probably missed a few.....so an abstract must be a summary and should be numbered.....noise.....

The introduction to any report should cover the main aim and outcomes expected of the project for the experiment.....simple example- we have two problems which are going to affect the coal mining industry in the near future, 1) is the . expansion which is coming more and more due to expanding industry, expanding agriculture along with water resources from this country.....(noise) at the edge of Botswana boarder, we don't have any water, 2) with that it will be difficult to actually process coal in..... .The main aim of research being carried out is to find out the way of reducing water usage in coal production.

That's a project introduction, introduction to my thesis.....that is the introduction. It introduces the project that say.....and gives a background why it's been done. You then need an extensive theory section, theoretical background , in the case of your project its: different type of energy production, why would you want to use renewable energy rather than using petrol etc., why would you actually want to be able to change whatever you will be changing.

So you need to actually include that as part of your literature background. Literature review is usually about ...1200 words long..... literature review for a master thesis will probably be between 30-50 pages, literature review on PhD will probably be 50-80pages, but in your report, it's your first year, 800-1200 words, somewhere around there. You are allowed to go over 1200 but not under. As opposed to the project proposal where you are not allowed to go over the 200 in each section. So you need to have the background of the project then you need to include the design procedure.....

We can build it this way, why are we building it this way, the experiment procedure. What was done experimentally? It could be diagrams, pictures so that after the designso people can reproduce your work.....low tone.....and discussion you have taken the meaning from the experiment that was carried out and design work carried out and determine from that what have been the findings of the project.,

The big one here is the inclusion of the recommendation, two of them, what people do is they go into thediscussion 5 lines, conclusion ½ page or whole page, No!, conclusions come from the discussions, if it's not mentioned in the discussion then it cannot be a conclusion – because you have not discussed the results. Conclusion should come from the results..... conclusions, short sharp statements.....low tone.....and they have to be scientific, they have to come from the data, they can't be speculation. Just because it worked doesn't mean that something else wouldn't have worked, just because it didn't work, maybe it could work if you did this.....low tone....

We learnt a lot from this project which for some reason generation of teachers seem to not be able to get through this account that we don't want as a conclusion – it turns out every year. So please be the first year not to have results of a conclusion with.....noise.....

What recommendations will you make to try and improve the process or improve the product at the end of it? (see- this is an example of satiation references they start with the same.....core work and.....with the Chinese university.....low [low tone]..... if you look at this researchnoise.....

We will do an entire lecture on citation, yes we will because if you don't use correct references, guess what, you lose a lot of marks, and don't copy someone work.

Just some general pointers before you actually submit your final version of your project proposal, I have to give you some.....low....., language usage is very important in every procedure, so make it legible to the reader.....talk about the design itself, talk about the process used, All those things you were taught about, remember paragraphs etc., I can't read two pages of continuous sentences. Always proof read and check it.....[lowtone], noise....

Ok that's it from me I will see you

Appendix I

Tutorial 4

Tutor: Allow me to introduce myself. My name is xxxx. I will be your tutor for the duration of this semester and the course. If you have any queries, I am your go to person. And if there is something that I do not know I go speak to the course coordinator so that you I will get to know and you will also know. Ok. If there are any problems that arise at any point in this course please feel free to contact me. I am going to give you as it is my student number from which you get a GroupWise email. You all know how GroupWise emails work.

Students: affirmation (uhuh)

Tutor: Ok. Do you have pens and paper ready or phones your or your blackberry or your normal brain [affirmation]. [Students talk in the background, tutors murmurs something while writing email address on the board] ok. My Masters was not in humour sorry, just one thing, I am obviously putting my cell phone on silence, so I can check the time so that no-one will hate me for keeping you longer; so, I am aware of how long we are going. So please, put your phones on silence, so on and so forth. Ok. First of all, this is what I have done. I will get, I will be able to get your emails so that I can send you on group email whenever necessary to keep you updated about what's going on. Ok. So we will try to keep as much room for communication for as long as possible. Anyways, how much do you know about this course? [whispers]. I am assuming you had a[emphasis] lecture or two.

