

**THE IMPLEMENTATION OF BLENDED LEARNING IN AN ENGLISH
COMMUNICATION COURSE FOR FIRST-YEAR UNIVERSITY
ENGINEERING STUDENTS – A CASE STUDY**

By:

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*Thesis presented in fulfilment of the requirements for the degree of
Masters of Arts (Technology for Language Learning) in the
Faculty of Arts and Social Sciences at
Stellenbosch University*



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December 2018

Declaration

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December 2018

Abstract

Engineering qualifications in South Africa are required to include an English communication module or course that equips students with the necessary academic and professional English communication competencies. Owing to the time and content burden of engineering-related modules and associated teaching and learning constraints, English communication courses subsequently receive less notional hours for achieving the module's learning outcomes, and alternative methods for the delivery and facilitation of teaching and learning English have to be explored.

This study investigated the implementation of flipped blended learning as a methodological approach to teaching writing from an *English for Academic Purposes* (EAP) perspective. The study was conducted in an English communication module, and the approach was explored through the lens of first-year university engineering student experiences.

In particular, the investigation explored blended learning and flipped teaching practices, learning theories, pedagogical practices, learning styles, online learning and applied linguistic theories to inform the empirical case study set at a South African university.

Following an interpretivist and qualitative research design, the interpretations and perceptions of participant experiences of flipped blended language learning practices were explored.

The investigation yielded rich data about engineering student experiences with flipped blended language learning and concluded that individual student learning styles and preferences are directly linked to participant perceptions, experiences of and preferences for blended and flipped learning in the English communication module. The participants supported the approach and found flipped blended learning to be an effective teaching and learning strategy in the module. The participants also highlighted time management as one of the challenges experienced during the online learning phase of the flipped blended learning implementation.

The findings of the study were limited to the context and experiences of the study's participants, but encouraged future researchers to evaluate whether contextual resonance may be established.

Opsomming

Ingenieursstudente in Suid-Afrika word verplig om 'n module of kursus in kommunikatiewe Engels te volg, om hulle sodoende toe te rus met die nodige akademiese en professionele vaardighede om in Engels te kan kommunikeer. As gevolg van die swaar belading van die ingenieursgerigte modules en verwante onderrig- en leerbepoelinge, word daar gevolglik minder veronderstelde ure aan kommunikasiegerigte kursusse toegewys en moet alternatiewe metodes vir die aanbied en fasilitering van vaardighede in Engels ontwikkel word.

Hierdie studie ondersoek die implementering van omgekeerde vervlegte leer ("flipped blended learning") as 'n metodologiese benadering om skryfvaardighede vanuit die perspektief van Engels vir Akademiese doeleindes te onderrig. Hierdie studie is onderneem in 'n Engelskommunikasiemodule en die benadering is verken deur die lens van die ervarings van eerstejaarstudente in ingenieurswese.

In die besonder, word in hierdie studie vervlegte leer en omgekeerde onderrigpraktyke, leerteorieë, pedagogiese praktyke, leerstyle, aanlynonderrig en toegepaste linguistiekteorie gebruik om hierdie empiriese gevalstudie aan 'n Suid-Afrikaanse universiteit te analiseer.

Aan die hand van 'n interpretatiewe en kwalitatiewe navorsingsontwerp, is die interpretasies en opvattinge van deelnemers en hul beleving van omgekeerde vervlegte leerpraktyk ondersoek.

Dié ondersoek het heelwat data verskaf oor ingenieursstudente se ervaring van omgekeerde vervlegte leer en is tot die gevolgtrekking gekom dat individuele studente se leerstyle en voorkeure direk gekoppel is aan deelnemerpersepsies asook die ervaring van en voorkeure vir vervlegte en omgekeerde leer in die Engelskommunikasiemodule. Die deelnemers steun hierdie benadering en het omgekeerde vervlegte leer 'n doeltreffende onderrig- en leerstrategie gevind. Die deelnemers het ook tydbestuur uitgesonder as een van die grootste uitdagings tydens die aanlynleerfase van die implementering van omgekeerde vervlegte leer.

Die bevindinge van hierdie studie is beperk tot die konteks en die ervarings van die deelnemers aan die studie, maar moedig ook voornemende navorsers aan om te evalueer in watter mate kontekstuele resonansie neerslag vind.

Acknowledgements

After praising and thanking my Creator, Allah, The Most Beneficent, The Most Merciful, I would like to thank and acknowledge the following individuals without whom this study would not have been possible:

- Nazeefah Raban, my beloved wife for her undying love, support, commitment and for allowing me to discuss every idea and revision with her (even without having coffee at times)
- Amina and Ebrahiema Raban, my dear parents for their kind words and always checking on my progress
- Mutheerah and Ibrahim-Amin Raban, my children for sacrificing so that Daddy could write his 'book'
- My siblings and all my family for their support
- Prof Catherine du Toit for her supervision, continued support and advice
- Ms Lesley Bergman for her initial supervision and academic guidance
- Dr Marcelle Harran for her critical reading and detailed review
- Prof Marius Crous for assisting with the Afrikaans translation
- My work colleagues and friends for their kind words
- Boorhanol Islam Movement (Cape Town) for believing in me
- The participants of this study for sharing their time and experiences with me

I am deeply grateful to all for walking this path with me and being the pillars of strength, motivation, enthusiasm and drive that made the walk considerably more scenic.

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Acronyms & Abbreviations

AC	Abstract Conceptualisation (in ELT)
ADDIE	Analysis, Design, Development, Implementation and Evaluation
AE	Active Experimentation (in ELT)
BL	Blended Learning
BLL	Blended Language Learning
CALL	Computer-Assisted Language Learning
CE	Concrete Experience (in ELT)
Col	Community of Inquiry
DHET	Department of Higher Education and Training
EAP	English for Academic Purposes
EAS	English for Academic Studies
ECSA	Engineering Council of South Africa
EFL	English as a Foreign Language
ESL	English as a Second Language
ELT	Experiential Learning Theory
ESP	English for Specific Purposes
F2F	Face-to-face
FGD	Focus Group Discussion
GDC	Guided Didactic Conversation
HEIs	Higher Education Institutions
ICT	Information and Communication Technology
ILS	Index of Learning Styles
Int.	Interview
ISD	Instructional Systems Design
L1	First language

L2	Second language
LMS	Learning Management System
LOTL	Language of Teaching and Learning
LSI	Learner Style Inventory
ODL	Open Distant Learning
OLRS	Online Learning Readiness Scale
QDA	Qualitative Data Analysis
RO	Reflective Observation (in ELT)
SCORM	Sharable Content Object Reference Model
SFL	Systemic Functional Linguistics
SLA	Second Language Acquisition
SDLRS	Self-Directed Learning Readiness Scale
T&L	Teaching and Learning
TEL	Technology-Enhanced Learning
TELL	Technology-Enhanced Language Learning
VLE	Virtual Learning Environment
WAC	Writing across the curriculum
WID	Writing in the disciplines

1 Chapter One: Introduction

Chapter One explicates the scope of the study by providing an overview and highlighting the nature of the investigation. A background to the research problem is included, and objectives of the study are listed. The main research question that informs the investigation is then posed and briefly explained. Assumptions and limitations that apply to the study are mentioned, and brief overviews of the thesis chapters are provided.

1.1 Background

Engineering qualification programmes offered by South African higher education institutions (HEIs) are required to include an English communication course that will equip engineering students with the necessary academic literacies and English communication skills (Engineering Council of South Africa, 2015). The inclusion of such courses facilitates the communication and academic language demands of rigorous academic programmes that first-year students often face, especially in disciplines such as engineering where technical language is critical.

Owing to the curriculum requirements prescribed by the Engineering Council of South Africa (ECSA), engineering qualifications and programmes with all their various constraints naturally place most teaching and learning emphasis on engineering-related modules. As a result, English communication courses subsequently receive less notional teaching and learning hours.

The study of English communication by university students is crucial to acquaint them with the required academic literacies to facilitate studying at a tertiary level and to equip them with English communication competencies for professional contexts. Most universities in South Africa have English as a medium of instruction and as the language of teaching and learning (LOTL). This is at odds with the large cohorts of students who have English as a second or additional language (Department of Higher Education and Training, 2015), and highlights the need for English communication (as a course or part of a programme of study) to be firmly established and consolidated.

Despite the importance of studying English communication, the contrasting weight of engineering-related modules often leads to minimal in-class teaching time being allocated to English communication. This results in a fast-paced English communication

curriculum and limited time for critical consolidation of language and academic literacy concepts. Sulcas and English (2010, p. 219) refer to a study conducted by Morreale and Pearson (2008) in which 93 articles, surveys and reports were analysed to provide evidence of the importance of communication courses. The researchers found that despite its importance in the development of students socially, educationally and professionally, communication remained an emerging concern in the 21st Century although its competencies should be prioritised by academic institutions (Sulcas & English, 2010).

Kassim and Ali (2010, p. 168) found that even though engineering graduates were in demand globally owing to the expansion and substantial worldwide growth of the industry, many employees were cautious in hiring these graduates as a result of their poor proficiency in language usage and English communication skills.

The instructional teaching context of English communication in engineering programmes in South African HEIs calls for exploring new ways of delivering instruction and facilitating learning that adequately address the learning needs of today's students. This is essential to meet the requirements of the curriculum within given programme constraints, and enhance the overall quality of teaching and learning.

The proliferation of technology-enhanced teaching and learning methods across all spectrums and levels of education has led to a vast number of diverse teaching approaches that seek to capitalise on student preferences of learning with technology and online while harnessing the richness of the teaching and learning experience itself. Of these methods, the concept of blended learning has become highly popular and even considered by many as a norm in higher education worldwide (Norberg, Dziuban & Moskal, 2011).

1.2 Blended Learning in Higher Education

The convergence of face-to-face, in-class teaching and learning with online education is documented as “the single greatest unrecognized trend in higher education” (Young, 2002, p. A33), prevalent in the international sector for at least the last two decades. Researchers have described blended learning (BL) in higher education as being the “new normal” (Norberg, Dziuban & Moskal, 2011), and the “new traditional model” (Ross & Gage, 2006) for teaching and learning.

HEIs are progressively adopting BL as a mode of offering classes and courses (Garrison & Vaughan, 2007), that has become “an almost indispensable segment of the complex ensemble of higher education” (Bauk, 2015, p. 323). Drysdale et al.’s (2013, p. 92) analysis of 205 dissertations and theses in the domain of BL found that 77% of BL iterations and implementations were set in the higher education sector, endorsing the notion that BL is a confirmed trend in higher education teaching, learning and research.

Sharpe, Benfield and Roberts (2006 in Morris, 2014, p. 402) remark on the increase in the use of digital practices by academics in HE “to support student learning, drawing on a growing pedagogical literature evidencing the effectiveness of technology to enhance learning outcomes, student engagement and enjoyment.” Morris (2014) also highlights that these approaches form part of a “digital strategy” in higher education, of which, blended learning plays a significant role as a provider of “the pedagogical framework for appropriate use of online resources, technologies and tools to support face-to-face interaction between students and teachers.”

In addition, blended learning has been adopted by universities globally, more readily and easily by institutions that are resourced, capacitated and technologically-equipped to do so. However, these are, typically, in established, well-funded institutions, which are more abundant in developed and first-world countries. While a surplus or adequate number of technological resources might facilitate the introduction of blended learning at a university, particularly from a technological perspective; its excessive availability does not necessarily guarantee the effective implementation of BL.

Research conducted at developing universities, such as the study by Tshabalala, Ndeya-Ndereya and van der Merwe (2014) highlight additional deterrents as obstacles to effective BL implementation. Although these obstacles range from institutional policy to academic staff interest concerns, they still acknowledge the opportunities for BL at such institutions. This study supports the viability and broader notion in favour of introducing blended learning in developing universities and countries, contextually similar to many HEIs in South Africa.

In addition, the current-day context and conditions of higher education in South Africa, where large numbers of students have to be duly accommodated, have mandated the “large-scale introduction of innovative teaching and learning strategies” such as blended learning (Balfour, van der Walt, Spamer & Tshivhase, 2015).

The 'Heher Commission' was appointed by the president of the Republic of South Africa to investigate feasibility of fee-free higher education and training in the country (The Presidency, 2017; News24, 2017). The 'Heher Commission' indicated in the *Commission of Enquiry into Higher Education and Training Report* as a key recommendation that blended learning should be explored (Commission of Enquiry into Higher Education and Training, 2017, p. 547). The Presidency of the Republic of South Africa subsequently released an official statement indicating that "Government must further investigate the viability of 'online and blended learning' as an alternative in addressing the funding and capacity challenges facing the current higher education and training sector" (The Presidency, 2017).

The South African Department of Higher Education and Training (DHET) published the *White Paper for Post School Education and Training* (DHET, 2013, p. 7), advocating that South African universities should collectively have a total enrolment of 1.6 million students by 2030. Additionally, they indicated that the government accepts that it would be highly-challenging to accommodate such numbers in the traditional on-campus setting, thus, BL will have to play a more active role in realising this objective. BL would be more applicable in the South African university setting where the majority of offerings are not solely categorised as distance or face-to-face contact learning. Universities and colleges in South Africa and worldwide have adopted and implemented diversified interpretations of BL.

1.3 Problem Statement

While the importance of English communication and its inclusion in engineering programmes has been explicated by many, there are detractors who feel that English communication is a soft skill and engineering students should instead be spending more time focusing on the acquisition of technical skills that will be applied in their disciplines and professional contexts, as opposed to focusing on soft skills that might not be considered as core competencies (Grant, 2003). This is a common misconception that is often shared by engineering students as well and contributes to how students participate and perform in English communication courses.

Morraele and Pearson's (2008) study found that communication in university programmes is vital as it aids in developing students professionally and socially. In particular, communication competence is crucial for the development of the 'whole'

engineering student as engineers are often subjected to interacting with different professional sectors and have to possess strengthened competencies for effective communication. Engineers also need to interact globally and with people from differing backgrounds not specifically restricted to technically-inclined professionals. Engineers, therefore, have to be able to present knowledge and information in ways that are professionally acceptable; connecting socially with others in ways that are meaningful and appropriate.

Sulcas and English (2010) cite Du Toit and Roodt (2009) by highlighting that “from 1996 to 2005, the majority of South Africa’s engineers and technologists worked in the manufacturing, financial and business sectors in South Africa” (p. 220). This necessitates that engineers possess additional skills and competencies that would aid in equipping them with increased professional versatility and adaptability for professional environments that are non-technical or not exclusively technical and engineering-related.

Grant (2003) also highlighted that the engineering curriculum could be fairly packed with its technical and field-specific requirements, and including a single course for English communication might not achieve the objectives of professional communication as a whole. Ford and Riley (2003) recommend that communication might have to be integrated into engineering courses, following the method of ‘writing across the curriculum’. What remains critical with the introduction or inclusion of English communication in engineering programmes is the methodology and content.

The methodology for instruction and learning material through which English communication is learnt and delivered have to be relatable to students. Kaewpet (2009) cites Dudley-Evans and St John (1998) by advocating that the content and material taught in technical English and communication courses has to contain elements that engineering students can use outside of the classroom. If engineering students can identify and relate to the material, recognising its importance for application in a diverse range of contexts, it might lead to more effective teaching and learning encounters.

The ‘writing across the curriculum’ (Ford & Riley, 2003) approach might prove to be viable as engineering students would be exposed to communication in technical courses and would be able to establish connections between communication concepts and real-

world and professional application directly. The method of instruction and approach to including communication relies heavily on appropriate pedagogical underpinnings.

As a result, English communication for engineering students has to be grounded in relevant language pedagogy and teaching methodology, providing a sound framework for appropriate language learning and acquisition.

A flipped blended learning approach to English communication learning and teaching is explored in this study as a means to teach the subject using pedagogy and approaches that are contextually conducive.

The scope of blended learning as a methodology or approach is in itself reasonably vast, and has to be evaluated or explored from a particular perspective that is relevant to the learning content, context of instruction and student learning preferences. In Drysdale, Grahams, Spring and Halverson's study of 205 doctoral dissertations and masters' theses in the sphere of blended learning (2013, p. 95), it was suggested that "additional research attention [is] given to sub-topics of student engagement", motivation and satisfaction.

The case study was set within an English communication course context that was offered in a single academic semester and taught at an accelerated rate within limited weekly in-class sessions at a South African university.

The case was researched against the backdrop of a general call made by the university to increase the number of blended learning approaches and inclusions in courses and curricula, and would ultimately consider and explore student perceptions of the approach.

1.4 Objectives of the Study

The objectives of this study are to:

- 1.4.1. design a flipped blended learning approach to the academic writing section of English communication study and evaluate its effectiveness
- 1.4.2. explore the pedagogical application of flipped teaching and learning in a blended learning context with reference to student learning preferences

- 1.4.3. explore student learning perceptions and experiences of the effectiveness and applicability of a flipped blended learning approach in English communication study

1.5 Research Problem

The research problem was framed through the formulation of a research question that was supported by subsidiary research questions.

1.5.1 Research Question

For the study, the research question was:

“How do university engineering students experience a blended learning approach to learning academic writing in English communication in an accelerated programme?”

This question was framed to determine how the strategic application of online learning coupled with face-to-face teaching, was utilised as a model for teaching English communication. In addition, this model was applied within an engineering programme that was unable to allocate extensive in-class teaching hours to the subject.

1.5.2 Subsidiary Research Questions

The following subsidiary questions were identified to provide direction for fieldwork questions and assist in answering the primary research question:

- 1.4.2.1. How effective is flipped teaching and learning in a blended learning model?
- 1.4.2.2. How do students respond to online study versus face-to-face instruction?
- 1.4.2.3. What are students' general perceptions of blended language learning in an engineering programme?
- 1.4.2.4. What time ratio could be allotted to online learning and complementing critical face-to-face teaching in an English communication course that is fast-paced or accelerated?
- 1.4.2.5. What are student learning preferences about online learning and face-to-face teaching?

1.6 Hypothesis

A blended learning approach to teaching an accelerated English communication course in an engineering programme yields richer student learning experiences and is a better-suited delivery mode for the English communication teaching and learning context.

1.7 Significance of the Study

The study would provide insight into engineering students' perceptions on studying English communication via a flipped blended model that could resonate contextually for future redesigning of blended language learning implementations or interventions.

1.8 Assumptions and Limitations of the Study

The following assumptions applied to this study:

- 1.7.1. Participants would already have acquired the necessary digital literacy skills and be computer literate as they would have either completed a computer studies module in the first semester or have been exempted from it as a result of passing an exemption assessment test at the commencement of the academic year.
- 1.7.2. Participants would have sufficient internet access to online content either via the university networks on campus or in university student residences or off-campus in their homes and private residences via mobile data or personal internet access.
- 1.7.3. Participants would provide honest, accurate and relevant feedback during the group discussion and interviews.

The case study would be limited to a group of first-year students studying towards a national diploma in engineering at a South African university. Findings of this case study would not be generalised nor suited for general transferability.

1.9 Overview of Chapters

This thesis has been structured and divided into six chapters (see Figure 1.9.1).

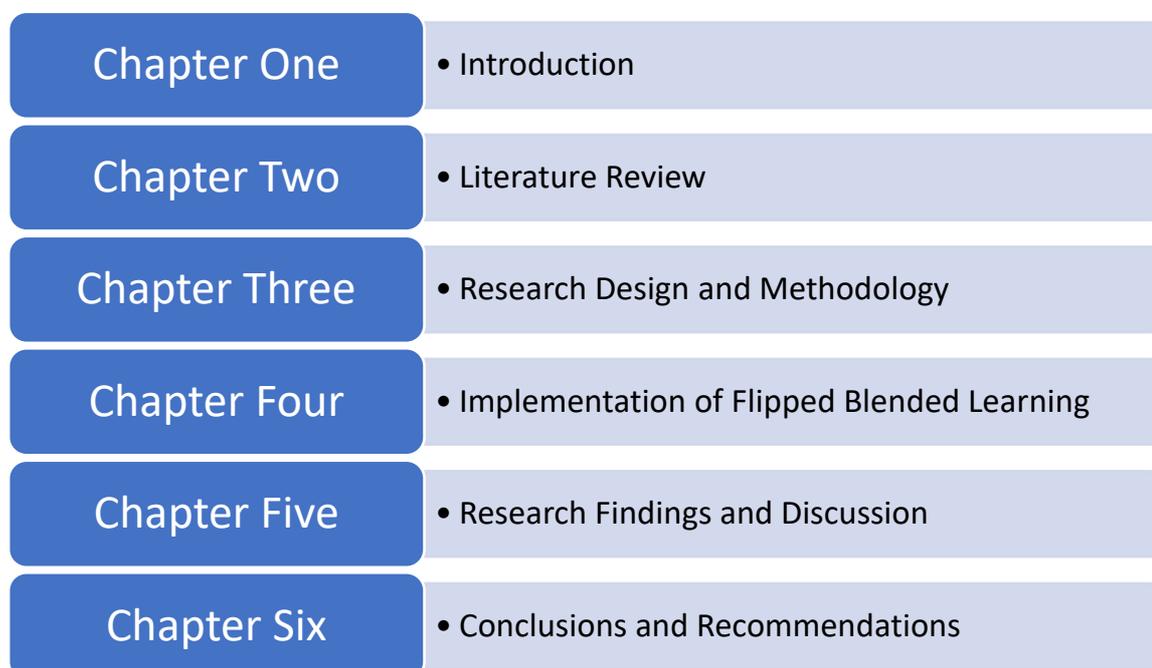


Figure 1.9.1 Thesis Chapter Structure

1.9.1 Chapter One: Introduction

This introductory chapter provides the background to the study and research problem, purposes and objectives of the study, research question and hypothesis, significance of the study, and assumptions and limitations that applied to the study.

1.9.2 Chapter Two: Literature Review

Chapter Two provides a review of literature on blended learning, theoretical frameworks of blended learning, learning style, flipped learning, technology-readiness and digital literacy, English language teaching in engineering, and theories of *English for Specific Purposes* (ESP) and teaching of academic writing.

1.9.3 Chapter Three: Research Design and Methodology

The study's interpretivist research design and qualitative methodology are discussed in Chapter Three. Matters of data collection, validation and analysis are included. Issues of ethics are also explained in this chapter.

1.9.4 Chapter Four: Implementation of Flipped Blended Learning

Chapter Four provides an overview of the blended learning strategy that was adopted for this study, including an outline of the *English for Academic Studies* (EAS) resources that were used during the investigation. An explanation of the features of the online resources and the Teacher's Guide for the face-to-face session are included.

1.9.5 Chapter Five: Research Findings and Discussion

The research findings, discussion and analysis are included in this chapter.

1.9.6 Chapter Six: Conclusions and Recommendations

Chapter Six serves as the summarising chapter of the study providing the final conclusions and recommendations for further study.

1.10 Conclusion to Chapter One

Chapter One outlined the background to the research problem and listed the purposes and objectives of the study. The main research question was posed along with subsidiary research questions. Assumptions and limitations that applied to the study were also stated. Chapter One closed with brief overviews of the thesis chapters. Chapter Two provides the detailed literature review and analysis of key concepts extracted from the introduction in Chapter One.

2 Chapter Two: Literature Review

Chapter Two provides a detailed literature review and analysis, building and expanding on key concepts extracted from the introduction found in Chapter One. This chapter explores critical topics, namely, technology-enhanced language learning, blended learning, theoretical frameworks of blended learning, learning style, flipped learning, technology-readiness and digital literacy, English language teaching in engineering, and theories of *English for Specific Purposes* (ESP) and teaching of academic writing.

2.1 Technology-Enhanced Language Learning

Technology-enhanced learning (TEL) has been defined in varied but similar terms as being learning environments that utilise technology in a supportive role to improve the general quality and overall outcomes of the learning experience (Goodyear & Retalis, 2010; Wang & Hannafin, 2005). Technology-enhanced language learning (TELL), on the other hand, does not appear to have a single agreed-upon definition in literature. However, Patel (2017) described TELL as an area that “deals with the impact of technology” on language learning and teaching, with a particular focus on L2 learning. Established links between technology-enhanced language learning and second language acquisition often resurface in literature (Levy, 2009; Chapelle, 2009; Patel, 2017).

The area of Computer-Assisted Language Learning (CALL) became popular in the 1970s (Chapelle, 2009) and continues to be researched today. CALL is somewhat established in literature, whereas Technology-Enhanced Language Learning (TELL) is yet to share similar literary recognition. Many studies have questioned the need for a new term, with Bush and Roberts (1997) arguing that the shift from ‘Computer-Assisted Language Learning (CALL)’ to ‘Technology-Enhanced Language Learning (TELL)’ was to explicate the role of media and resources (presented by the computer) that ultimately play the integral role in the teaching and learning experiences. Albeit, learning was frequently occurring on a computer, CALL might over-emphasise the ‘computer’ and overlook the resources facilitating and enhancing the learning experiences, embodied in the term ‘technology’. Furthermore, Zhao (2003) adds that ‘technology’ covers a broader spectrum “that encompasses a wide range of tools, artifacts, and practices” (p. 7).

TELL can thus be understood to be an over-arching and comprehensive area in second language acquisition (SLA) and language learning and pedagogy. TELL explores the role and use of various technologies and technological advancements in the processes, practices and support of language learning and teaching, studying the applied linguistic responses to the enhancement of the language learning encounters.

Yang and Chen's (2006) study of technology-enhanced language learning focused on student experiences of studying English in technology-enhanced environments and found that language-pedagogy-guided technological applications were needed when students were oriented towards online learning.

The 'Affective Domain' of language learning, commonly addressed in second language acquisition and language learning (Brown, 2007), centres around students' feelings and emotional engagements concerning language learning. In Brown's (2007) *Principles of Language Learning and Teaching*, issues in the Affective Domain included "empathy, self-esteem, extroversion, inhibition, imitation, anxiety, attitudes" (p. 68). TELL also provides opportunities for furthering research into factors impacting the Affective Domain of students learning a language, with studies finding that TELL has the potential to yield positive results in relation to affective issues, and that students demonstrated and experienced an increased sense of responsibility, independence and encouragement when learning language skills and developing language practices in TELL environments (Stepp-Greany, 2002).

In Zhao's (2003) meta-analysis of literature revolving around developments in technology and language learning, the researcher found that TELL-like environments were found to provide increased access to linguistic and cultural resources, opportunities for communication, and means for feedback; ultimately improving how languages are learnt. Walker and White (2013) postulate in *Technology Enhanced Language Learning – Connecting theory and practice*, that technology can be used in the language learning domain to develop specific literacies in listening, speaking, reading and writing; also, noting the learning and teaching potential of 'learning through visuals' in "multimodal literacies".

Technology-Enhanced Language Learning (TELL) is a vast field that covers all areas of language learning and language acquisition. As such, TELL has specialised streams that additionally explore writing and the teaching of writing in language learning.

Blended learning, as an approach to language learning and teaching in TELL, is explored in this study.

This study follows a flipped approach to teaching English communication in a blended learning framework.

2.2 Blended Learning

Blended learning is explored alongside student learning preferences, before it is analysed as a framework and approach. An exploration of its design and different models are included.

2.2.1 Blended learning and student learning preferences

As students continue to increase their usage of technologies and electronic devices in their social interactions and day-to-day lives, so too will their learning styles and general preferences for information and knowledge acquisition shift to more digitised or online–friendly formats. This shift then necessitates that HEIs adapt teaching and learning methods by exploring avenues such as blended learning (BL). The seemingly dual role fulfilled by BL approaches as being fitting for student learning styles as well as innovative in 21st Century teaching and learning makes it a front-runner for accepted standardised higher education practice. Porter, Grahams, Bodily and Sandberg (2016) indicate that within the last several years, scholars have predicted that BL will become the “new traditional model” (Ross & Gage, 2006) or the “new normal” in higher education course delivery (Norberg et al., 2011, p. 17).

BL could likely become a norm in higher education teaching and learning methods, as it simultaneously answers global calls for increased ICTs in education and complements many students’ predisposition of accessing online media and platforms frequently, catalysed by the increasing availability and usage of mobile phones.

It has been proven that students who have completed a component or class via a blended learning mode prefer BL to traditional F2F-only instruction. In a study conducted with 163 undergraduate students (Olson, 2003), the majority of respondents preferred BL to F2F-only classes because of the “ability to complete coursework at their own convenience, the increased time for other activities, not having to physically meet all the

time, the increased interaction with others, and the freedom that goes along with hybrid [blended] classes” (p. 61).

Arano-Ocuaman found that students preferred a BL course to a conventional offering in the following specific areas: “(a) accessibility and availability of course materials; (b) use of web-based or electronic tools for communication and collaboration; (c) assessment and evaluation; and (d) student learning experiences with real-life applications” (2010, p. iv).

Furthermore, research shows that student success and progress notably increase in BL-enabled environments. Drysdale et al. (2013) assert that “students participating in online or blended instruction produced stronger learning outcomes than those that participated only in F2F instruction” (p. 90).

2.2.1.1 Learning styles in blended learning environments

Blended learning environments allow learners to learn in a style or combination of styles as a result of the flexibility and efficacy that come with online learning, coupled with the rich social interaction in face-to-face classroom environments.

In a study conducted by Akkoyunlu and Soylu (2008), university students’ learning styles as determined in accordance with Kolb’s Learning Style Inventory (LSI) (1971) was compared to their blended learning views and preferences. The researchers found that students’ views of “blended learning differ according to students’ learning styles” (Akkoyunlu & Soylu, 2008, p. 188). The study found that there were “no significant differences between students’ achievement scores in respect to their learning styles”, and irrespective of the learning style, students can be “equally successful in the online environment” (Akkoyunlu & Soylu, 2008, p. 189). The study also found that an “anything will do” approach cannot be adopted in the design and application stages of blended learning; and, importantly, the online component specifically has to be thought through and carefully developed for learning to take place (Akkoyunlu & Soylu, 2008).

In a similar study conducted by Ugur, Akkoyunlu and Kurbanoglu (2009), where participants originated from three of the four Kolb (1971) learning styles, namely, *assimilator*, *accommodator* and *converger*, the students of differing learning styles as a collective responded positively to blended learning. The researchers emphasised the

importance of effective course design with due consideration given to the principles of the learning cycle (Ugur et al., 2009).

Mupinga, Nora and Yaw found that students of online learning did not present a specific predominant learning style with regard to online learning, and that “the design of online learning activities should strive to accommodate multiple learning styles” (2006, p. 188).

Of fundamental significance is that the online learning environments in the blended learning model should contain technologies and resources that complement and accommodate a broad spectrum of learning styles, to offer largely inclusive learning experiences.

2.2.2 Overview of blended learning

Blended learning (BL), also commonly referred to as hybrid or mixed-mode learning, is focused on web-based and online learning complementing traditional face-to-face instruction (University of Central Florida, 2017) within a single, content-specific teaching and learning cycle. While BL could erroneously be interpreted as merely adding technology to the learning equation, it has to be explicated that it includes strategically- and pedagogically-sound deployment of online learning that has definitive links to the face-to-face teaching and learning experiences. The learning taking place in the two environments would have to be interrelated and co-dependent for the holistic success of the BL implementation. Rovai and Jordan maintain that the online learning has to become “a natural extension of traditional classroom learning” (2004, p. 3), which would highlight the link between learning in the two environments, thereby fulfilling the framework of BL.

Fundamental elements that form part of a general BL framework include: formal education, an online component, a face-to-face component fulfilled in a physical context, and a certain degree of control over the learning process afforded to students (Holmwood, 2016). Bonk and Graham (2006), citing Graham, Allen and Ure (2003), identify that BL would include a combination of instructional modalities and delivery media, instructional methods as well as online and face-to-face instruction.

Carman (2005, p. 2) purports that a blended learning environment should have five key ‘ingredients’ or characteristics, namely, (1) live, synchronous events, (2) self-paced learning, (3) collaboration, (4) assessment, and (5) performance support materials.

Carman (2005, p.3) also advocates that the live, synchronous events are a “main ‘ingredient’ of blended learning” and that the ability to interact with an instructor or tutor is highly-valued.

Krause (2007b in Bath & Bourke, 2010, p. 1) also advocates that:

Blended learning is realised in teaching and learning environments where there is an effective integration of different modes of delivery, models of teaching and styles of learning as a result of adopting a strategic and systematic approach to the use of technology combined with the best features of face to face interaction.

Bath and Bourke (2010, p.2 in Balfour et al., 2015, p. 4) describe three modes of blended learning, namely,

Mode 1 where technology is used simply to communicate and store information; Mode 2 where technology is used to enrich the quality of the student learning experience through interactive learning activities, and Mode 3 involves the use of technology to support learning that is largely self-directed.

As such, the ‘blend’ in blended learning has varied interpretations. These are based mainly on the pedagogical underpinnings informing the choice and sequencing of online and face-to-face elements, synchronous and asynchronous modes, resources and technologies and student learning styles and contexts.

Blended learning cannot be reduced to a single specific method of teaching (Holmwood, 2016), but may be approached from varying perspectives that would lead to a wide range of teaching and learning possibilities. Many researchers have presented different interpretations of and approaches to BL, acknowledging the diversity and expansive scope of BL iterations. Figure 2.1.1 illustrates the Innosight Institute’s general depiction of modes of learning, and presents areas of possibility that are subsequently created within various models of BL (in Holmwood, 2016).

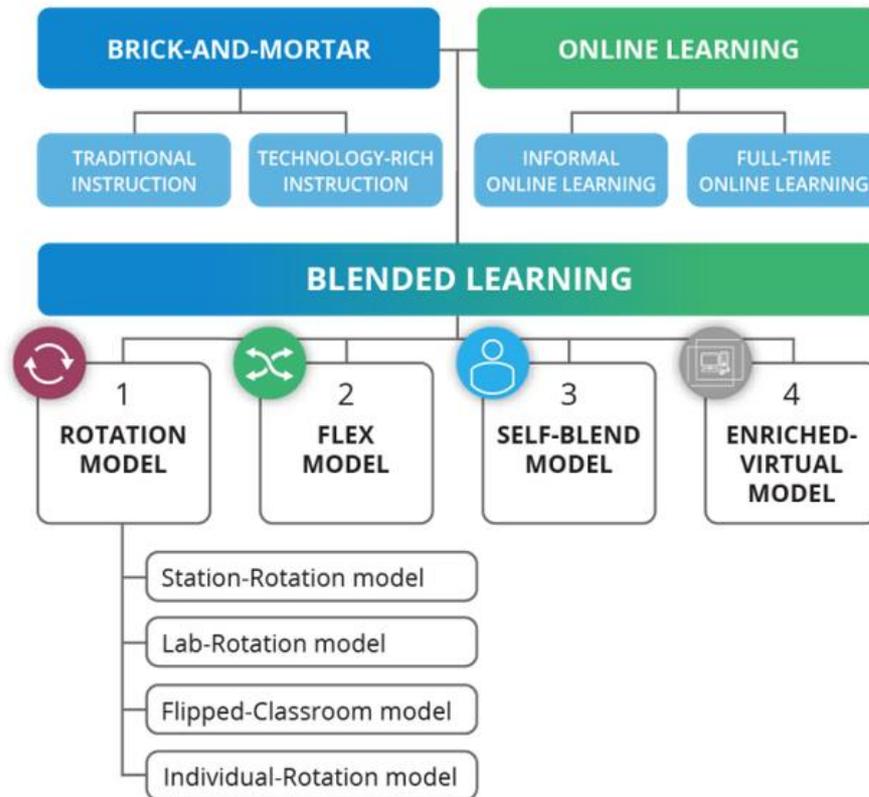


Figure 2.2.1 Blended learning educational processes and models (Holmwood, 2016)

Figure 2.2.1 represents the amalgamation of “brick-and-mortar” environments with “online learning” to formulate blended learning. Within the particular context depicted in Figure 2.2.1, the ‘blend’ is framed as the actual combination of the “brick-and-mortar” traditional face-to-face teaching with online learning experiences. This model further allows BL to be fulfilled via an array of models, namely, the rotation model, flex model, self-blend model and enriched virtual model.

2.2.3 Overview of blended learning models

There are various blended learning models that can be used when combining face-to-face instruction with online learning.

2.2.3.1 Rotation Models

Horn and Staker (2014) propose that the rotation models of blended learning include the different learning modalities that students rotate among, one of which is online learning.

2.2.3.1.1 Station-Rotation Model

In the station-rotation model (see Figure 2.2.2), students would “rotate through modalities within a classroom or a set of classrooms” (Horn & Staker, 2014).

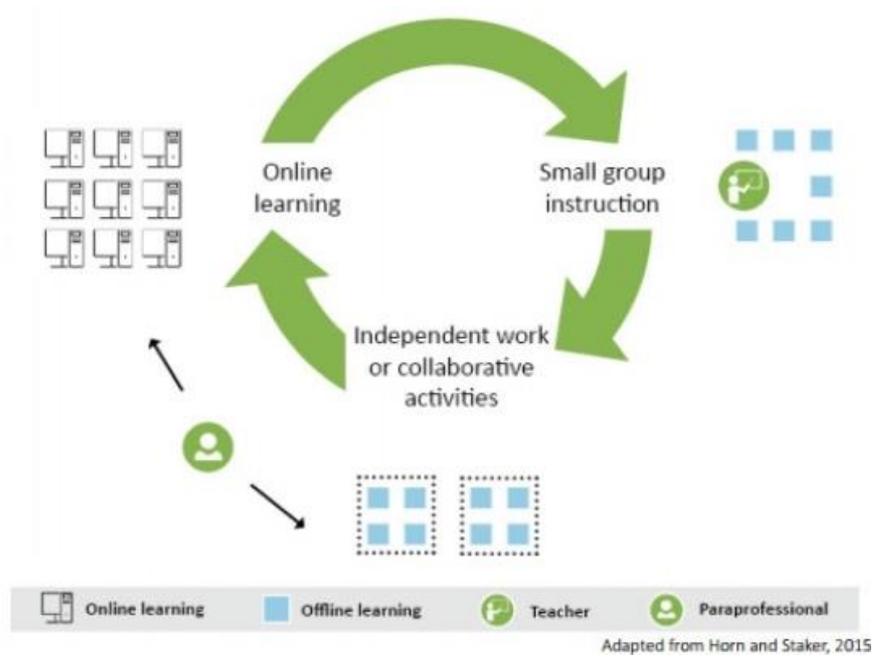


Figure 2.2.2 Station-Rotation Model (Reading Horizons, 2017)

2.2.3.1.2 Lab-Rotation Model

The lab-rotation model (see Figure 2.2.3) is similar to the station-rotation model with the difference being that students would rotate between a computer lab and classroom (Horn & Staker, 2014).

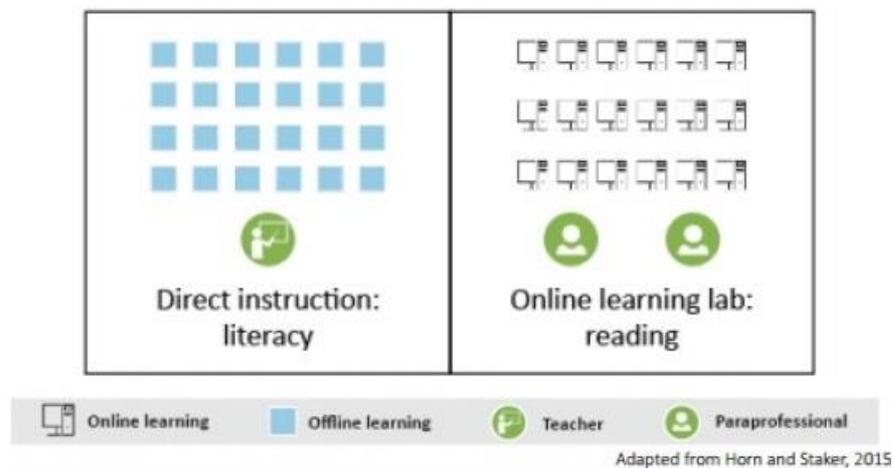


Figure 2.2.3 Lab-Rotation Model (Reading Horizons, 2017)

2.2.3.1.3 Flipped-Classroom Model

In accordance with the flipped-classroom model (see Figure 2.2.4), students would learn content off-campus via an online platform and use the in-class time for activity-based learning (Horn & Staker, 2014). This model is often used to spark critical in-class discussions and for higher-order learning.