Students: Two

Tutor: Two, fantastic, my maths is good, never mind. So basically the idea of this course, Technical Communication for Engineers, is, is basically to bring up your standard of English writing and speaking to an academic level so it's good for assignments, reports and son on and the like. You may be horrified to know that you don't give up writing when you becoming engineers. I am sorry, Anyways, so, this course is to make sure that your speaking and writing abilities are good enough for whatever it is at the university level and for the work sector. Ok. So that is what I am going to deal with throughout the semester in different ways. So all, not necessarily that, I will be dealing with essays or so on but things that you will already have to do. Some of, for some of you this may seem a bit redundant, for an argument you may think my English is good enough, I did English studies, I did essays, I said hello [ss laughs] uhm, why do I have to prove I can do it again, didn't I, wasn't school good enough? We are all working, we are bringing students from different sectors and we are trying to bring you all to the same level. As you may all know, notice, in a team in sports we are only as good as our weakest links. So we just want to make sure that everyone fits the same average. Ok. So for some of you who may think I am wasting your time, at least this is way for you to get good marks, for those of you who feel that your level of English is not up to speed, this is what the course is for. So you never should have to worry about it ever again. Today is pretty introductory and I am gonna introduce you to the first assignment that you will have to do and I am also wanting you to get used to your groups. I am going to, going to designate you into groups that you will keep for the duration of the course that you will together to form projects which I will also discuss in detail. So I am going to take a moment to read out your names and tell you what group number you are in. So altogether, being as one, there are going to be six groups. I am going to designate you to areas now that you will have to move to.[noise]. Ok so I want group one over there in that corner, group 2 middle [noise as students start moving]. No no no, don't move yet. I still haven't called out your names yet, oh sorry. Uhm group two, group three group four, group five and group six [tutor positions the groups]. Ok, group six over there. I am now going to attempt to read names. If I mispronunciate, you forgive me, so but don't tell me, so ok. I know you already do, so don't worry anyways. [Tutor starts calling out names of the first three members and realises some students are already sitting in their groups]. Have you guys received this list already?

Students: yes

Tutor: Have you and you don't tell me. April fools, April fools is two months away. So, does everyone who is group one know that they are here, everyone who is in group two. I am gonna read out [noise]. Ok, let me just go through group one. [Tutor reads out names of all groups]

Tutor: Ok, so according to these designations, please can you move to those groups. [noise]. If I have not called out your name please come forward now. [noise as students move to their designated areas]

Where is group two, you have someone else

What I want you to do as a first step is, I want you to make sure that you exchange details, contact details, your Groupwises so that you can be contacted by each other, find out from your timetables when you can meet because there is going to be times when you are going to have to meet with each other in order to work on your project and I am gonna talk about that just now. Ok. So please do that this moment. I will be with you now.[students talking in groups in background]

Group discussion

Student 1: [calls out the name of another student] you are going to be the group leader right. Let's see

Student 2. We don't really need someone to be a leader, but now we just need to do some research. We can meet up Monday or Tuesday go and research whatever it is on the net or in the library

Student3: But we can get some ideas to... [many discussions in the background]. This thing is due at the end of the semester.

I am sure ... generates more currency, if we had another semester you know what I mean.

Tutor: Ok, I just need a pen, alright....Ah I feel like a hamster Uh [laughs]. And today is the 16th

AVB: 17th

Tutor: I remember this from last year. Yeah. How many participants were there last year?

AVB : 5

Tutor: 5. Ok. Alright

Student discussion continued

Student 4: They don't really ask what you build or what you do. It's all about the report. You can build the thing and it can't work but if you get the report right. It's all about the report. Like he said, it's English.

Tutor: Ok. Ladies and gentlemen, may I have your attention please

[students continue with discussion, not audible]

Tutor: You can discuss the rest of the details of your proposal just now. So in the meantime, I just want to get through some of the stuff that you will need for your discussion. Have you all been able to get access to your course packs?

[Students murmuring]

Tutor: Ok. There is course packs available, they are available on a website called Moodle. Are you familiar with Moodle?

[Students murmuring]

Tutor: No. Moodle is a website where lecturers for all the different courses in the university put up their resources. So all the lecture notes, all the assignment papers, everything that is pertinent and relevant to this course, they are the ones, you, that is the website where they put it. One of the resources that they put there is your course packs and they decided that this year they are going to try and be all economic and conserve, conservational. They want to you know, they want to save trees. So you can obviously download your own copies of it and if you want to kill a tree, that is up to you. Ok. But otherwise, I am going to talk to you about some of the details that you will be able to find when you get the course packs. So, some of the things will not be strange when you get your course packs, eventually. So let me go through the timetable so that you are aware of what is going to happen later on in the course [Noise].

Tutor: As it states, as it says here, access to course packs on Moodle, find out which group you are in, , venue for tutorials. This far is is a more a list [not audible] of the Moodle aspect in some respect. 13th of Feb, that's the week was allocated to your design groups and also the beginning of your literature searches, the start of what we are going to call your project proposal. I don't think any of this has been mentioned to you before. Yah. Ok. So that what I am going to be discussing today, ok. As you can see next week, your first project proposal draft must be presented at the tutorial. You discuss your drafts amongst each other in your groups and with me as I go around. So therefore, it's going to be group discussion and one thing you should be aware of is that.... Towards the end of the course is that there is a peer assessment. You mark each other as well. So depending on how well you want in a group, if someone is giving the group trouble or if someone is not doing any of the work, that's going to reflect on how you mark them. Unless, if you are very kind and you think you know what, I am going to be nice and give them a 100% even though they did absolutely nothing, Ok, it's obviously up to you, how much you like each other and how much you are willing to help each other. Ok. So as important as group effort? [not audible], it says the first draft will be discussed today uh, eh and so on and the 3rd of the 7th the group tutorial is scheduled for the design of the of the project and initial testing of the prototype. I want to also discuss that because that's going to inform you about everything that you will be doing in the course. A lot of what we will discuss will revolve around that design project. Have you been told what your design project is about?

Students: Yeah

Students: More or less

Tutor: Ok. If I was to show you this.... It says a description of the group assessments. The project which makes up 70% of your assessments. You and your group must work together to design and build and market a device which uses renewable energy to charge or operate the following devices: a cellphone, a GPS navigation unit, a torch, a portable radio or walkie talkie, household generator, motorised vehicle, household devices such as a fridge, kettle so on and so forth. Good luck to anyone who can get a car to work. Ok. I will definitely give your group points there. Suggested forms of energy that could be used in such devices include piezo electricity, wind power, solar power, biomass or bio products and mechanical energy such as hand cranking and cycling. So start throwing in that cycle wheel. More details in each of these will be covered in the early lectures as well as some examples of what can get charged with these broad materials and lots of innovation. The whole idea is not going to be a very expensive project. You are all gonna use recyclable materials such as relatively cheap and easy to get, whether the stuff is lying around at home or you have to buy it from

Quick Spar in order to get it all done etcetera, etcetera. In terms of today's project though, that's going to deal a lot moreactually build together, that why you have these design groups. So here, you have to come up with a design and actually build this little charger or um prototype. So today we are, I will talk to you about the written project which you call your research proposal. By the way, I am not a technical expert at all. I don't know if that has been disclosed to you. None of the tutors are. I come from the humanities. I am a Masters student in literature. So I specialise in writing and speaking. So if you tell me that if I could put two potatoes in my ears I can get an electric circuit running, I will probably believe you. I trust you with your technical expertise. I am not going to assume that I am better than you at this and I am not going to try and teach you because that is hypocritical. That's not why I am here. I am basically here for your writing abilities so that whatever it is you know as technical and engineering you can explain and communicate to someone as..as me. Ok. I don't have any pretences. I am not trying to... be any superior or condescending and so on and so forth. I am here to learn from you as you are here to learn from me as well ok. Anyways, as far as technical writing, how many of you have done essays before, in school.