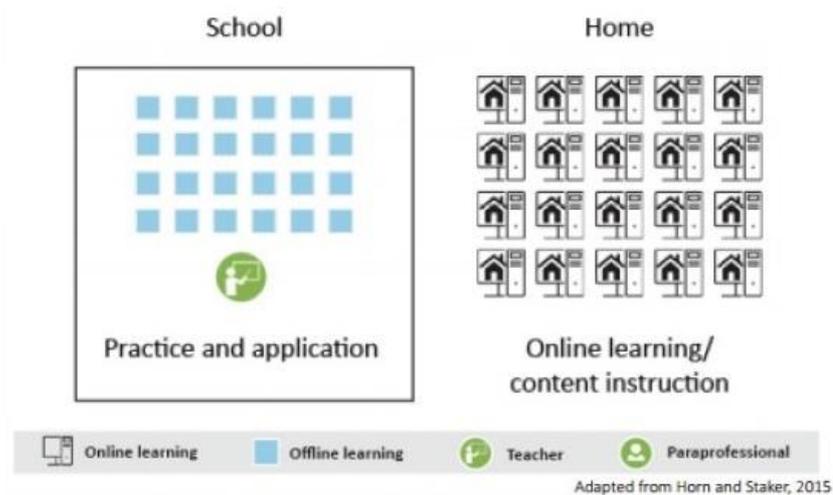


Figure 2.2.4 Flipped-Classroom Model (Reading Horizons, 2017)

2.2.3.1.4 Individual-Rotation Model

In the individual-rotation model (see Figure 2.2.5), students would rotate through different modalities based on individual student learning needs. The resulting rotation is not prescribed nor controlled by a teacher or schedule (Horn & Staker, 2014).

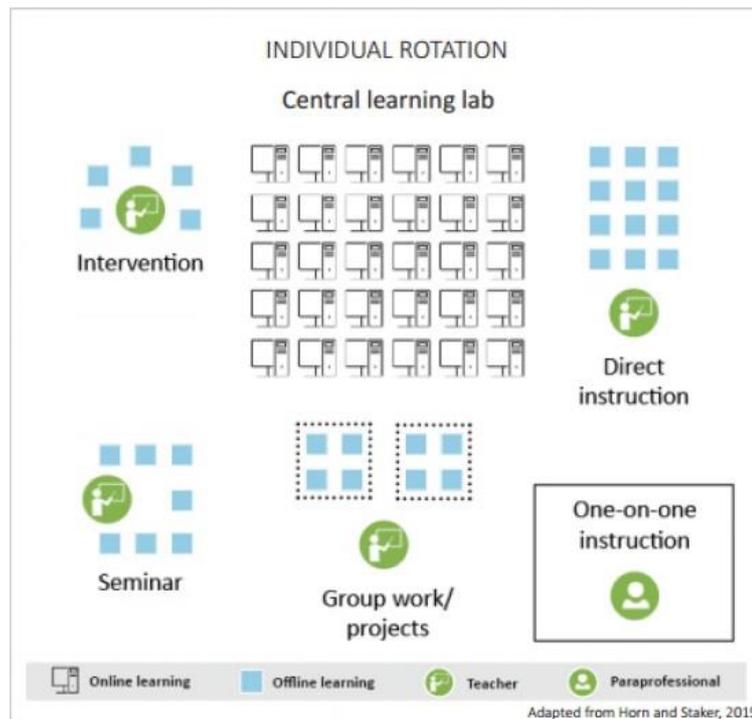


Figure 2.2.5 Individual-Rotation Model (Reading Horizons, 2017)

2.2.3.2 Flex Model

Maxwell (2016) characterises the flex model (see Figure 2.2.6) as follows:

- 1) A course or subject in which online learning is the backbone of student learning, even if it directs students to offline activities at times.
- 2) Students move on an individually customised, fluid schedule among learning modalities.
- 3) The teacher of record is on-site, and students learn mostly on the brick-and-mortar campus, except for any homework assignments.
- 4) The teacher of record or other adults provide face-to-face support on a flexible and adaptive as-needed basis through activities such as small-group instruction, group projects and individual tutoring. Some implementations have substantial face-to-face support, whereas others have minimal support.

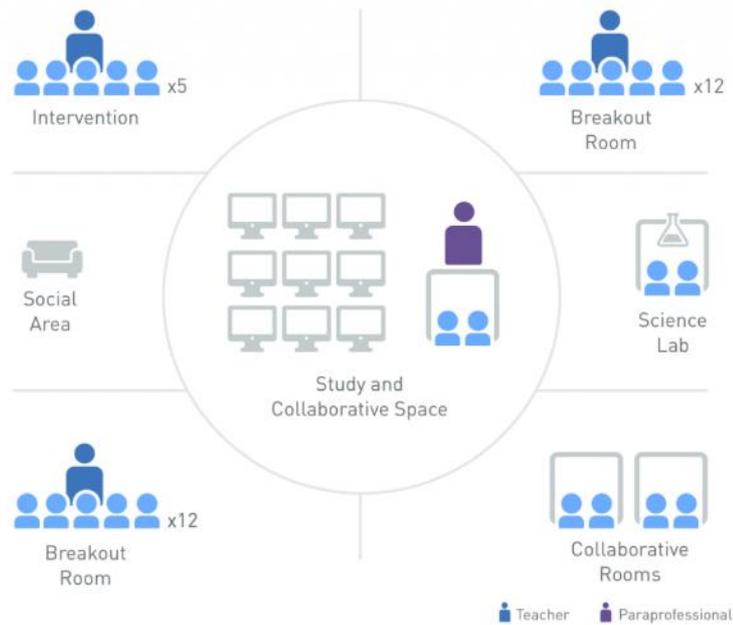


Figure 2.2.6 Flex Model (Blended Learning Universe, 2017)

2.2.3.3 Self-Blend Model

The self-blend model affords students the opportunity to complete online learning that transcends the scope of in-class learning, allowing them to supplement any face-to-face learning with an additional study (Dreambox Learning, 2013). The self-blend model requires students to have high levels of motivation and self-determination as they would usually embark on such learning without any prescription or guidance.

2.2.3.4 Enriched-Virtual Model

The enriched virtual model of blending learning (see Figure 2.2.7) serves as an alternative to wholly-online learning schools by allowing students to complete the majority of learning online and attend a required face-to-face session with an instructor or teacher (Blended Learning Universe, 2018).

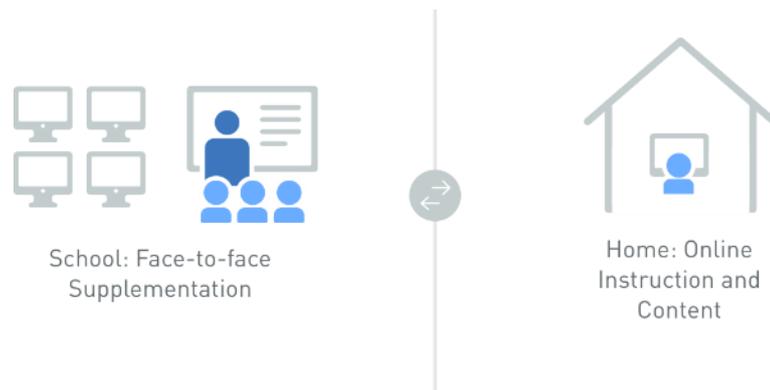


Figure 2.2.7 Enriched-Virtual Model (Blended Learning Universe, 2018)

The blended learning approach and models harness the advantages of different and diverse delivery modes and learning environments and is ultimately presented as a single, converged modality and method.

The method and related model used in this investigation was the flipped-classroom blended learning model.

2.2.4 Framing blended learning

Krause (2007a in Bath & Bourke, 2010, p. 1) identifies that BL requires the integration of various teaching and learning practices:

BL is realised in teaching and learning environments where there is an effective integration of different modes of delivery, models of teaching and styles of learning as a result of adopting a strategic and systematic approach to the use of technology combined with the best features of face-to-face interaction.

As a result, blended learning can thus be foundationally framed and defined as the combination of online and face-to-face (F2F) instruction (Graham, 2013). Many scholars and researchers agree with this definition. Garrison and Kanuka aptly describe the 'blend' of blended learning as a combination of "text-based asynchronous Internet technology with [synchronous] face-to-face learning" (2004, p. 95).

Whilst there is a general consensus among scholars that BL largely has to include a combination of learning within these two distinct environments (online and F2F), there is disagreement on issues such as what may be blended, whether a reduction of in-class time should be included, whether to stipulate amounts of online and F2F instruction, and whether "pedagogical quality" should be addressed when BL is being defined? (Allen &

Seaman, 2007; Graham, 2013; Picciano, 2009). Consequently, these concepts frequently form part of continued research undertaken in this domain.

The introduction of new technologies necessitates the rise and consideration of “innovative” pedagogies and “alternative approaches” to teaching and learning (Balfour et al., 2015). Balfour et al. (2015) also cite Thorne (2003) as agreeing to the view that “the skill of being able to marry pedagogy to an appropriate blend of technology and learning is not simply the outcome of linking conventional approaches to the online environment” (p. 4).

Related pedagogy and theoretical underpinnings and frameworks have to be explored to engender and harness the best practices of blended learning.

2.2.5 Theoretical frameworks of blended learning

BL has also often been considered as an evolved and incorporated model of traditional distance, online and computer-assisted learning. This has remedied the lack of social constructive learning (Vygotsky, 1978) in the conventional e-learning environment by providing needed pedagogical intervention (Fogal, Graham & Lavigne, 2014).

Various elements have influenced and continue to affect the development of BL’s theoretical framing and historic academic trajectory. Alongside the diverse and multitudinous possibilities of modern-day implementation, BL has been considered by many as having shifted to “an evolving praxis” (Fogal et al., 2014). This requires the need to interrogate continually learning theories that inform, underpin or found to support newly-encountered, technologically-enhanced learning contexts.

Various dominant theories have been considered when unpacking the conceptual framing and underpinnings of blended learning, including Constructivism, Conversation theory, Connectivism, Transactional Distance theory, Community of Inquiry, Guided Didactic Conversation, Industrialised Education and Equivalency theory.

2.2.5.1 Constructivist learning and Conversation theory

a) Constructivism

Many BL researchers use Constructivism and Social Constructivist learning, influenced by Vygotsky (1978) and Bruner (1986), as theoretical bases to frame and support

blended learning (Al-Huneidi & Schreurs, 2012), opposing the limitations of Objectivism as a viable theoretical underpinning. Objectivism has “its roots in Realism and Essentialism” (Lakoff, 1987 in Jonassen, 1991, p. 8), epistemically assuming that “we all gain the same understanding”. Jonassen’s (1991) comparative analysis of Objectivism versus Constructivism as philosophical paradigms, illustrated in Table 2.2.1, inferentially purports the suitability of Constructivism as a more fitting theory to support blended learning.

Table 2.2.1 Assumptions inherent in Objectivism and Constructivism (Jonassen, 1991)

	Objectivism	Constructivism
Reality (real world)	External to the knower	Determined by the knower and dependent upon human mental activity
	Structure determined by entities, properties, and relations	Product of mind symbolic procedures construct reality
	Structure can be modelled	Structure relies on experiences/interpretations
Mind	Processor of symbols	Builder of symbol
	Mirror of nature	Perceiver/interpreter of nature
	Abstract machine for manipulating symbols	Conceptual system for constructing reality
Thought	Disembodied: independent of human experience	Embodied: grows out of bodily experience
	Governed by external reality	Grounded in perception/construction
	Reflects external reality	Grows out of physical and social experience
	Manipulates abstract symbols	Imaginative: enables abstract thought
	Represents (mirrors) reality	More than representation (mirrors) of reality
	Atomistic: decomposable into "building blocks"	Gestalt properties
	Algorithmic	Relies on ecological structure of conceptual system
	Classification	Building cognitive models
	What machines do	More than machines are capable of
Meaning	Corresponds to entities and categories in the world	Does not rely on correspondence to world
	Independent of the understanding of any organism	Dependent upon understanding

	External to the understander	Determined by understander
Symbols	Represent reality	Tools for constructing reality
	Internal representations of external reality ("building blocks")	Representations of internal reality

Table 2.2.1 illustrates the characteristics of Constructivism and validates its appropriateness for blended learning, as the knower would 'construct' knowledge based on the interpretation of his/her perceived realities, which is informed by "prior experiences, mental structures, and beliefs" (Jonassen, 1991), within which that knowledge is formulated or acquired.

Derry (1999) and McMahon (1997) in Kim (2001) assert that Social Constructivism would stress the importance of the role of "culture and context in understanding what occurs in society and constructing knowledge based on this understanding". Kim (2001) further argues that it is based on particular assumptions about reality, knowledge, and learning:

1. "Reality is constructed through human activity..."
2. "Knowledge is also a human product, and is socially and culturally constructed"
3. "Learning ... [is] a social process ... [and] does not take place only within an individual..."

Social Constructivist learning is consistent with learning paradigm shifts that have been noted with the advancement of ICTs in education, particularly in the sphere of blended learning.

Tarnopolsky (2012) confirms the suitability and consistency of using Constructivist theoretical underpinnings and approaches in blended learning, specifically relevant and applicable in language teaching and learning contexts. Blended learning frameworks' expansive and adaptive nature allows for the subscription to Constructivist epistemological assumptions, but if not executed with pedagogically sound strategies, can lean towards more Objectivist-oriented models.

Al-Huneidi and Schreurs (2012, p. 4) highlighted that "the harshest criticisms of Blended Learning is that it focuses on the teacher for creating the knowledge" instead of the student. A means to overcome this is through the intentional application of Constructivism theory in the BL environment, namely, that the students would create

and construct their knowledge based on the learning encounter of their own experiences and interpretations. Al-Huneidi and Schreurs (2012) argued that the implementation of this approach increases students' interactivity and knowledge creation.

b) Conversation theory

Al-Huneidi and Schreurs (2012) also indicated that an element of Conversation theory has to be included to accomplish a comprehensive Constructivist BL environment. Conversation theory is founded on the general basis that the more extensive system and environment within which learning takes place, inclusive of the roles of the teacher and student, are also considered and discussed. This integration then plays an integral role in the holistic Constructivist learning in a BL environment. Figure 2.2.8 depicts the adapted Constructivist Blended Learning model proposed by Al-Huneidi and Schreurs (2012).

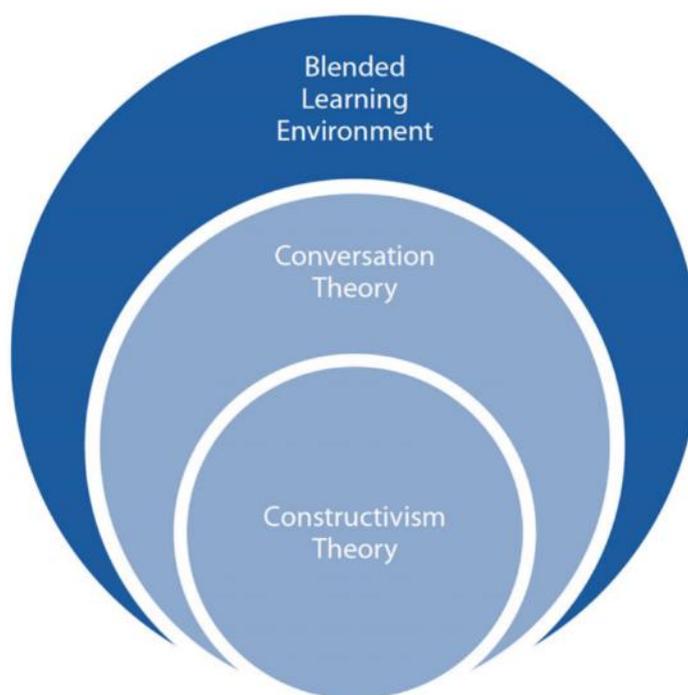


Figure 2.2.8 Inclusion of Constructivist and Conversation theories in a BL environment (Al-Huneidi & Schreurs, 2012)

Scott (2001a, p. 351) describes Gordon Pask's (1979) Conversation theory as a philosophy of "learning that includes the role of the teacher where learner and teacher can said to be 'in conversation' with one another". Underlying assumptions of this theory include that "human beings are learning systems", and that "motivation should

focus not on learning but on what is learned and why” (Heinze, Procter & Scott, 2007, p. 110).

Conversation theory thus focusses on the iterative interaction between teachers and students in relation to the construction of knowledge with a solidified focus on the knowing of the ‘why’ and ‘how’, following an Aristotlean approach to learning (Scott, 2001a). Teachers and students/learners are required to communicate with each other through multiple instances regarding the content, choices thereof, and rationale behind it. This interaction, hereby, grants students more control of the learning process and a more active role in knowledge construction.

Heinze et al.’s (2007, p. 117) study of Conversation theory in a blended learning environment found that the “Conversational Framework is a useful starting point when considering a theoretical foundation for Blended Learning”. They noted that when Conversation theory is applied *verbatim* in a BL environment, it is not ideal and further recommended that the viability of the framework be improved through additional grounding in established pedagogies, and increasing its contextual adaptability and applicability to academics and students (Heinze, et al., 2007). Heinze et al. further developed the “Blended learning Skeleton of Conversation” (2007), depicted in Figure 2.2.9, based on Pask (1979) and Scott’s (2001b) works in Conversational theory and the Conversation Framework.

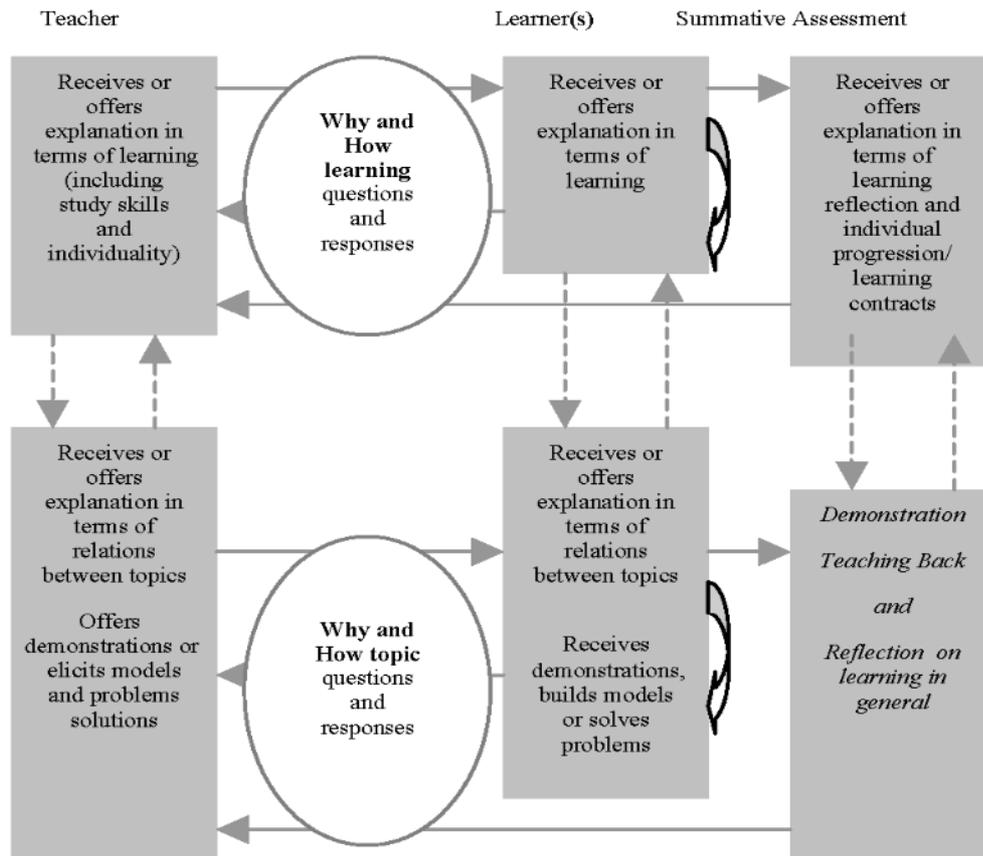


Figure 2.2.9 Blended learning Skeleton of Conversation (Heinze et al., 2007)

The inclusion of Conversation theory principles in a Constructivist-driven learning context within a BL environment will lead to a richer 'co-creation' of knowledge, primarily by the students/learners. Some researchers argue that the deliberate inclusion of Conversation theory augments the construction of knowledge (Al-Huneidi & Schreurs, 2012) when deployed in a Constructivist learning environment.

Constructivism with deliberate inclusion of elements of Conversation theory substantially inform the design of this investigation.

2.2.5.2 Connectivism

Siemens (2004) proposes Connectivism as a theory for learning in a digital age, characterising it to be a successor to Behaviorism, Cognitivism, and Constructivism (Bell, 2011).

In accordance with Siemen's views (2004), other theories fail to "address the learning that is located within technology and organizations" (Bell, 2011), and this is remedied by drawing on the epistemological frameworks of connective knowledge.

Connectivism focusses on linking connective knowledge epistemology to pedagogy and technology with a conceptual exploration of "cognitive tasks [being] shared between people and technology" (Bell, 2011).

Siemens (2004) identifies the following as critical principles of Connectivism:

- Learning and knowledge rests in diversity of opinions
- Learning is a process of connecting specialised nodes or information sources
- Learning may reside in non-human appliances
- Capacity to know more is more critical than what is currently known
- Nurturing and maintaining connections is needed to facilitate continual learning
- Ability to see connections between fields, ideas, and concepts is a core skill
- Current (accurate up-to-date knowledge) is the intent of all Connectivist learning activities
- Decision-making is itself a learning process. Choosing what to learn the meaning of, of incoming information is seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision

Connectivism actively includes the role of technology in the learning process and acknowledges that the foundations informing understanding and decision-making, the sources influencing knowledge construction, shift and change rapidly. It accommodates the notion that people have to be connected to appropriate knowledge databases in relevant contexts for learning to take place.

Connectivism theory complements and frames blended learning due to the online learning component relying on such relevant and related learning experiences taking place.

2.2.5.3 *Transactional Distance theory*

Explicit and direct theoretical frameworks for BL are limited, and many researchers have depended on theories of distance learning as their theoretical basis for framing BL.

Many blended learning researchers have subscribed to the theories of transactional distance (Moore, 1993; Saba & Shearer, 1994) as a fundamental underpinning for BL.

Transactional Distance theory originated from the domain of framing distance education and understanding its pedagogical underpinnings. Distance education has been defined as “the universe of teacher-learner relationships that exist when learners and instructors are separated by space and/or by time” (Moore, 1993, p. 22). Distance education studied and framed by transactional distance theory, has paved the pedagogical pathways that have led to how BL is designed and implemented.

Acknowledging the works by Garrison (1989), Holmberg (1995) and Keegan (1986) in distance education, Moore’s (1993) contributions to articulating a theory about possible causal mechanisms of distance education have made him a forerunner in its theoretical framing. Moore (2013, p. 67) argues that:

... there *is* a universe of educational programs and practices that are distinctly different from those where teachers and learners work in the same space and time... It is this recognition and acceptance that distance education has its own identity and distinguishing pedagogical characteristics that is the first claim of transactional distance as an educational theory.

Gorsky and Caspi’s study that critically analysed transactional distance theory and recognised Moore’s (1993) framing thereof summarises the theory as assuming “that the most profound impact on distance education is pedagogy and not the physical or temporal distance that separates instructor and learner” (2005, p.3).

Moore described the ‘transactional distance’ as “a psychological and communications space to be crossed, a space of potential misunderstanding between the inputs of the instructor and those of the learner” (1993, p. 23). The identification of perceived ‘transactional distance’ has subsequently led to widespread research into ‘reducing’ or ‘minimising’ the amount of transactional distance in teaching and learning environments that adhere to similar frameworks or presented in related models.

The degree of transactional distance in a distance education offering or comparable environment and framework, is usually brought about by three central variables, namely, educational structure (how the programme’s objectives and teaching and learning (T&L) strategies are responsive to and accommodative of learners’ needs), dialogue (how all participants enter into constructive and respectful dialogue geared towards improving the student’s understanding), and learner autonomy (how the goals of the teaching and

learning experiences are to be student-centred and student-determined) (Gorsky & Caspi, 2005). Depending on the relationships that exist between the variables, transactional distance could either increase or decrease.

Saba and Shearer's (1994) study of transactional distance that explored 30 interactions between instructors and learners in a computer conferencing environment, found that as 'dialogue' between instructors and learners increased, transactional distance decreased.

Transactional distance has a significant impact on the holistic teaching and learning experience. The relationships between its variables have to be considered carefully as all play a vital role in the construction and understanding of knowledge by the student. With this acknowledged, transactional distance theory has substantial implications in blended learning environments, particularly in how the model is shaped and how online learning should take place, with a focus on pedagogical underpinnings in planning execution, and student-centeredness in knowledge and learning outcomes.

2.2.5.4 Community of Inquiry and Guided Didactic Conversation

Additional researchers in BL focus on theories of community of inquiry (Garrison, Anderson & Archer, 2001), and guided didactic conversation (Holmberg, 1995) to inform their research.

a) Community of Inquiry

While a number of unique learning theories supporting online and blended learning have emerged over the last two decades, Garrison et al.'s (2000) framework of a Community of Inquiry (CoI) has gained substantial momentum.

Studying online, as a component of the blended learning model, holds the possibility of presenting a sense of disconnectedness from the learning environment and instructor, divergent from what might usually exist within the face-to-face setting. Students studying online could feel isolated and not part of the social learning offered in F2F contexts. Empirical evidence suggests that online learning environments also present opportunities for developing a sense of community (Thompson & MacDonald, 2005) and social learning.

Early research in online learning focused on 'social presence', and it was Henri (1992) who is acknowledged as having shifted the focus to the cognitive domain. This shift then

served as a basis for Garrison et al.'s (2000) development of a framework for researching online learning, subsequently to be referred to as the 'Community of Inquiry' (Col) framework.

The Col framework resonates with models of constructivist learning and has become popular with many researchers exploring online learning, with Garrison and Arbaugh highlighting that "empirical research certainly supports the Col as a parsimonious and coherent theory of online learning" (2007, p. 159).

Garrison and Anderson postulate that irrespective of the modality of learning, be it face-to-face or online, a community of inquiry would consist of three elements, namely, cognitive, social, and teaching presence (2003). Figure 2.2.10 illustrates Garrison and Anderson's (2003) view of Col.

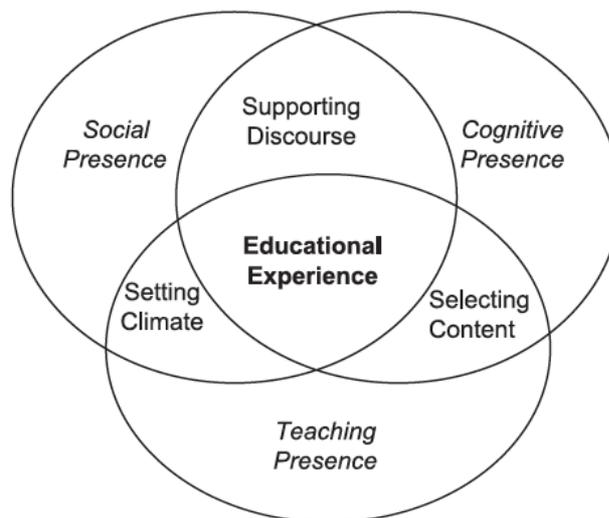


Figure 2.2.10 Community of Inquiry (Garrison & Anderson, 2003)

The educational experience is at the centre of Col (Garrison & Kanuka, 2004). Social presence in the online learning environment allows students to present their social and emotional presence, allowing them to be recognised as human beings. Garrison, Anderson and Archer (2001 in Garrison & Arbaugh, 2007, p. 161) describe the cognitive presence "as the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse." Teaching presence in a Col framework is essential as learning has to be focused and directed; notwithstanding that learner interaction with each other and content enhances the learning experience, the

interaction with these two areas does not suffice for effective learning without the presence of the 'teacher' (Garrison & Arbaugh, 2007).

The Community of Inquiry framework is often considered and enacted in the framing and designing of online and blended learning implementations.

b) Guided Didactic Conversation

Guided Didactic Conversation is a theory proposed by Holmberg (1983) that initially was conceptualised in reference to characterising approaches to classical distance education. The theory is based on the fundamental assumption that the learner studying via distance or online learning and the tutor or instructor providing the educational support and facilitation from the educational institution are in conversation with each other implicitly through the design of the learning content and directly via synchronous and asynchronous means such as telephonic and forum interactions.

Holmberg stated that his "theory implies that the character of good distance education resembles that of a guided conversation aiming at learning and that the presence of the typical traits of such a conversation facilitates learning" (1983, p. 114). In the same way that conversation enhances understanding and comprehension of knowledge, be it through a process of 'thinking aloud', the characteristics of the 'conversation' could be pedagogically emulated in guided educational instruction.

Holmberg (1983, 1995) based Guided Didactic Conversation on the following seven "postulates", stating that:

1. feelings of personal relation between the teaching and learning parties promote study pleasure and motivation
2. such feelings can be fostered by well-developed self-instructional material and two-way communication at a distance
3. intellectual pleasure and study motivation are favourable to the attainment of study goals and the use of proper study processes and methods
4. the atmosphere, language and conventions of friendly conversation favour feelings of personal relation according to postulate 1
5. messages given and received in conversational forms are comparatively easily understood and remembered

6. the conversation concept can be successfully translated for use by the media available to distance education
7. planning and guiding the work, whether provided by the teaching organisation or the student, are necessary for organised study, which is characterised by explicit or implicit goal conceptions

The Guided Didactic Conversation framework developed by Holmberg (1983) has particular resonance with the current day models of online and blended learning owing to the stark similarities presented by the learning environments and modalities.

Guided Didactic Conversation (GDC) has clear implications for resource and learning design in the blended learning model. Holmberg (1983) stated that GDC content as part of the 'conversation' may be characterised by:

- Easily accessible presentations of study matter; clear, somewhat colloquial language, in writing easily readable; moderate density of information
- Explicit advice and suggestions to the student as to what to do and what to avoid, what to pay particular attention to and consider, with reasons provided
- Invitations to an exchange of views, to questions, to judgements of what is to be accepted and what is to be rejected
- Attempts to involve the student emotionally so that he or she takes a personal interest in the subject and its problems
- Personal style including the use of the personal and possessive pronouns
- Demarcation of changes of themes through explicit statements, typographical means or, in recorded, spoken communication, through a change of speakers, for example, male followed by female, or through pauses

The 'conversation' characteristics of Holmberg's (1983) GDC provide salient features for resource and content design that could be integrated into the instructional design phase of blended learning.

2.2.5.5 Industrialised Education and Equivalency Theory

Some researchers have included industrialised education (Peters, 2007) and equivalency theory (Anderson, 2003) to reinforce their arguments and assumptions in blended learning. Although these theories are perhaps only relevant inasmuch as they offer some historical perspective, they are included here to indicate how approaches have developed along with the substantial development of technology and how they differ when technology is used to support essential distance learning as opposed to its integration in a blended learning context.

a) Industrialised Education

Industrialised Education was conceptualised in reference to distance education, which is seen as being of the theoretical bedrocks of blended learning. In an attempt to explore and frame distance learning, researchers focused on comparing distance education with conventional face-to-face education.

Peters (2007) is acknowledged for exploring the 'industrial' nature of distance learning by comparing it to the traditional F2F learning in a classroom. Peter's (2007) research and works focused on the conceptual development of distance learning, characterising it "as a standardised mass system of education", which he contrasted to "face-to-face education that is craft oriented" based on the actual presentation of the teacher at the respective time of presentation (Saba, 2014).

Saba (2014, p.16) cites Peters (1993) as stating in reference to an industrialised form of education,

Implicitly, it underlines the fact that distance study must be carefully pre-planned, prepared and organized, and that there is a division of labor, a growing use of technical equipment, and the necessity of formalized evaluation. People become aware that these and other features of distance study are the same as those that can be found in an industrialized production process. Explicitly, these ideas are expressed by using the image of a teacher in the classroom working like a craftsman, as opposed to a teacher being a part of a complicated teaching-learning system organized like an industrialized process.

Peters (1993) drew on business management literature to aid in categorising structural components of distance learning (Saba, 2014), which presents notions of mechanistic features, standardisation of processes and, to a certain degree, rigidity of the learning process as a whole.

While an industrialised form of education and its related assumptions might have encapsulated the industrial characteristics of distance education at the time of its conceptualisation, its precise and verbatim implementation might not be ideal for the current Constructivist-driven models of online and blended learning in the postmodern era.

b) Equivalency theory

Equivalency theory also stems from the need for distance education to be framed (Keegan, 1986). Keegan (1986) categorised theories of distance learning into three key areas, namely, independence and autonomy, industrialisation and interaction. Keegan (1995) continued to explore distance education and questioned the theoretical assumptions of virtual learning, where instructors and students are linked electronically through a live and interactive medium. Equivalency theory emerged from exploring these virtual learning environments.

Simonson (1999, p. 7) advocates that equivalency theory is based on research indicating that “learning at a distance and learning locally are fundamentally different, even when interactive technologies are used”. As a result, equivalency theory recommends the “design for distant and local learners of a collection of probably different but ultimately equivalent learning experiences” (Simonson, 1999, p.7). Equivalency theory, therefore, needs to establish equivalent outcomes of educational experiences for all students in a particular offering, irrespective of the student’s location or mode of learning.

Simonson (1999) argues that instructional experiences are vital to learning and students should not be subjected to lesser experiences based on them having a different location (in-class or off-campus/distant). The equivalency approach is founded on key tenets of local control and personalised instruction (Simonson, 1999).

Equivalency theory has considerable implications for the framework and design of blended learning experiences as the model incorporates both in-class and off-campus components. Simonson’s (1999) endeavour to establish ‘equivalence’ in the learning experience has led to studies evaluating how to measure such equivalence (Lapsley, Kulik, Moody & Arbaugh, 2008). Lapsley et al.’s (2008) study found that equivalence in learning ‘quality’ and outcomes can be obtained in both the online and face-to-face offerings.

Equivalency theory resonates with the objectives of framing effective blended learning and foregrounding relevant pedagogy by focusing on the quality and outcomes of the experiences in different modes and modalities, be it online or face-to-face.

2.2.6 From theories of distance learning to blended learning

The extension of distance learning theories to blended learning resulted in overt similarity between the two modes, which, in turn, could lead to transferred limitations of the distance learning modality to blended learning. It is, therefore, crucial that BL has characterising theories that would set it apart from other modalities, modes or environments. In support of this view, Graham proclaimed that “as distance learning required theory to focus researchers on psychological rather than physical distance, blended learning needs theories to focus researchers on the substantive psycho-social issues that make it distinct” (2013, p. 340).

The shift in choices of theoretical framing for blended learning experiences, particularly in its conceptualisation, design and implementation stages, can be interpreted to be in direct response to the learning needs, styles and preferences of students in the current day.

The investigation in this study is primarily informed by Constructivism with elements of Conversation theory, and further considers tenets of Connectivism and Transactional Distance. Multiple theories are considered to accommodate a larger array of student learning preferences and styles, in line with the broader characteristics and objectives of blended learning.

2.2.7 Student Learning Preferences and Styles

In order to understand and contextualise student learning preferences in a blended learning framework, it is of fundamental importance that student learning styles are explored.

2.2.7.1 Student Learning Styles

In exploring student learning styles in literature, it becomes highly evident how diversified the concept is defined or viewed. The scope of explanations and definitions range from learning behaviours based on student personalities, such as “structure versus flexibility”, to preferences for particularly sensory modalities, such as “visual, auditory, [and] tactile” (Smith & Renzulli, 1984, p. 44). In considering learning style as a complement to teaching style, Smith and Renzulli’s (1984) working definition seems

fitting as being “defined in terms of the range of instructional strategies through which students typically pursue the act of learning” (p. 45).

Learning styles are explored in this study as a means of adding further dimensions to the interpretation of student learning experiences in the flipped blended learning implementation. The interpretation of student experiences is influenced by the notion that the flipped blended learning approach could be encountered in accordance with the conceptualised framing of student learning styles.

The flexibility of blended learning modes and expansiveness of related learning designs afford students with multitudinous opportunities to experience learning and teaching in environments and manners that complement their learning styles. Application of this mode of delivery, particularly in higher education contexts, subsequently calls for revisiting the learning experiences within which learning styles are aptly framed and understood. In a related learning experience and style study conducted by Kolb and Kolb (2005), the researchers highlighted the importance of exploring experiential learning theory as a precursor to revisiting learning styles.

2.2.7.1.1 Experiential Learning Theory

Experiential Learning Theory (ELT) emphasises an educational, philosophical standpoint of Dewey (1938) in which he described the “theory of experience”; not to be confused with the misconstrued concept of experiential learning, which some have reduced to be “tools and techniques to provide learners with experiences from which they can learn” (Kolb & Kolb, 2005, p. 193). ELT draws on contributions from Dewey (1938), Piaget (1970), Freire (1970) and others “to develop a holistic model of the experiential learning process” (Kolb & Kolb, 2005) that holistically considers and combines the learner’s perception, past experiences, cognition and behaviour (David, 2007).

Experiential learning theory can be summarised as being built on the following six propositions:

1. Learning is best conceived as a process, not in terms of outcomes. To improve learning in higher education, the primary focus should be on engaging students in a process that best enhances their learning - a process that includes feedback on the effectiveness of their learning efforts. As Dewey (1938) notes, "education

must be conceived as a continuing reconstruction of experience: ... the process and goal of education are one and the same thing".

2. All learning is relearning. Learning is best facilitated by a process that draws out the students' beliefs and ideas about a topic so that they can be examined, tested, and integrated with new, more refined ideas.
3. Learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world. Conflict, differences and disagreement are what drive the learning process. In the process of learning one is called upon to move back and forth between opposing modes of reflection and action and feeling and thinking.
4. Learning is a holistic process of adaptation to the world. Not just the result of cognition, learning involves the integrated functioning of the total person - thinking, feeling, perceiving, and behaving.
5. Learning results from synergetic transactions between the person and the environment. In Piaget's (1970) terms, learning occurs through equilibration of the dialectic processes of assimilating new experiences into existing concepts and accommodating existing concepts to new experience.
6. Learning is the process of creating knowledge. ELT proposes a constructivist theory of learning whereby social knowledge is created and re-created in the personal knowledge of the learner (Kolb & Kolb, 2005).

Kolb (1984) argues that ELT encapsulates learning as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience". Experiential learning theory thus presents "two modes of grasping experience", namely, Concrete Experience (CE) and Abstract Conceptualisation (AC), and "two modes of transforming experience", namely, Reflective Observation (RO) and Active Experimentation (AE). In accordance with ELT, the learning would arise and be constructed when cyclically, there is "creative tension among the four learning modes" (Kolb & Kolb, 2005). Learning would occur in response to the context and content in a recursive and cyclic manner (Kolb & Kolb, 2005).

The theory is often described as *Kolb's Experiential Learning Theory* and the learning cycle within ELT is depicted in Figure 2.2.11.