[murmuring]

Tutor: Ok, Its usually an everyday part of life... your school work and so forth and either way this is still an easy. This is just a different form. The project proposal is a pitch, like a sales pitch with which you propose your ideas for a design. You need to have a good background to the project which is based in literature. I am not talking Shakespeare. I am talking about journal articles and stuff that you have researched. In other words before writing the project proposal you need to research what effect the device you wish to make will have in the South African or global context. Are you going to provide a power source, how the prototype is going to work and it needs to be sustainable and green? A few papers on problems associated with electronic waste dumping in Africa and the concept of green design are included on a link such as Moodle to hopefully provide you with the spark of innovation, in case to get the ball rolling.... you need some ideas. A project proposal form will be made available on the Moodle page which must be used in your final submission. The proposal must include a basic budget which you must provide yourselves, .. If it is possible to make... useful device from already made, scrap material, so your ultimate is a zero budget. However, you can spend up to 25 rand per student. The time for the project, it must be within the time given in the module. So it's important that you set yourselves your own deadlines in order to work together. And, a literature review with full citations and bibliography. None of these will mean an automatic rejection and fail. You have to take these seriously. And a description of the prototype, device being proposed.....On the Moodle page will there will be more details on how your proposal will be assessed. Take the time to read your rubric and you should be able to maximise your marks. In your course packs, that will be given to you, there will be a rubric in which you can see how we mark and you can obviously set for yourself scores in order to get a certain standard of work in order to pass. Of course, it's up to you. Anyone confused thus far.

[Silence]

Tutor: Ok, about what you have to do. Hands up....Yes...

Student: It's just that I don't understand, I understand when they say sustainable energy, but green, what does that mean?

Tutor: Green means its nature friendly.

Student: Oh, nature friendly [other students laugh in the background].

Student: Yes,..not harm the environment. So basically, if you start using nuclear power [students laughing] and you start, then you are in trouble. Ok. Excellent.

Tutor: What I am going to do now, some of this may seem like a waste of your time, of course...

Student: How do you access course packs.

Tutor: You need to go to the website. The URL is http, I am going to write this down. [Tutor writes the URL website on the board]. Ok. So you write that down. You will be able to access Moodle, and it's not an emotional cow across the pasture. So moving on....

[Students whispering in the background].

Tutor: If you have any other questions feel free to ask me as well.

Student [talking in background]: 20 to 2 O'clock, we can do this...

Tutor: There are notes I used last year. They have to do with something called a literature review. Have you ever heard of a literature review? Ladies and gentleman...

Students: Yes

Students: Not really.

Tutor: Ok, so that maybe familiar to some of you, ok. Generally at university you have to read and use resources and refer to them in all your assignments. You can't escape that reality at university level. If you do not and if you do use resources that come from someone else and do not reference, you will be accused of plagiarism and then certain legal aspects are involved and you could be then kicked out of the subject. Ok. So do take it very seriously. So at all times, whenever you are referring to someone else that inspired some of the stuff that you are saying you have to refer to them and you have got to get used to that. So a lit review is something very specific which is all about the things you have read. So you have gone to the library, you have gone to the website and so on, and you have read a whole lot of stuff that you are going to use for your design and for your project and so on and so forth and now you want to give your own summary and opinion on the stuff you have read. You tell me what's happening in the literature you have read and you tell me how it is applicable to what you want to do. So what is a literature review? A literature review is a document that a writer has read previous several documents pertaining to the same topic and selected relevant information on which to later build your academic opinion. So, it's no point reading stuff that has nothing to do with your project. Even if you are interested in reading something else and you want to think, ok, I am going to use it and refer to it, it might be useful, maybe it's a passage from the Bible or something else that gives me strength in times of need, no, ok. It has to be relevant to your project. And of course, it has to have relevant citation. If you read a whole article that's 60 pages long and your project proposal is 3 pages long, there is not a lot of stuff that you are going to put in your project proposal. You are going to have to figure it out. So you are going to have to select the most relevant information that is necessary in order to make sense within your project proposal. So as far as it is now, to draft the literature report, review, one must, one read relevant articles. So these are more or less going to be journal articles and theoretical essays for the purposes, never mind. Ok, proper academic reading, websites will not be counted, that's relative. If you uses Wikipedia, chances are it's not gonna be taken seriously by the marker because some of the stuff that's on Wikipedia is somewhat dubious and we can't check it out where it comes from. So we would like, we prefer for you to use actual texts, and also stuff that you find on line that has an identifiable author, time and date and which if we go and look for ourselves, we can find it. So, yes, you may use websites but not all of them are going to apply. Point 2; select relevant points from an article to refer to in your literature review. Locate texts in the articles that most closely reinforce the idea that your topic engagesHere are some few examples from last year, last year we did solar cookers. For instance discussing the history of making a solar cooker is off topic in a short paper where most importantly you must discuss the advantages