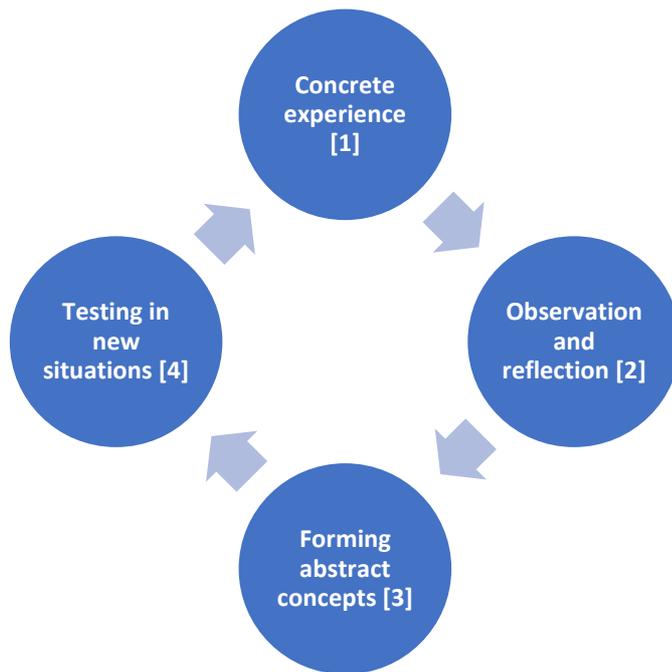


Figure 2.2.11 Learning Cycle in Kolb's Experiential Learning Theory

Kolb and Kolb (2005) later described *Learning Style* as the “learner’s preference for employing different phases of the learning cycle” (p. 194-195).

2.2.7.1.2 Learning Style

The Learning Style Inventory (LSI) (Kolb, 1971) is frequently used to assess individual learning styles, associated with the four essential learning styles, namely, diverging, assimilating, converging and accommodating (Kolb & Kolb, 2005).

Table 2.2.2 is a summary of the four key learning styles, extracted and adapted from Kolb and Kolb’s (2005) explanation thereof.

Table 2.2.2 Four Learning Styles (adapted from Kolb & Kolb, 2005)

Style	Dominant Learning Abilities	Description
Diverging	Concrete Experience (CE) and Reflective Observation (RO)	<ul style="list-style-type: none"> • Good at viewing concrete situations with varied perspectives, generating ideas, and brainstorming • Have broad cultural and arts interests • Prefer to work in groups and receive feedback

Assimilating	Abstract Conceptualisation (AC) and Reflective Observation (RO)	<ul style="list-style-type: none"> • Good at understanding wide range of information and ordering it logically • Less focused on people and more on abstract concepts • Needs a theory to be sound more than finding actual practical value • Prefer reading, analysing models, and listening to lectures
Converging	Abstract Conceptualisation (AC) and Active Experimentation (AE)	<ul style="list-style-type: none"> • Good at finding practical uses for ideas and theories • Solve problems and take decisions by finding solutions to questions • Prefer technical tasks and not problems linked with social and interpersonal issues • Prefer experimentation, simulations, laboratory work and practical applications
Accommodating	Concrete Experience (CE) and Active Experimentation (AE)	<ul style="list-style-type: none"> • Good at carrying out plans and learns from 'hands-on' experience • Tend to act on 'gut' feelings rather than logical analysis • Solve problems by relying on information of others rather than own technical analysis • Effective for action-oriented careers such as marketing and sales. • Prefer working with others for assignments, goal setting, field work and project completion

Based on the findings of Experiential Learning Theory research, which used LSI as an instrument, researchers have extended the four learning styles to nine more definitive learning styles.

Abbey, Hunt and Weiser (1985) extended the learning styles to include Northerner, Easterner, Southerner, and Westerner; in conformance with Hunt's (1987) view of emphasising the impact of "the style's weakest learning mode on the learner's learning process" (Kolb & Kolb, 2005). The four additional learning styles are illustrated in Table 2.2.3.

Table 2.2.3 Northerner, Easterner, Southerner and Westerner Learning Styles (adapted from Kolb & Kolb, 2005)

Style	Emphasises	Balancing	Learning Strength(s)	Difficulty(ies) / Challenge(s)
Northerner	Feeling (CE)	Acting (AE) and Reflecting (RO)	Deep involvement with comfort in outer world of action and inner world of reflection	<ul style="list-style-type: none"> • Difficulty in making meaning of experience • Cycle runs from feelings to reflection (which remains unconsolidated) to action
Easterner	Reflecting (RO)	Feeling (CE) and Thinking (AC)	Capacity for deep reflection (informed by ability to be both feeling oriented and conceptual)	<ul style="list-style-type: none"> • Putting plans into action • Too much time in thought
Southerner	Thinking (AC)	Acting (AE) and Reflecting (RO)	Highly-developed conceptual and analytical capabilities (informed by reflection and action)	<ul style="list-style-type: none"> • Not in touch with their feelings • Reflect on mechanics of actions without emotional feedback
Westerner	Acting (AE)	Feeling (CE) and Thinking (AC)	Highly-developed action skills (informed by conceptual analysis and intuitive experience)	<ul style="list-style-type: none"> • Goes directly from feelings to conceptualising without sorting out the concrete experience • Initial conceptual framework will be unclear

The ninth learning style, referred to as the “Balancing” learning style was classified by Mainemelis, Boyatzis and Kolb (2002) and incorporates the four dominant learning abilities, namely, Abstract Conceptualisation, Concrete Experience, Active Experimentation and Reflective Observation. The nine learning styles were subsequently framed by Kolb and Kolb (2005) as the ‘nine-region learning styles’, depicted in Figure 2.2.12.

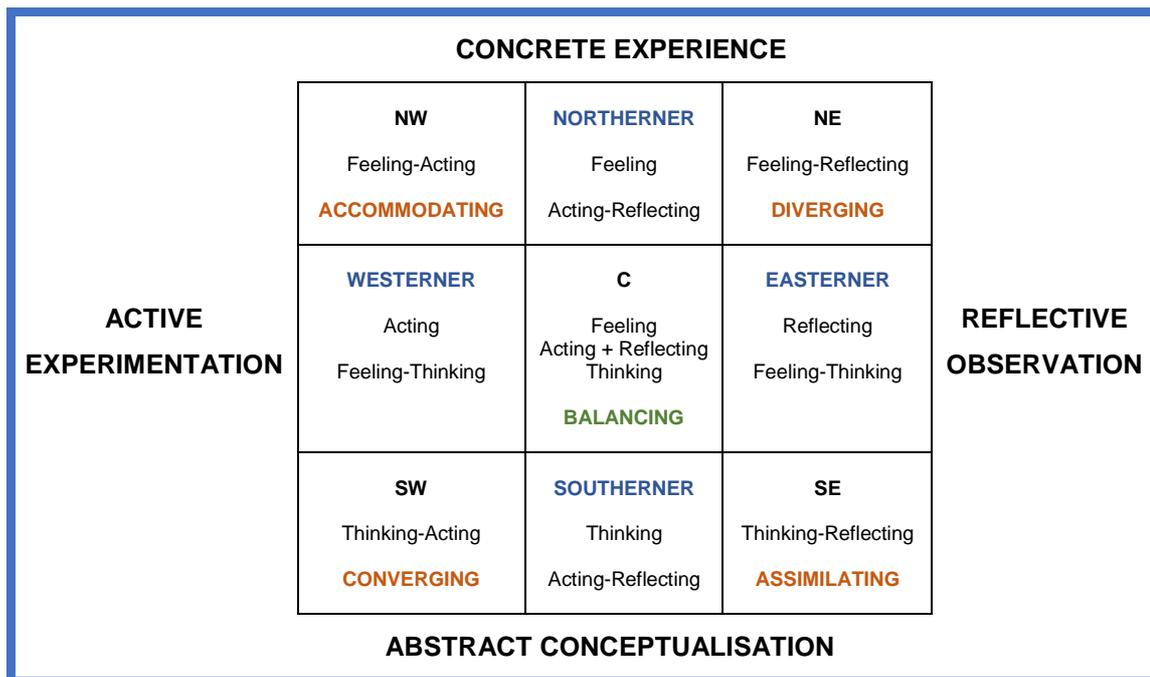


Figure 2.2.12 The Nine-Region Learning Style Type Grid (adapted from Kolb & Kolb, 2005)

It must be noted that Kolb and Kolb (2005) urge that the learning styles should lead to recognising “the uniqueness, complexity and variability in individual approaches to learning”, and that “the danger lies in the reification of learning styles into fixed traits, such that learning styles become stereotypes used to pigeonhole individuals and their behavior” (Kolb, 1981, p. 290-291).

2.2.7.1.3 Felder-Silverman Learning Style Model

Felder and Silverman (1988) developed the Felder-Silverman learning style model in 1988 (Felder & Spurlin, 2005) aimed at evaluating learning style disparities of engineering students, through the careful development of four dimensions. The four dimensions (inclusive of its categories) are as follows:

1. *Sensing / Intuitive*
2. *Visual / Verbal*
3. *Active / Reflective*
4. *Sequential / Global*

According to Felder and Spurlin (2005), the model is based on the premise that students would exhibit a preference for a particular category in each dimension; for example, a student would be classified as either being *sensing* or *intuitive* in the first dimension.

While the combination of these categories is unique to the Felder-Silverman model, there are parallels to other learning style models, such as the active/reflective dimension of Kolb (1984) and Felder and Spurlin (2005).

The Index of Learning Styles (ILS) is used to assess the dimensions of the Felder-Silverman model (see Figure 2.2.13).

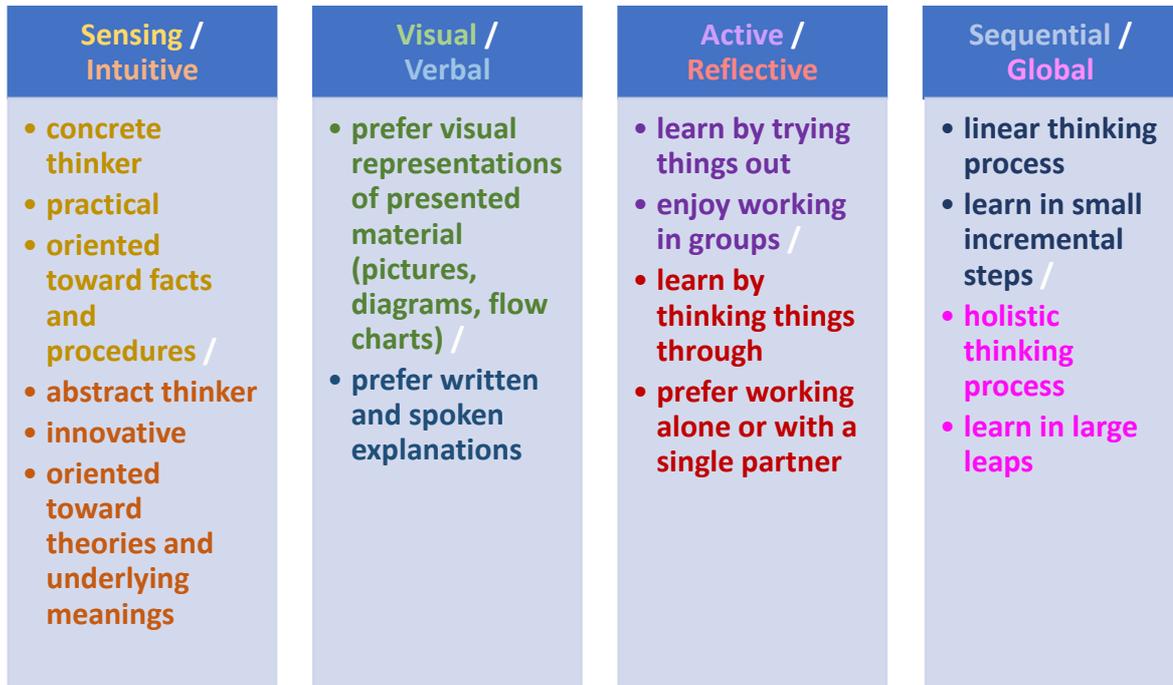


Figure 2.2.13 Felder-Silverman Learning Style Model (adapted from Felder & Spurlin, 2005)

This particular model of classifying learning styles substantially resonates with the nature of this study owing to it originating from the classification of learning styles of engineering students, with the aim of supporting instructional methods and approaches of teachers of engineering students (Felder & Spurlin, 2005). It should be noted that the classification of a learning style should not be a limitation attached to the learning capabilities of the student; which might surface through the inappropriate, restrictive demarcation and prescription of a particular learning style.

Felder and Silverman (1988) also developed corresponding teaching styles to the preferred learning styles of the Felder-Silverman model, illustrated in Figure 2.2.14.

The findings of corresponding teaching styles to engineering student learning styles as determined by this model have relevant current-day implications for the planning and design of blended learning and teaching experiences.

Dimensions of Learning and Teaching Styles

<i>Preferred Learning Style</i>		<i>Corresponding Teaching Style</i>	
sensory } intuitive }	perception	concrete } abstract }	content
visual } auditory }	input	visual } verbal }	presentation
inductive } deductive }	organization	inductive } deductive }	organization
active } reflective }	processing	active } passive }	student participation
sequential } global }	understanding	sequential } global }	perspective

Figure 2.2.14 Dimensions of Learning and Teaching Styles (Felder & Silverman, 1988)

2.2.8 Blended Learning Design

Blended learning implementation in a South African university course will have to consider best practices with due consideration given to the suitability of BL design (Balfour, et al., 2015). Thorne (2003, p. 35–38), as cited by Balfour et al. (2015), identifies the following as fundamental characteristics of a BL design:

- core learning need
- level of demand/timescale
- different learning styles
- potential of using different forms of learning, i.e. match the learning need with the relevant delivery methods and identify the best fit
- providers to work with
- education process
- how to provide follow-up coaching support
- monitoring process

According to the literature analysis conducted in the study by Boelens, De Wever and Voet (2017), which sought to evaluate blended learning research with the most citations and extract common BL design challenges, the authors found four key design

challenges, namely, “(1) incorporating flexibility, (2) stimulating interaction, (3) facilitating students' learning processes, and (4) fostering an affective learning climate” (p. 1).

The literature was systematically reviewed to explore how various studies responded to these four areas. Some of the results of this investigation can be seen in Table 2.2.4.

Table 2.2.4 Research Results of Systematic Literature Review (Boelens et al., 2017)

	Incorporating flexibility	Facilitating interaction	Facilitating students' learning processes	Fostering an affective climate
Halverson (2016)		Psycho-social relationships (interaction) is a core issue of blended learning design.	Metacognitive strategy use and ability of self-regulation may be particularly important (cognitive engagement).	Emotional engagement (e.g. enjoyment, confidence, confusion, boredom, frustration, anxiety).
Henrie et al. (2015)		Emotional engagement (learners' social connection with others at school).	Learners' self-regulation and metacognitive behavior (cognitive engagement).	Emotional engagement (learners' feelings about their learning experience, e.g. interest, frustration, or boredom).
Chen et al. (2014)	Providing a flexible environment that includes a variety of learning modes, and opportunities for students to choose where and when they learn.	The instructor should be aware of the transactional distance.	Some students may need greater incentives to encourage self-directed home study.	Promoting a positive learning environment (e.g. use of humor, praising student performance), and individualization.
Owston et al. (2013)	Offering students a choice whether to enroll in blended or face-to-face course sections.	Interaction during the course (with other students and the instructor).	Some students may not have the independent study skills that blended learning demands (self-regulation skills, time-management).	Student engagement (e.g. to ask questions, to feel anxious, to be overwhelmed).
McDonald (2012)	The study raises questions about the degree of self-directedness learners experience and about their need for personal control.	Face-to-face interaction with the instructor and peers can assuage the potential sense of isolation.	Students' time-management skills are requisite to succeed in blended courses.	Students' self-motivation skill is a requisite skill to succeed in blended courses.
Gikandi et al. (2011)			Implementing formative assessment strategies (i.e. monitoring of learning and provision of feedback) to support learners.	Motivating learners by implementing authentic learning tasks, designing instruction that caters the diverse learning needs.
Ozkan and Koseler (2009)	Trend towards location-independent education, and course flexibility.	Interaction with other students and teacher is important.	Effective course management (e.g. making announcements, pre-defined evaluation criteria).	Identification of learner characteristics (e.g. motivation, confidence, anxiety, enthusiasm).
So and Brush (2008)		Providing opportunities for both online and face-to-face interaction (social presence).	In blended learning environments, the importance of students' self-regulated learning (e.g. time-management) increases.	The importance of students' self-motivation, emotional support and bonding.
Graham (2006)	Learner choice: the type and amount of guidance that should be provided to learners in making their choices about the blend.	When and why should we consider human interaction (e.g. collaboration and learning communities)?	How can blended learning environments be designed to support increasing learner maturity and capabilities for self-regulation?	
Ruiz et al. (2006)	Learners have control over the content, learning sequence, pace, time, and media.	Enhancing learners' interactions with each other.	The online component provides the teacher with a set of online resources to facilitate the learning process.	The online component allows learning to be individualized (e.g. personalization of content), which enhances learners' motivation.
Garrison and Kanuka (2004)		The sense of community and belonging is essential (social presence).	Managing the environment and facilitating learning experiences (teaching presence).	
Osguthorpe and Graham (2003)	Students need to be given the opportunity to make choices about what they will study and how they will study it (personal agency).	Social interaction as a goal of blended learning: how will community be built during both types of contact?		

By evaluating these results (Table 2.2.4), it can be seen how careful consideration and strategic use of blended learning design elements can impact on the overall learning experience. Integral to the design of blended learning is the design of learning resources used by students during the online learning mode. The method of online learning resource planning and development is encapsulated in the process of instructional design.

2.2.8.1 Instructional Design

Instructional design of the learning experience also plays a significant role in how the overall BL implementation is shaped. Blended learning should be “fully adaptable to the program or institutional needs and does not need to be complicated” (Drysdale et al., 2013, p. 93).

Instructional design is defined as “the systematic process by which instructional materials are designed, developed, and delivered. The terms instructional design, instructional technology, learning experience design, educational technology, curriculum design, and instructional systems design (ISD), are often used interchangeably” (Instructional Design Central, 2017).

Instructional design is regarded to be continuously evolving as the theories are purposefully considered to underpin ISD, and approaches to ISD application should be in response to the current and future learning and teaching needs of students and teachers; inherently framed by context, subject matter requirements and blended learning frameworks.

Many blended learning iterations rely on the instructional design model, ADDIE; named after its phases, namely, *Analysis, Design, Development, Implementation and Evaluation* (Morrison, Ross, Kalman & Kemp, 2013).

ADDIE

Morrison et al. (2013) developed ADDIE as a comprehensive, phased approach which can be understood as a whole by expanding on each phase as follows:

A: Analysis

The objective of the analysis phase is to have the instructional problem clarified, the goals and objectives established, and the learner’s existing knowledge and skills identified (Instructional Design, 2017). The analysis phase will also consider pedagogy, learning constraints and delivery options.

D: Design

The design phase will explore content, curriculum, lesson planning and applicable media. The learning objectives will have to be considered, alongside a logical and ordered consideration of relevant strategies. The visual elements and interface design will be included in this phase.

D: Development

This phase entails the assembly of content and resources as designed during the previous phase. Feedback on the development would be required during this phase.

I: Implementation

The implementation phase includes all procedures required for the completion of the teaching and learning experiences via the developed resources and assets. This phase would include any training and support to both students and teachers that would be required for successful implementation.

E: Evaluation

Evaluation includes both formative and summative, with formative present in each ADDIE phase, and summative evaluation including “tests designed for domain specific criterion-related referenced items and providing opportunities for feedback from the users” (Instructional Design, 2017).

While ADDIE is used extensively by many instructional system designers, there are other models in use, with particular intent of circumventing challenges presented by the ADDIE model. Some researchers have focused on the ASSURE model (Smaldino, Lowther & Russell, 2008).