and disadvantages of solar cookers. If for, if you look at the proposal, it's telling you must consider the South African [coughs] and a global context and how it is green. Going into the history of innovative changes could end up being a huge waste of time and will make you lose marks. So you got to be very careful... it is a skill actually. Similarly, discussing the benefits of solar cookers in say India or it could be Portugal or could be South America, could be Abidabi, it doesn't matter as long as it says its discussing solar cookers wherever, it's not South Africa. That's just an example, you have got limited space and you can't just talk about everywhere but South Africa, again, you are wasting your time. It says and a global context. So we are expecting some relationship or some reference at least to South Africa and to a global context and to an international context. Ok. It says and or..... so you know South Africa is a common denominator..... You must find close similarities between the subjects of the papers you read and the subject of your topic in order to justify discussing a topic..which at a glance may seem irrelevant. So score area once again, you must try to be relevant, trying to make sense between two sources of information, one being yours and the other being what you have read. If I can see a connection and relation, that is, what is most important? Some people, in some paragraphs may go off by talking about how solar power is useless while they are talking about the project being wind power and discuss the effects of deforestation in another country which is similar to the effects of deforestation in South Africa. That is where you are going to talk about a global context, you are going to talk about a relationship between what is happening there, where I can see a comparison. If you draw a comparison, not a contrast, do you all know the difference between a comparison and a contrast?

[Silence].

Tutor: Comparison – is where you try to find the things that are the same. Contrast is where you try to find the things that are different. Here you are looking for more of a comparison, so keep that in mind. Let's go, step 3- am, am I losing anyone. This is making sense.

Students: [some giggling, other silent]

Tutor: Your faces are sombre. I know it's a Friday, isn't it, it's not my fault. I didn't choose you guys to be in this tut, ok. Here I got construct paragraphs [on overhead projector], this obviously goes to your expressive competence. Construct paragraphs that make sense and follow a logical pattern. Believe it or not, even up to this level, trying to create paragraphs and making sense within a grouping of writing is still difficult and you may have to do more than one draft. As a master's student, I had to do a research project which was about 120 pages. I can't even begin to remember how many drafts I had to do. Well, I had to fix every single paragraph. So don't underestimate, eh, how much effort you are going to put in order to make the best sense. I am sure you guys have an idea of how well you do now, it can be better, that's the idea of the course. So, if you can be excellent at the idea of writing, why not so, the basics of getting there, to that, is to maintain a common tense in each even though it's made of information that comes from different sources. Yes. So as far as, if you look at how the project proposal is laid out, just going back to that that already gives you an idea of the structure, doesn't it. Uhuh [looking at proposal template], it says in other words, before writing the proposal, you need to research what benefit the device you wish to make will have in the South African or global context. Already you have a paragraph just about the benefits of your device and all that information that you have researched can go into that one paragraph so it makes sense. Then of course, you have one which has got to do... describe how you are going to provide the power source. Separate paragraph. How the device is going to work and why it should be sustainable and green. Ok, so, the conservational aspects of it, another paragraph. So by that, you already in your mind have several kinds of paragraphs, putting them in an order that makes sense. Ok. Does that make sense, it's not all random you all, people, ok. For instance there can be one paragraph that deals with the advantages and disadvantages of solar cookers in terms of cost, yada yada, basically what I was saying just now. So moving on, this is another point.....

Tutor: What is an introduction?

[silence]

Tutor: How would you describe an introduction for this kind of a project?

[silence]

Tutor: I told you you have to come up with a design-Yes.

Student: I think it's an outline of the main aspects you are going to discuss in your project

Tutor: Um , so it actually introduces me, hence the word, to the idea I am going to see further detail throughout the body of the essay. Excellent, ok. Anything else? [silence]

Tutor: That is dead, that is dead. Basically an introduction is a promise to me that whatever you tell me in the introduction I am going to see in further detail and fleshed out throughout the body of your essay or project proposal, in this case. Ok, if you tell me things in your introduction that I don't get to see further detail of in the rest of your paper, you are going to lose marks, ok. So you got to make sure that whatever you say there, I can see it in more detail later on.