ASSURE

The ASSURE model (Smaldino et al., 2008) comprises the following stages:

A: Analyse students regarding their competencies, backgrounds, prior knowledge, skills and attitudes

S: State the standards and objectives of what learners will accomplish as a result of instruction

S: Select strategies, media, materials, and technologies that are applicable in the specific context and environment

U: Utilise media, materials, and technologies after careful consideration and planning

R: Require student participation and performance by focusing on how they are engaged and able to practice what has been learnt

E: Evaluate and revise teaching and learning practices and strategies

Some current-day approaches to course design and redesign employ amalgamated models of instructional design, combining salient features of different ISD models such as ADDIE and ASSURE.

James Madison University's Center for Instructional Technology (CIT) developed the *CIT Model for Course Design and Redesign*, an instructional design model inclusive of the ADDIE phases that provides a contemporary approach to redesigning courses and delivery, particularly with a blended learning modality in mind (James Madison University, 2016). Figure 2.1.15 provides a cyclical representation of this model.

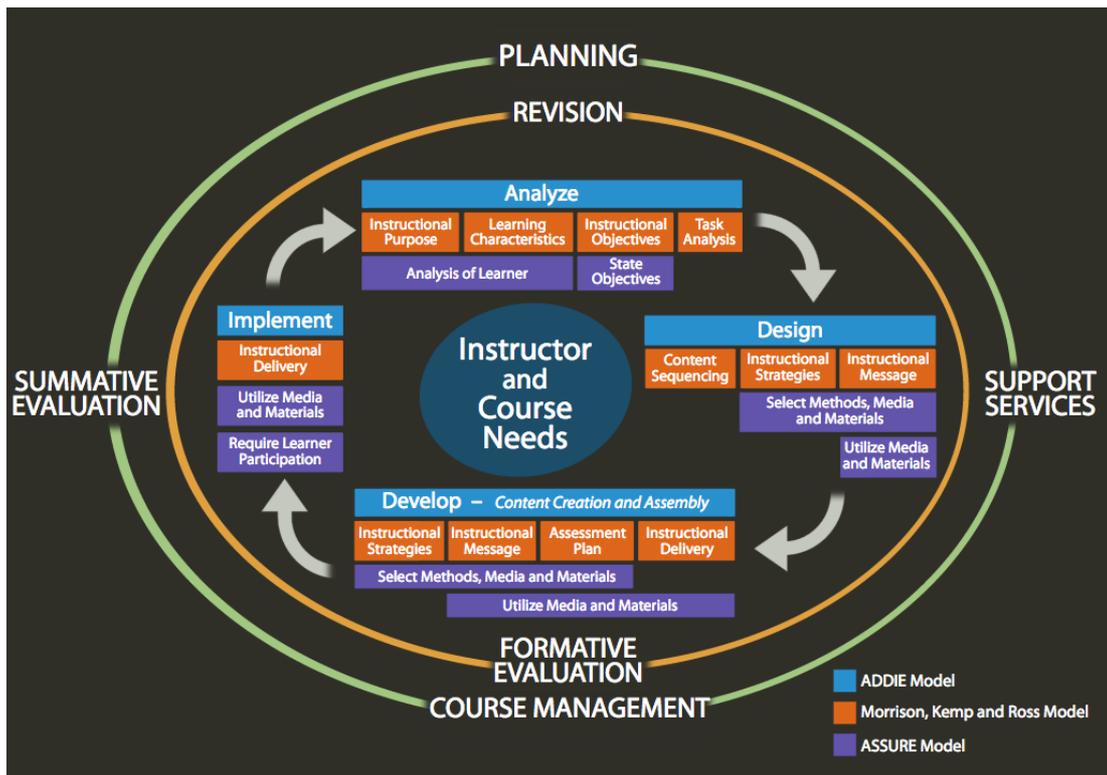


Figure 2.2.15 CIT Model for Course Design and Redesign (James Madison University, 2016)

The CIT model in Figure 2.2.15 provides a contemporary and holistic approach to course instructional design, suitable for blended learning frameworks within a higher education context.

Differing ISD models and elements thereof rely on contextually relevant learning theories to inform its framing and underpinning. Instructional design of resources and learning material to be used in a blended learning framework has to consider the learning theories that frame how learning is envisaged to take place in the blended learning mode as a whole. Siemens (2004) and Bell (2011) argue that Connectivism is a leading fitting theory whereas other researchers propose Constructivism and Conversation theory (Al-Huneidi & Schreurs, 2012). However, Singh (2015) cites Bezuidenhout, van der Westhuizen and de Beer (2005) as postulating key theories such as Behaviourism, Cognitivism, and Constructivism as well to underpin the development of materials, used primarily during the instructional design stage of blended learning.

Many of these theories were explored in Section 2.1 while framing blended learning, noting applicable theoretical implications for learning and instructional design.

2.3 Flipped Learning

Hao (2016) argues that flipped learning is “One of the most effective student-centered instructional models... [that] reverses the learning process from the traditional classroom by having students review learning materials before coming to class” (p. 82). Brame (2013 in Betihavas, Bridgman, Kornhaber & Cross, 2016) highlighted that in flipped learning, students usually gain their “first exposure” to content outside the class and the class time is then used for completing the “harder work of assimilating that knowledge through strategies such as problem-solving, discussion or debates” (p. 15).

In employing the flipped model, teachers will use in-class time to complete homework assignments, problem-solving tasks, and guide peer interaction activities to advance differentiated instruction, personalised learning and higher-order learning (Yarbro, Arfstrom, McKnight & McKnight, 2014). Flipped learning or the flipped classroom has also been referred to as the “inverted classroom” (Hao, 2016; Betihavas et al., 2016). Van Vliet, Winnips and Brouwer (2015, p. 1) refer to this approach as the “flipped-lecture” or “flipped-class pedagogy” .

Flipped learning is often used by universities as one of the methods to achieve increased critical thinking and deeper levels of knowledge (Van Vliet, Winnips & Brouwer, 2015) as face-to-face lectures are at times insufficient to accomplish deeper learning on its own (Biggs & Tang, 2011). Flipping the lecture and affording students an opportunity to engage with the material prior to an in-class discussion contributes to increased levels of critical thinking.

Findlay-Thompson and Mombourquette (2014) emphasised the importance of integrating technology into the equation of flipped learning, predominantly in the learning that takes places outside of the classroom. During the flipped learning process, various instructional technologies are strategically deployed and integrated to facilitate students’ learning, of which, digital video recordings have proven to be highly effective (Bergmann & Sams, 2012).

Many researchers have found that the flipped learning model is one of the ways that facilitate the use of technology in higher education teaching and learning practices (Johnson, Adams, Becker, Estrada & Freeman, 2015). Consequently, flipped learning is more and more becoming a compelling instructional method to explore the use of ICTs in the higher education learning spaces.

2.3.1 Flipped approach in blended learning

Flipped learning shares a similar framework to that which characterises many of the common blended learning applications (Yarbro et al., 2014) and thus the two are often associated with each other. The flipped-classroom model of blended learning (Horn & Staker, 2015) is a direct result of integrating the features of flipped learning into a blended learning model (see Figure 2.3.1).

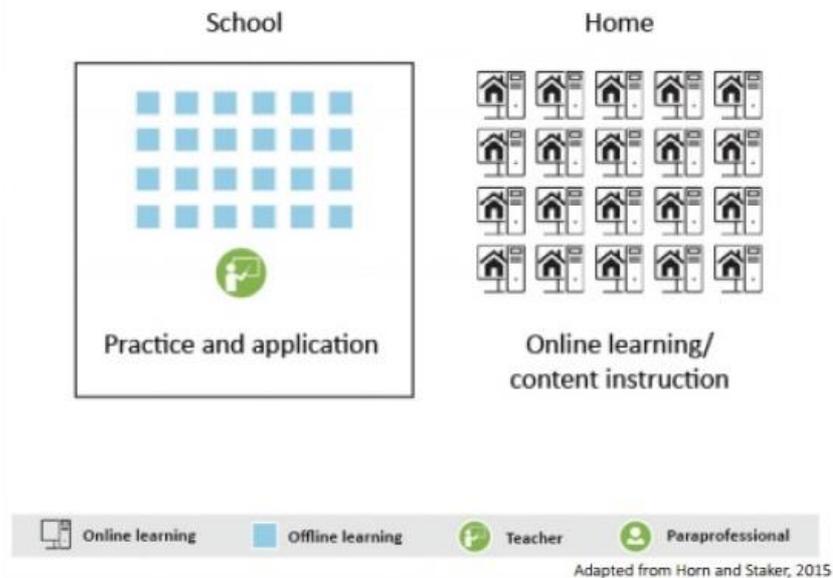


Figure 2.3.1 Flipped-Classroom Model (Reading Horizons, 2017)

Flipped learning in the 21st Century is often facilitated by releasing or availing material electronically (Findlay-Thompson & Mombourquette, 2014). With both models of flipped and blended learning featuring the inclusion of technology or online learning, many BL instructional designs feature instructional technologies that inadvertently fulfil the flipped learning model. Therefore, an effective BL implementation of this model must consider the theoretical underpinnings and practical implications of flipped learning during the conceptualisation and design stages.

While flipped learning in a blended learning framework might essentially be characterised by the release of video lectures or online learning material prior to face-to-face classes, many researchers and teachers have highlighted that this practice is often not enough to guarantee the success of the flipped model (Findlay-Thompson & Mombourquette, 2014). There has to be careful consideration of the broader pedagogy

at play, along with educators being thoroughly familiar with the flipped model, its nuances and related learning and teaching implications.

The regular transmittal mode of instruction commonly found in higher education teaching and learning spaces has clear limitations when compared to learning trends in the 21st Century. These limitations have to be mitigated and explicit shifts “towards student-centred learning and engaging students as active learners” (Betihavas et al., 2016, p. 16) have been noted as a fundamental means of accomplishing this objective.

Studies have also found that flipped learning is one of the methods that aptly purports student-centred pedagogy and that students reported higher satisfaction with flipped blended learning in comparison to traditional lecture-based courses (Hao, 2016; Findlay-Thompson & Mombourquette, 2014).

Flipped learning instances are seldom identical, but do feature similar components that constitute the flipped method. Hamdan, McKnight, McKnight and Arfstrom (2013, p. 2) created an acronym, FLIP to highlight these common but critical components, namely, “*Flexible environment, Learning culture, Intentional content, and Professional educator.*”

The flexibility of flipped learning is in harmony with the desired instructional design feature and the general framework of blended learning, both advocating for flexibility in conceptualisation and application. The flexibility of the flipped blended learning experience would complement trending learning culture for increased student self-control of the learning experience. The intentional content would be designed and enacted by the professional educator, in congruence with the learning culture. Flipped blended learning also presents flexibility in accommodating differing student learning styles (Betihavas et al., 2016).

Optimal benefit is often derived from the flipped blended learning experience when the online learning component of blended learning is merged with the independent pre-class learning component of flipped learning. This is subsequently and frequently fulfilled via predesigned learning materials and prerecorded videos of lectures. This adjustment to the learning process, namely, the recording of lectures in advance, can present itself as a substantial paradigm shift for many teachers and lecturers, who might not be initially too comfortable with substituting ‘rich’ in-class lectures with online recorded versions of the lessons. It requires educators to engage fully with changing and evolving student learning styles and preferences for 21st Century university classrooms. As Frydenberg

(2012) aptly describes the change, educators have to shift from being the “sage on the stage” to the “guide on the side” when executing the flipped model. Betihavas et al. describe it as a “cultural shift in paradigm” (2016, p. 16) for academics as they have to transition from being the “facilitators of knowledge to the curators of knowledge” (Brooks, 2015 in Betihavas et al., 2016, p. 16). Flipped blended learning ultimately leads to a shift in roles, more so, how these new roles are perceived, constructed and enacted by academics at universities.

The implementation of flipped blended learning has been proven to be student-centred, actively engaging students, and in line with established trends in higher education. In painting scenarios for higher education in 2024, Alexander (2014) proclaims that “Flipped learning is no longer designated as such, because ... the flipped classroom is just a classroom in this 2024 scenario” (p. 94). Universities worldwide are increasingly adopting flipped learning and teaching as an established approach.

While the approach is being frequently adopted in HEIs, some students face challenges with the flipped blended learning model. In the flipped learning study conducted by Simpson and Richards (2015), students grappled with adjusting to the flipped learning approach as a whole as they did not appear to “value... interactive learning approaches” (Betihavas et al., 2016), although research indicated that interactive learning yields improved results for knowledge retention (Van Vliet et al., 2015). Some students also felt that too much time could be afforded to off-campus learning or out-of-class preparation in the flipped model (Simpson & Richards, 2015).

The flipped blended learning experience should be designed with full cognisance taken of the amount of time needed for the completion of online learning prior to the face-to-face session. If students feel that a vast amount of online learning is taking place in a limited period prior to a face-to-face session, then it could impact negatively on their general satisfaction with the approach as a whole.

The limited availability of empirical research focusing on flipped learning demonstrates collectively inconsistent results, leading to difficulty in reaching an evidence-based consensus regarding the feasibility of flipped learning. However, it has become highly evident that flipped learning should continue to be interrogated and studied in different teaching and learning contexts for more data to be available regarding its feasibility.

Hao (2016) contends that researchers have not reached this consensus regarding the feasibility of the flipped approach and questions general student-readiness for flipped learning and technology-readiness more broadly.

The inclusion of flipped learning in the implementation of blended language learning and teaching in English communication for first-year students in this study, taking place within the larger framework of technology-enhanced language learning, calls for exploring issues of technology-readiness of students.

2.4 Technology-Readiness and Digital Literacy

The level of technology-readiness and digital literacy among first-year students at tertiary institutions remains a contributing factor to how those students react to and experience any technological innovation in learning and teaching. University lecturers often overlook the evaluation of first-year student technology-readiness and applicable levels of digital literacy prior to implementing new technological strategies in learning and teaching. This transpires as a result of an assumption that all students possess relatively similar levels of digital literacy and familiarity with technology, deduced from the current era of technological advancement and digital learning flourishing globally. Many assume that students are immersed in mobile technology and are thus prepared for any technological implementation or means of delivery. Kaminski, Seel and Cullen's (2003) study that surveyed first-year students found that university instructors should not assume that the students have 'basic' prior knowledge of technology.

Students from backgrounds that did not expose them to technology will be disadvantaged if they are suddenly required to use it to succeed academically. Technology-readiness will undoubtedly affect student success generally, and the success and effectiveness of the technological deployment or innovation. Universities assess student levels of language and mathematics upon entry and registration, but often forget that a fundamental element of student success in the 21st Century is technology-readiness (Ratliff, 2009).

Hao (2016) found that 'freshmen' or first-year students had lower technology-readiness levels compared to more senior students and that students develop comfort with technology as they progress in their university studies. It is understood that as students are gradually introduced to technology-enhanced learning and teaching approaches, they become more familiar with the context and environment, and subsequently develop

increased competencies through a scaffolded exposure and introduction to appropriate digital literacies, particular for academic contexts.

Ratliff's study of first-year college students' levels of preparedness for learning in a technology-rich environment found that while many of them were 'tech-savvy' and familiar with modern technology, the preparedness was the "wrong' type for academic purposes" (2009, p. 698). First-year students have to be given sufficient opportunities to learn and acclimatise to online and technology-enhanced learning environments.

The implementation of flipped blended learning, which actively includes online learning, has to consider students' levels of preparedness for technology-enhanced learning, with a focus on online learning. Digital literacy and comfortability with technology would be the first focal area, followed by students' ability to learn online, given the intricacies and additional considerations of online learning.

Student readiness for online learning can be evaluated before exposing students to learning and teaching facilitated via online platforms. The *Online Learning Readiness Scale* (OLRS) developed by Hung, Chou, Chen and Own (2010) is often used to evaluate student preparedness and readiness for online learning, providing valuable insights into how students might experience the online learning and teaching experiences. Many researchers also rely on the *Readiness for Online Learning* questionnaires of Smith, Murphy and Mahoney (2003), and McVay (2000) to gauge student readiness and preparedness for online learning and teaching.

McEwen (2001) highlighted that students who studied online experience time management as of the most significant challenges. Students who are prescribed online learning have to navigate various commitments they may have (work, social activities, and recreation) and would have to prioritise time to complete online learning. The prioritising of time for online learning could also prove to be additionally challenging for students with no prior background to online learning.

Coupled with online learning is the related area of self-directed learning. Hao (2016) cites Fisher, King and Tague (2001) as describing self-directed learning as an instructional method focusing on the "amount of responsibility a student accepts in [the] ownership of learning". The flexibility and control of learning afforded to students during an online learning segment require students to be capacitated sufficiently to self-direct the learning process (online), which is a trait of autonomous learning. As such, students'

readiness for self-directed learning could also be evaluated using a tool such as the *Self-Directed Learning Readiness Scale* (SDLRS) of Guglielmino (1977). The usage of the SDLRS could provide the lecturer with an awareness of students' preparedness and readiness to self-direct, take ownership and be accountable for their learning.

Xu and Jaggars (2013) cite Muse (2003) and Wiggiam (2004) by arguing that "students are not homogeneous in their adaptability to the online delivery format and may, therefore, have substantially different outcomes for online learning" (p. 23). Xu and Jaggars' (2013) study found that student preparedness, time management and ability to self-direct, among other factors, played a significant role in the effectiveness and ease-of-experience with online learning.

As a result, student capacity for self-directed learning and preparedness for learning in online and technology-enhanced environments will indisputably contribute to overall student academic success and the effectiveness of flipped blended learning.

2.5 English Language Teaching and Learning in Engineering Programmes

English language teaching and learning in engineering qualifications ensue as a result of communication studies being a core inclusion in most engineering programmes.

Engineering qualifications in South Africa are governed by the Engineering Council of South Africa (ECSA), who has subsequently raised the importance of effective English communication as a core outcome of any engineering programme (2015).

Communication in a field such as engineering is often taught in English owing to the proliferation of the English language within that particular professional industry, coupled with English being recognised as the *lingua franca* for such fields and professions (Riemer, 2002).

2.5.1 English communication in engineering

In Grünwald's (1999) study of competencies required by engineers, communication in a cross-disciplinary language such as English was cited as being crucial for a global engineer, yet it was found that English communication was not being adequately taught. Limited inclusions of English communication are often found in engineering programmes and qualifications globally.

Riemer (2002) contends that English language skills are fundamental to effective cross-cultural communication in engineering, specifically in the current era of globalisation and internationalisation of engineering practices. Despite the importance of English language skills needed by engineers intending to form part of the global market, English communication continues to be an area in which engineers exhibit the least competency (Riemer, 2002; Grünwald, 1999).

English communication is taught in engineering qualifications and is considered to be a more relevant, holistic and inclusive approach to providing English language and communication instruction. However, there is a shifting away from English courses in engineering that historically focused on technical writing or technical English primarily (Ferguson, 1995 and Reeve, 2004 in Sulcas and English, 2010). Some English communication courses taught to engineers include academic writing as it “has been shown to have many benefits for students” (Reinhold, Batstone, González, Troian & Yu, 2017, p. 208). Reinhold et al. (2017) have argued that academic writing skills for engineers “is fundamental not only to publish scientific results, but also to have a deeper understanding of complex subjects” (p. 208).

2.5.2 English language learning and teaching

The teaching of English communication at universities and colleges typically falls within the scope of the languages and applied linguistics/language studies departments. Since English communication primarily covers a spectrum of communication skills and practices (reading, writing, listening and speaking), the subject is often theoretically underpinned and informed by language learning and teaching theories, pedagogies and practices.

Language learning and teaching is a subfield of applied linguistics that holistically explores designs and approaches to solving a wide array of language problems (Weideman, 2007). While applied linguistics covers a broad spectrum of areas and subfields of language studies such as sociolinguistics, discourse analysis, translation studies, lexicography, forensic linguistics, phonology, and so forth; it has been dominated historically by language learning and teaching problems (Weideman, 2007).

Applied linguistics work could be summarised into the following six models/traditions with corresponding characteristics (Weideman, 2007), as illustrated in Table 2.5.1.

Table 2.5.1 Six traditions of applied linguistics (Weideman, 2003 in Weideman, 2007)

Model / Tradition	Characterised by
Linguistic / behaviourist	'scientific' approach
Linguistic 'extended paradigm model'	language is a social phenomenon
Multi-disciplinary model	attention not only to language, but also to learning theory and pedagogy
Second language acquisition research	experimental research into how languages are learned
Constructivism	knowledge of a new language is interactively constructed
Post-modernism	political relations in teaching; multiplicity of perspectives

Second language acquisition (SLA) focusses largely on how language is learnt, linking to it the related sub-area of language teaching and pedagogy. Felder and Henriques (1995) explored dimensions of language learning and teaching styles in second language (L2) education and highlighted that the language learning and acquisition dichotomy, namely, inductive versus deductive language learning, had a direct effect on how specific language practices and skills would be learnt and developed effectively. The consideration of inductive and deductive language learning styles has direct implications on the pedagogy and teaching approaches used to underpin and frame the designing and implementation learning and teaching experiences. In the context of online and blended learning, this notion would typically have instructional learning design implications.

A 'multi-disciplinary model' in applied linguistics (see Table 2.4.1) where there are multiple foci, for example, language concerns, learning theories and relevant pedagogy, might serve as a worthwhile alternative framework to guide studies of language skills/practices acquisition in differentiated learning environments, be it face-to-face or online.

What remains of fundamental importance is that the learning design (irrespective of the choice of learning environment) for language skill or practice development be informed and influenced by sound applied linguistic theories and solutions.

Weideman (2007) argues that "applied linguistic work has been influenced by a number of traditions or approaches" (p. 2). Rajagopalan (2004, in Weideman, 2007) indicates

that these approaches have influenced the development and design of the applied linguistic solutions and proposed responses to the problems encountered in the varying fields and subfields of applied linguistics. The differing approaches and influencing factors have moulded the type of applied linguistic responses.

With the advent of technology-enhanced learning (TEL), additional factors now influence and shape the scope of applied linguistics research, specifically in the area of technology-enhanced language learning (TELL). These additional factors have an indelible influence on the trajectory of language learning studies in the digital age. Technology-enhanced language learning and teaching is actively explored in applied linguistic studies, often from a language acquisition perspective (first and second) with a focus on language learning, and coupled with complementary studies in language pedagogy and teaching.

In Chapelle's (2009) study on second language acquisition (SLA) theory and computer-assisted language learning (CALL), the researcher established convergence between the two areas by exploring possibilities of shaping digital learning material through the active consideration of specific SLA theories using cognitive linguistic, psycholinguistic, human learning and sociolinguistic approaches. CALL and technology-enhanced language learning (TELL) approaches are often used to enhance the learning and teaching of writing.

2.5.2.1 Writing in/and Applied Linguistics

Writing and applied linguistics are often considered to be the same, or at the very least, closely related because of language practice and language teaching being established sub-fields of applied linguistics. The two "are sometimes used interchangeably" (Weideman, 2007, p. 4), however, at other times, their divergence becomes highly apparent.

Writing usually has a specialised focus in English communication courses taught in engineering programmes. Writing in engineering is typically geared towards academic, scientific, technical and business styles and genres (Kassim & Ali, 2010, Reinhold et al., 2017). A focus is placed on the different types of writing with the intention of equipping engineering students with strengthened competencies in report writing.

There are many similarities in the factors and approaches that have influenced the development of and research into writing, and the teaching of writing from applied linguistic perspectives (Weideman, 2007). Lillis (2003) in her study of academic writing and literacies, summarised university student approaches to writing by reflecting on applicable theories of language and related pedagogy, as depicted in Table 2.5.2.

Table 2.5.2 University student approaches to writing (Lillis, 2003)

<i>Status within Higher Education, UK</i>	<i>Theory of language</i>	<i>Student writing pedagogy¹</i>	<i>Goal of higher education</i>
 Dominant	Language as a transparent and autonomous system, the elements of which are acquired by individuals.	(a) Skills – explicit teaching of discrete elements of language.	Practices oriented to the reproduction of official discourses: <i>Monologic</i>
	Language/meaning as the product of individual mind	(b) Creative self-expression-teaching as facilitating individual expression.	
	Language as discourse practices which learners will/must gradually come to learn implicitly.	(c) Socialisation (1) teaching as (implicit) induction into established discourse practices.	
	Language as genres which are characterised by specific clusters of linguistic features.	(d) Socialisation (2) explicit teaching of features of academic genres.	
	Language as socially situated discourse practices which are ideologically inscribed.	(e) Academic Literacies – what are the implications for pedagogy?	
Oppositional			Practices oriented towards making visible/ challenging/ playing with official and unofficial discourse practices: <i>Dialogic</i> – what are the implications for pedagogy?

From Table 2.4.2, it can be deduced that multiple language theories can be used to frame and underpin how academic writing is taught, entirely dependent on the lecturer's

approach to teaching writing, the context and discipline within which the writing is completed, and the objectives of the envisaged learning and teaching encounter.

Harklau (2002) asserts that “writing should play a more prominent role” in SLA studies, and that “writing as a communicative modality has been marginalized” (p. 329). Harklau (2002) continued to highlight the potential of exploring “multiple modalities” in SLA writing research, particularly when investigating “modality-sensitive perspective[s]”.

As a means of bridging between SLA and applied linguistic theories for teaching writing, Mourssi (2012) developed the *Innovated Writing Process* (IWP), a suggested teaching method for writing in L2 contexts that primarily includes both the speaking and writing communication domains, and in which learning content is selected and ordered based on a strategic and careful analysis of the literacy levels of the students. The IWP approach resonates with English writing in engineering programmes owing to its prioritisation of the *structural* and *functional* views of language, that “language is considered as a system of structurally related elements for the coding of meaning”, and that “language is viewed as a vehicle for the expression of functional meaning, and where the emphasis is on semantic and communicative dimension rather than on grammatical characteristics of language teaching content” (Mourssi, 2012, p. 103).

An additional perspective to approaches to writing is the view of Ivanic (2004) that refers to the ‘discourses of writing’ derived from views about language. Ivanic (2004) describes discourses of writing as being “constellations of beliefs about writing, beliefs about learning to write, ways of talking about writing, and the sorts of approaches to teaching and assessment which are likely to be associated with these beliefs” (p. 224). The discourses of writing with similar teaching approaches, as summarised by Weideman (2007) are illustrated in Table 2.5.3.

Table 2.5.3 Discourses of Writing (Ivanic, 2004 in Weideman, 2007)

Discourse (paradigm)	Approach
A skills discourse	Skills approaches
A creativity discourse	Creative self-expression
A process discourse	The process approach
A genre discourse	The genre approach
A social practices discourse	Functional approaches
A sociopolitical discourse	Critical literacy

From Ivanic's perspective (2004), a skills discourse, in which the belief about learning to write "involves learning sound–symbol relationships and syntactic patterns" (p. 225), would require an explicit skills-teaching approach in which the teacher would clarify the relationships and assess based on accuracy. Ivanic (2004) also includes a 'process discourse', rather than a 'product discourse' that focusses on writing which "consists of composing processes in the writer's mind, and their practical realization" (p. 225), also conveyed using an explicit teaching approach. These two writing discourses resonate with the nature of the academic and technical writing component of English communication taught to engineering students at universities.

In addition to academic and technical writing, the context within which writing takes place and envisaged to take place professionally is vital. The contextualisation of language learning and teaching is housed in the '*English for Specific Purposes*' field.

2.5.2.2 *English for Specific Purposes in Engineering*

Some universities place added priority on English language teaching and learning in engineering programmes through the introduction of focused *English for Specific Purposes* (ESP) courses (Kaewpet, 2009). ESP courses are usually underpinned by second-language teaching theory and practices, with a particular focus on the language requirements, application and communication needs of the specific professional field or context. Riemer found that "ESP achieves more in the education of engineering students by focusing the learner's attention on the particular terminology and communication skills required in the professional field" (2002, p. 93).

Engineering students study English and ESP courses that include English for Academic Communication, Technical Communication, Business Communication and Professional Communication. These courses focus on the development of the four communication skills, namely, listening, speaking, reading and writing (LSRW), with a general focus on speaking and writing (Kassim & Ali, 2010).

Kaewpet (2009) evaluated English communication needs of engineering students studying an ESP course and highlighted the writing and speaking skill components of the course as being essential for further competency development, which ultimately enables facilitated articulation into the global English-dominated engineering market. A study conducted in the Faculty of Engineering and the Built Environment at the University of Cape Town presented similar findings in that technical professionals have to develop strong competencies in (English) writing, and that English communication courses have to ensure that relevant content is taught (Sulcas & English, 2010).

English for Specific Purposes (ESP) encompasses *English for Academic Purposes* (EAP), Academic literacies and writing, *English for Professional Purposes*, and *English for Engineering*, among other sub-specialisations.

2.5.2.3 English for Academic Purposes, Academic Literacies, and Academic Writing

English for Academic Purposes (EAP) is considered to be a branch of *English for Specific Purposes* (ESP) “in that the teaching content is matched to the requirements of the learners” (Gillet, 1996). EAP is at times also considered to be ESP in accordance with Robinson’s (1991) view, as EAP is “goal-directed”, “based on a needs analysis”, is geared towards “adults rather than children”, is “specialist language” that focusses on the objectives of its usage, and that “a very high level of proficiency [in academic language] is not required, as long as the students can succeed in their aims” (Robinson, 1991 in Gillett, 1996). As such, in accordance with Robinson (1991), it can be deduced that EAP would suit areas where ESP has been recommended and proven to be ideal, such as English communication in engineering (Riemer, 2002).

EAP courses and learning material assist students with “linguistic difficulties” usually encountered when they have to study in English at a university or institution of higher learning (Gillett, 1996). EAP courses prepare students and facilitate their acclimatisation to academic studies in their disciplines, often in preparation for reading and writing

academically in their specific fields. *English for Academic Purposes* (EAP) has historically been mostly offered to English L2 speakers or non-native speakers of English (Gillett, 1996; Wingate, 2011).

EAP is underpinned by many theories and concepts, including, but not limited to, “composition theory, critical theory, and Swalesian concepts of discourse community and genre” (Coffin & Donohue, 2011, p. 64).

EAP is focused on language, language study skills, and language proficiencies needed to succeed in tertiary studies (Gillett, 1996). EAP studies include academic writing but usually centres around the conceptualisation, stages and processes of academic writing (Robinson, 1988). As such, EAP courses serve as a gateway to academic writing intensive courses, by spending time addressing “planning, organizing, presenting, rewriting,[and] proofreading” (Gillett, 1996) of academic writing. This ensures students are familiar with linguistic foundations of style and context-specific writing at universities and within specific professional fields.

Coffin and Donohue (2011) provide additional perspectives by foregrounding two areas related to EAP and academic writing, namely, Academic Literacies and Systemic Functional Linguistics (SFL). According to Coffin and Donohue (2011), academic literacies focus on “practices in context”, and systemic functional linguistics focus on “texts in context”. SFL “is a theory of language which highlights the relationship between language, text and context” (Coffin & Donohue, 2011, p. 65), whereas academic literacies is a theoretical research paradigm that is more focused in scope and “evolved in response to issues of literacy in an expanded higher education system” (Coffin & Donohue, 2011, p. 65). The difference between academic literacies and SFL results in various foci that impact on how EAP and academic writing are taught.

Academic writing, at times included in academic literacies, focusses on university students’ abilities to write following academic stylistic norms and principles. As part of developing academic literacies, students have to advance their ability to read, evaluate and analyse texts academically, and be able to respond using an academic style in English writing. Students are required to enhance their abilities to argue and write in a persuasive, yet objective and formal manner. Academic writing would expose students to the construction of an academic argument, and the arrangement of information and text in the argument. Reinhold et al. (2017) assert that academic writing should form part

of English communication courses taught to engineering students as, in addition to equipping them with the ability to publish scientific results, it also provides engineering students with “a deeper subject matter understanding and enhances students’ conceptual knowledge” (p. 208).

Academic writing, academic literacies and EAP are closely related and can be grouped into a single area in English communication because of similar learning objectives. Thompson (2001) suggests that the organisation of academic text, and the way in which the organisation is signalled are vital in “developing an awareness of the audience” (p. 58) in effective academic writing. EAP approaches to teaching academic writing that include focusing on organisation, signalling, and signposting, would accomplish this objective of academic writing.

Wingate (2011) recommends the use of academic literacies and *English for Academic Purposes* (EAP) principles for the teaching and support of academic writing at universities, finding that the differing approaches within specific contexts can be useful in improving students’ academic writing.

While *English for Academic Purposes* and academic writing are taught to engineers with multiple learning benefits and outcomes (Reinhold et al., 2017), they primarily serve as a basis to orientate students to different types of writing style, with an explicit objective of shifting to a discipline-specific style of writing in engineering: technical writing.

2.5.2.4 Technical writing in engineering

Technical writing, in conformance with many stylistic guidelines governing academic writing, is taught to engineering students to serve as a foundation for the writing of reports (Collier & Toomey, n.d.). It draws on some of the norms of academic and scientific writing as a means to establish frameworks guiding technical communication and writing. ‘Writing across the curriculum’ (WAC) and ‘writing in the disciplines’ (WID) (Bazerman & Russell, 1994 and Fulwiler, 1986 in Coffin, Curry, Goodman, Hewings, Lillis & Swann, 2003) are methods that are often used in the teaching and learning of technical writing. Figure 2.5.1 provides a comparison of technical, academic and creative writing.

	Technical Writing		General Academic Writing (Expository or Persuasive)	Creative Writing	
Purpose	To inform		To persuade, argue	To entertain	
	To instruct				
Content	Factual, straightforward		Factual, straightforward	Imaginative, metaphoric	
Format	Proposal	<ul style="list-style-type: none"> • Introduction <ul style="list-style-type: none"> ○ Background ○ Purpose • Methodology • Results • Conclusions 	No set format	Thesis	No set format
	Progress Report			Reasons	
	Technical Report			Evidence	
Style	Writing is simple—declarative sentences		Writing may draw attention to itself	Writing is the important part	
	Concise sentences and paragraphs		Longer sentences and paragraphs	May include long sentences for effect	
	Avoid personal	<ul style="list-style-type: none"> • Personal pronouns • Personal judgments • Personal feelings 	Personal may be assumed, even in academic arguments	Narrators, etc.	
	Formal		Formal	Informal, figurative	
	Clear topic sentences		Clear topic sentences, may vary for argumentative effect	No clear topic sentences	
	Specialized vocabulary		Some specialized vocabulary, depending on audience	No specialized vocabulary	

Figure 2.5.1 Differences between Technical, Academic and Creative Writing (Wilson, 2012)

As seen in Figure 2.4.1, technical writing bears partial similarity to academic writing in the style, formality and objectivity of the writing style. Lahiri (2017) asserts that the objectives of academic and technical writing differ, and students should be equipped with sound knowledge of both styles to make informed decisions about which style should be chosen for a particular audience and output. The capacity to discern between academic, technical and formal business writing is vital for engineers as they should be capacitated to draft technical reports, publish articles and research papers, as well as write effective business documents, to add to the communication versatility of engineers.

Technical writing and scientific writing are often linked and, at times, considered to be the same; originating from the positivist sciences and the legacy of positivism that is built on the premise that “sensory data are the only permissible basis for knowledge” (Miller, 1979, p. 612). As such, technical writing must be “objective, scientifically impartial, utterly clear, and unemotional” (Mills & Walter, 1978 in Miller, 1979). It has to “convey

information and ideas accurately and efficiently” (Ulman & Gould, 1972 in Miller, 1979), and is “concerned with the facts” (Pearsall, 1975 in Miller, 1979).

Engineering students are often introduced to technical writing after having established a sound foundation in academic writing. Therefore, it is crucial that the teaching and learning of academic writing are firmly consolidated before exploring technical writing, to facilitate the conceptual knowledge construction, introduction, and shift to technical writing.

2.5.2.5 Teaching and learning of writing

Butler (2006, p. 41) cites Coffin et al. (2003, p. 12) in identifying three important matters that should be addressed in the teaching and learning of writing in tertiary institutions, arguing that lecturers of academic writing should:

- a) identify the kinds of language use with which students need to become familiar in order to write successfully in higher education
- b) make these uses available to students in ways which enhance their learning and motivation for writing and participating in higher education
- c) find ways of building on students' existing knowledge of and uses of language

As students enter the world of academic and technical writing, they have to be exposed to “an on-going conversation comprised of certain topics, accepted beliefs and common questions” (Collier & Toomey, n.d.) of the discipline so that they can listen initially and construct foundations from which they would be able to build as they partake in the conversation.

Academic and technical writing should be taught to university students by introducing the structures and types of language, discourses and styles that are required and will be used in the relevant discipline or profession. The methods adopted for teaching and learning writing should reflect the norms and values of the profession, be pedagogically sound, and in line with student learning preferences for the specific context.

The teaching of academic, technical and scientific writing should clarify the norms and principles of the styles through the exploration and explication of examples of these types of writing, advocated as an effective method of teaching writing in ‘Explicit Writing Instruction’ (Clark, 2013). For Miller (1979, p. 617), the teaching of technical or scientific

writing is more than the “inculcation of a set of skills”, and rather “it becomes a kind of enculturation”. Miller (1979, p. 617) contends that technical and scientific writing should be taught:

...not as a set of techniques for accommodating slippery words to intractable things, but as an understanding of how to belong to a community... Our teaching of writing should present mechanical rules and skills against a broader understanding of why and how to adjust or violate the rules, of the social implications of the roles a writer casts for himself or herself and for the reader, and of the ethical repercussions of one's words.

The teaching and learning of writing, specifically of academic, scientific and technical writing should take into consideration the language learning practices specific to the context and discipline while acknowledging student learning styles and preferences, as well as attitudes and beliefs students may have in relation to English writing and communication more broadly.

2.5.3 Impact of engineering student attitudes on studying English communication

English language teaching and learning in engineering programmes is often convoluted by students' attitudes towards studying the course/module, English communication. Many engineering students do not view the course as necessary, and some experience difficulty connecting with the course material owing to “deficient or inappropriate teaching methods” (Roulston & Black, 1992 in Riemer, 2002).

While the importance of studying an English language and communication course in an engineering programme has previously been argued and supported in a plethora of research and literature, complementing importance by engineering students does not appear to be overwhelmingly evident or agreed upon based on studies evaluating engineering student attitudes towards English communication.

In a study conducted by Kovac and Sirkovic (2017), the researchers compared the attitudes of first-year to more senior engineering students towards English communication skills and found that senior and more mature students presented higher levels of positive attitude towards English communication. This was found as a result of senior students having developed and “gained an additional awareness during their university education regarding the significance of communication skills” (Kovac & Sirkovic, 2017, p. 114). First-year students demonstrated lower levels of positivity

towards English communication, which could be linked to factors relating to discipline and environment orientation as they often have to acclimatise to university teaching and learning environments and contexts.

On the other hand, Anuradha and Rengaraj's (2017) study of the attitudes of first-year engineering students at a university in India towards English language learning found that the majority of the participants demonstrated a positive attitude towards the subject, notably originating from the perspective of having general positive attitudes towards the English language as a whole, owing to its potential for increased global communication and professional opportunities. English communication in EFL or ESL environments, where English is not the dominant language of teaching and learning, nor natively spoken in a country, is often welcomed with positive attitudes.

A complementing perspective to engineering students sharing positive attitudes towards English communication in an EFL or ESL context is the study conducted by Al-Tamimi and Shuib (2009) at a Yemeni university in which the researchers found that the engineering student respondents had high levels of motivation for studying English, specifically from the view of seeking personal development and increased ambitions for international professional opportunities.

Engineering student attitudes towards English communication in EFL and ESL contexts generally appear to be positive across different levels of study. Engineering students in first-year levels in English L1 environments appear to have lower levels of motivation and positivity towards studying English communication, in comparison to more senior students.

The attitudes that engineering students present towards English communication undoubtedly influence the learning experience and success rate of the module. With this noted, alternative teaching and learning means should be explored to influence the perception and attitudes engineering students may hold towards English language and communication studies, with an objective of enhancing their English communication teaching and learning encounters.

2.6 Implementation of blended learning in language courses

While extensive research has been undertaken to investigate the designing and implementation of Computer-Assisted Language Learning (CALL), many researchers

have highlighted a need for systematic investigations into “factors that shape the blended learning experience in the context of language learning and teaching” (Neumeier, 2005, p. 163).

Blended learning includes two major modes in which the actual learning processes and experiences would dominate, namely, online and F2F. Kerres (2001) argues that as per language learning theory and within a blended learning context, a lead mode would have to be selected to ensure a more comprehensive learning experience design. Inclusive of lead mode consideration, Neumeier (2005) developed parameters that describe and conceptualise a blended learning environment for language T&L, as listed in Table 2.6.1.

Table 2.6.1 Parameters describing and conceptualising a BL environment (Neumeier, 2005)

Parameter	Individual descriptors
1. Mode	• Focus on mode
	• Distribution of modes
	• Choice of modes
2. Model of integration	• Sequencing of individual modes
	• Level of integration
3. Distribution of learning content and objectives and assignment of purpose	• Parallel or isolated
4. Language teaching methods	• Use of teaching methods in each of the modes employed
5. Involvement of learning subjects (students, tutors and teachers)	• Interactional patterns: individual vs. collaborative language learning activity
	• Variety of teacher and learner roles
	• Level of autonomy
6. Location	• Classroom, home, outdoors, computer room, institutional settings

From Table 2.6.1, the parameters formulate a working framework for the design and implementation of BL in a language T&L context, with due consideration given to factors that shape the overall teaching and learning experience.

Many consider BL in a language T&L context to be an evolved form of CALL, while Neumeier (2005) aptly states that the “approach of blending CALL applications with face-to-face teaching is as old as CALL itself” (p. 163). Blended language learning (BLL) subsequently surfaced in literature as the strategic employment of BL in a language teaching and learning context, explicating the role of language learning theory in informing and shaping the blended learning process (Cheers & Towndrow, 2002; Stracke, 2007).

Ryan (2004) argues that “CALL is a tool and not a replacement” (p. 54) for conventional language learning, and thus research should focus on the “interaction between CALL and traditional teaching” (p. 54). Blended language learning as a sub-field of blended learning research explores this interaction along with necessitated deliberation of language learning theory distinctions and nuances.

Research centring around BLL in higher education settings have emphasised a focus on issues of learning material design and access to the material (Scagnoli, 2005). Therefore, blended learning implementation in a language and communication course taught at universities will holistically consider a range of factors that shape the overall experience but should pay particular attention to how learning material is designed, developed, delivered, accessed and experienced.

2.7 Conclusion to Chapter Two

Chapter Two provided a comprehensive analysis and review of literature concerning flipped blended language learning, related and interrelated concepts. The chapter explored blended learning in detail, and analysed related theories of distance, online and blended learning. An evaluation of learning style, flipped learning, technology-readiness and digital literacy was included.

In the applied linguistics domain as linked to and governing the teaching and learning of English communication, English language teaching in engineering, and theories of *English for Specific Purposes* (ESP) and teaching of academic writing were discussed. The links and relationships between academic writing, academic literacies and *English*

for Academic Purposes (EAP) with technical writing and English communication (for engineers) more broadly were ascertained. The various concepts explored in the chapter conceptually converge for a broader theoretical framing of implementing flipped blended language learning. Chapter Three discusses the research design and methodology that informed the study and guided the investigation of flipped blended language learning implementation.

3 Chapter Three: Research Design and Methodology

Chapter Three provides a description of the research design and methodology that framed the study. Key concepts and theories discussed in the literature review in Chapter Two informed the research design. This chapter explores the research design by discussing the interpretivist research paradigm and qualitative case study methodology used in the investigation. Research instruments, sampling, data collection, data analysis, and data validation and reliability are included and discussed. Issues concerning ethical considerations and limitations that applied to the study are also considered.

3.1 Nature of the Study and Research Design

The research design was informed and framed by an interpretivist research paradigm and a qualitative case study methodology.

3.1.1 Interpretivist Research Paradigm

The study is located within the interpretive paradigm so that meaning and human phenomena can be studied in context (Babbie, 2007). Interpretivist researchers are concerned with understanding the “world of human experience” (Cohen & Manion, 1994, p. 36). Since the study sought to explore the students’ experiences and perceptions of studying in a flipped blended language learning context, interpretivism guided the contextual analysis of ‘human experience’ found in the study.

3.1.1.1 Interpretivism

Interpretivism is “associated with the philosophical position of idealism, and is used to group together diverse approaches, including social constructivism, phenomenology and hermeneutics; approaches that reject the objectivist view that meaning resides within the world independently of consciousness” (Collins, 2010, p. 38). Blended learning is mostly underpinned by theories that are or lean towards Social Constructivism, and generally oppose Objectivist views of knowledge and meaning (see Section 2.2.5.1 in Chapter Two). Interpretivism complements the theoretical foundations of blended learning and was found to be an appropriate paradigm for this study.

The interpretivist research paradigm allows for the interpretation of elements of a study, incorporating human interest into the interpretation of a study's data and findings. According to Saunders, Lewis and Thornhill (2012 in Dudovskiy, 2017), the interpretivist paradigm and approach foreground the role of the researcher as a "social actor to appreciate differences between people". The research objectives of this study comprehensively focused on acknowledging and 'appreciating' the different experiences and perceptions held by the 'people', the student participants in the study. In foregrounding the role of the researcher to achieve this appreciation of "differences between people" (Saunders et al., 2012 in Dudovskiy, 2017), interpretivism matched the broader research objective of this study.

The interpretivist approach focusses on the meaning given and attached to different aspects of the issue, and usually explores the meaning by approaching it from differing perspectives (Dudovskiy, 2017). As a result, this paradigm affords the researcher an opportunity to learn through interacting with participant interpretations and perceptions as well as engaging with the meanings they give to their actions (Terre Blanche, Durrheim & Painter, 2006).

Following an interpretivist view, "individuals are intricate and complex[,] and different people experience and understand the same 'objective reality' in very different ways and have their own, often very different, reasons for acting in the world" (ReviseSociology, 2015). Interpretivist research seeks to understand the meaning of human experiences concerning this 'reality', exploring the construction and perception of knowledge and experience from a social scientific perspective. The presumable 'objective reality' of this study, the flipped blended language learning environment and resources, would be experienced and viewed in different ways, and the interpretivist paradigm allows for the interpretative framing of the participants' responses and 'actions'.

The interpretivist paradigm is based on the following assumptions (iNtgrty, 2016):

- Leans towards qualitative research
- Understands human life from within
- Views social life as a distinctively human product
- Perceives that the human mind as being the purposive source of meaning
- Understands that human behaviour is affected by knowledge of the social world
- Views the social world as not 'existing' independently of human knowledge

A common criticism of interpretivist studies is that the generated data and findings cannot be generalised owing to perceived subjectivity that might be possibly encountered. Denzin and Lincoln (1998) cite Denzin (1992) and Hammersley (1989) in stating that “interpretivists wrestle with maintaining the opposition of subjectivity and objectivity, engagement and objectification”, and they attempt to “disengage” from the “subjective” experience, seeking to “objectify it” (p. 223). Denzin and Lincoln (1998) acknowledge that interpretivist research will include “grappling with a synthesis of phenomenological subjectivity and scientific objectivity” (p. 224).

Denzin and Lincoln (1998, p. 224) argue that a response to overcome the subjective criticism is by “fully accepting the hermeneutical character of existence”, and to simply “deny the opposition of subjectivity and objectivity.” As a result, the focus on hermeneutical stances of interpretation of ‘existence’ and human experiences overpowers the tension observed through the opposition of subjectivity and objectivity.

Another perspective is that of Thanh and Thanh (2015, p. 25) who cite Willis (2007, p. 110) and argue that “the goal of interpretivism is to value subjectivity, and ‘interpretivists eschew the idea that objective research on human behaviour is possible’”. In accordance with Thanh and Thanh’s (2015) view, the subjectivity of the data, in reality, is actually valued.

With acknowledging subjectivity, the interpretivist approach has been adopted in the social sciences because the data and findings are associated with high levels of validity, resulting from the trustworthiness and honesty associated with such data and studies (Dudovskiy, 2017). In addition, the interpretivist approach “is gaining considerable influence, because it can accommodate multiple perspectives and versions of truths” (Thanh & Thanh, 2015, p. 25). As a result, interpretivist studies have been particularly useful in areas of exploring cross-cultural differences, values, ethics, human behaviour and differences in human experiences in educational contexts (Thanh & Thanh, 2015).

The interpretivist approach in the social sciences came about as a result of a critique of positivism, emphasising qualitative analyses over quantitative (Thanh & Thanh, 2015). Interpretivism is also referred to as the ‘anti-positivist’ approach (ReviseSociology, 2015; Dudovskiy, 2017). Dudovskiy (2017) cites Pizam and Mansfeld (2009) in clarifying the differences between positivism and interpretivism as illustrated in Table 3.1.1.

Table 3.1.1 Differences between Positivism and Interpretivism (Pizam & Mansfeld, 2009, in Dudovskiy, 2017)

Assumptions	Positivism	Interpretivism
<i>Nature of reality</i>	Objective, tangible, single	Socially-constructed, multiple
<i>Goal of research</i>	Explanation, strong prediction	Understanding, weak prediction
<i>Focus of interest</i>	What is general, average and representative	What is specific, unique and deviant
<i>Knowledge generated</i>	Laws Absolute (time, context, and value free)	Meanings Relative (time, context, culture, value bound)
<i>Subject/Researcher relationship</i>	Rigid separation	Interactive, cooperative, participative
<i>Desired information</i>	How many people think and do a specific thing, or have a specific problem	What some people think and do, what kind of problems they are confronted with, and how they deal with them

From Table 3.1.1, the interpretivist paradigm complements and is best-suited for the nature of this study, as the researcher intends to explore student experiences and the meanings attached to those experiences, with complete acknowledgement that the knowledge generated is relative, bound to time, contexts, cultures and values.

The study is built on the notion of a social-constructed reality of knowledge through the thoughtful consideration of Social Constructivism in the design of the teaching and learning encounter; therefore, interpretivism is presented as an appropriate paradigm and approach to explore the social phenomenon. Interpretivism facilitates the understanding of human experience as it based on the foundation of grasping and understanding of “meaning’ of social phenomena” (Denzin & Lincoln, 1998, p. 223). It, therefore, allowed the researcher “to view the world through the perceptions and experiences of the participants” (Thanh & Thanh, 2015, p. 24).

3.1.2 Case Study Employing Qualitative Methods

The study was conducted as an empirical case study employing qualitative methods appropriate for interpretative research to investigate the experiences and actions of the participants.

According to Yin (1981, p. 97), case studies typically include “innovative projects”, are often conducted in “program evaluation studies” and as a “single-case design”. The need for the case study arises when “an empirical inquiry must examine a contemporary phenomenon in its real-life context” (Yin, 1981, p. 98), and are useful for theory building (Yin, 2009). The shifting learning needs of students in BL highlight shortcomings of existing theoretical frameworks, thereby, supporting a research approach that accommodates theory building, which usually comes about when “existing theoretical and conceptual frameworks are inadequate” (Chetty, 1996 in Ponelis, 2015, p. 537). In case studies, “general ideas” or “expectations” serve as a guide to the empirical investigation (Mouton, 2001, p. 150 in Ponelis, 2015, p. 537). The characteristics and features of a case study complemented and resonated with the nature of this investigation, therefore, justifying the choice of a case study approach.

Ponelis (2015) argued that case studies using qualitative techniques and set within the interpretivist research paradigm have proven to be beneficial for exploratory studies. Different qualitative techniques and data collection methods were used to provide a “multi-perspective approach” to “explore social interaction” (De Vos, 2002, p. 240). This approach was adopted to interpret and make sense of the “meanings that the [research] subjects attached” to their interactions (De Vos, 2002, p. 240).

3.1.2.1 Qualitative Approaches and Methods

A qualitative approach has been adopted so that the case study provides a thick description of the respondents’ experiences (Nunan, 1999) enabling the scrutiny of behaviours, values, needs or characteristics that distinguish individuals or groups (Du Plooy, 2001). Willis posits that “interpretivists tend to favour qualitative methods such as case studies” (2007, p. 90), as they offer rich reports that allow interpretivist researchers “to fully understand contexts” (Thanh & Thanh, 2015, p. 25).

Qualitative methods and approaches are in themselves, synonymous with an interpretivist research paradigm, with researchers indicating that qualitative methods are predominantly used within the interpretivist paradigm (Peshkin, 2000 and Silverman, 2000 in Thanh & Thanh, 2015).

Qualitative research accomplishes a core objective of interpretivist research with it being “a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem” (Creswell, 2009, p.4).

According to Marguerite, Dean and Katherine (2006, p. 21 in Thanh & Thanh, 2015, p. 26), the following are characteristics of qualitative research:

- Studies are carried out in a naturalistic setting
- Researchers ask broad research questions designed to explore, interpret, or understand the social context
- Participants are selected through non-random methods based on whether the individuals have information vital to the questions being asked
- Data collection techniques involve observation and interviewing that bring the researcher in close contact with the participants
- The researcher is likely to take an interactive role where she or he gets to know the participants and the social context in which they live
- Hypotheses are formed after the researcher begins data collection and are modified throughout the study as new data are collected and analysed
- The study reports data in narrative form

This study attempted to fulfil as many of these characteristics of qualitative research as possible within the limitations and constraints of the study.

3.1.2.2 Qualitative Research Instruments

Interpretivism is primarily based on qualitative “naturalistic approach[es] of data collection such as interviews” (Dudovskiy, 2017). The qualitative instruments used for data collection in ‘natural’ settings took the form of a focus group discussion and semi-structured personal interviews.

It is believed that these tools allowed for the collection and generation of ‘rich’ data that fulfilled the characteristics of qualitative research, and complemented the objectives of an interpretivist research paradigm. This also allowed the researcher to explore and understand ‘meaning’ of the respondents’ experiences and realities of knowledge construction.

A focus group discussion was selected because its characteristics suited interpretivist qualitative research. The focus group discussion included participants that were able to contribute to the research theme and were able to add valuable knowledge to the discussion (Ivanoff & Hultberg, 2006). This method of gathering qualitative data focussed on the discussion and responses from the participants in the group, and also considered the interaction between group members as explicit data; conducted in a manner that encouraged participants to share their experiences, and explored what participants did, what they thought, and why they held particular views. This was an attempt for the researcher to see the world as the participants did (Ivanoff & Hultberg,

2006; Thanh & Thanh, 2015). The focus group method is also popular in education studies to elicit responses from students regarding their perceptions and attitudes (Wilson, 1997). All of these characteristics of focus group discussions complemented qualitative interpretivist inquiry approaches.

The second instrument for data collection was semi-structured personal interviews with the participants. Knox and Burkard (2009) cite Seidman (1991) and highlight that to access the experiences from respondents in qualitative interviews, the approaches should be “open-ended” and “unstructured ... that may seem [to be] more a friendly conversation than a data-gathering interview” (p. 567). A semi-structured personal interview with open-ended questions was conducted with each participant as a tool for qualitative data gathering. It is hoped that the interviews conducted in a naturalistic manner yielded “rich and meaningful data” (Knox & Burkard, 2009).

3.2 Sampling

The sample for this study was taken from first-year students studying towards a National Diploma in engineering at a South African university. Five participants were selected via convenient, purposive sampling.

Convenience sampling falls within the range of non-probability sampling techniques and relies on the collection of data from subjects “that meet certain practical criteria, such as easy accessibility, geographical proximity, availability at a given time, or the willingness to participate” (Etikan, Musa & Alkassim, 2015, p. 2).

Purposive sampling is the “deliberate choice of participant due to the qualities the participant possesses” (Etikan et al., 2015, p. 2) and is typically used in qualitative research “to identify and select the information-rich cases” (Patton, 2002 in Etikan et al., 2015, p. 2) for the most proper utilisation of available participants. As a result, the number of participants in the sample was limited to five to accomplish the objective of the research paradigm by undertaking a rich exploration of the experiences of and meaning attached thereto by the participants through an in-depth and focused study of their responses. This selection ensured a focus on qualitative analysis of responses from a few participants, and shifted away from quantitative-driven positivist approaches that encompass larger populations.

Qualitative research is “mainly concerned with the properties... and ... the nature of phenomena” with “an emphasis on processes and meanings that are rigorously examined, but not measured in terms of quantity, amount or frequency”, producing a “wealth of detailed data about a much smaller number of people and cases” (Labuschagne, 2003, p. 100). The sample was limited with the qualitative paradigm in reference.

Thanh and Thanh (2015) cite McQueen (2002) as asserting that “interpretivists view the world through a ‘series of individual eyes’ and choose participants who ‘have their own interpretations of reality’ to encompass the worldview” (p. 26). As a result, interpretivist research does not mandate nor encourage large samples, as the focus lies in the researcher understanding the world through the eyes of others and meaning is attached to their social constructed realities (Dudovskiy, 2017). The researcher felt that data obtained from five participants would be manageable and accomplishable within the time constraints of the study, without compromising the research objectives of the study, nor impacting on the quality, validity and reliability of the study’s findings.

Focus group discussions often require that participants are deliberately chosen as they are identified as being able and qualify to contribute to the knowledge of the study, thereby fulfilling the research objective and advancing the study (Carter et al., 2014). Focus group discussions are subsequently coupled with interviews for data triangulation and validation purposes (Carter et al., 2014). The nature of focus group discussion participant selection and convenient, purposive sampling converged in the principles and guidelines that governed eligibility for study participation; hence the choice by the researcher to maintain convenient, purposive sampling.

Since the researcher is the lecturer of the English communication module for engineering students at the university and had direct access to university students; convenient, purposive sampling also appeared most suitable for the nature of the study. Whilst many argue that convenient, purposive sampling is limited by its non-random selection bias and inability to represent a population accordingly for appropriate generalisation (Leiner, 2014), the researcher did not seek generalisability of the study’s findings, complementing the study’s interpretivist research paradigm and qualitative methodology, by exploring the meaning of the participants’ rich experiences and realities of knowledge construction.

3.3 Data Collection

In accordance with interpretivist views, “an understanding of the context in which any form of research is conducted is critical to the interpretation of data gathered” (Thanh & Thanh, 2015, p. 25). The context within which the data was gathered in this study played a crucial role in how the data was interpreted and ‘meaning’ was established.

This study was based on responses from first-year engineering students studying English communication at a South African university.

The researcher obtained permission from the university to conduct this study, access their learning platform, Moodle, for research purposes, and interact with five of their students as study participants.

The participants were requested to complete the online learning of the academic writing component of an English communication course curriculum during the second semester of the academic year. The second-semester offering of the semester module was selected as students would have studied computer literacy (or been exempted from it after competency was established) during the first semester of the academic year, mitigating any technological challenges first-year students might face with completing online learning.

The English communication course for engineering students contained various content, including:

- Communication theory and barriers
- Non-verbal communication
- Writing principles and paragraphing
- Academic writing styles
- Basic academic writing principles
- Reading and summarising skills
- Textual analysis
- Referencing conventions
- Report writing
- Technical writing
- Listening skills
- Oral communication and presentation skills
- Business correspondence

The academic writing sections and areas of the English communication course were chosen for this study owing to the Engineering Council of South Africa (ECSA) placing particular emphasis on the written communication skill of engineers as a core outcome

and graduate attribute (ECSA, 2015), as well as it being frequently highlighted in literature as an area that requires additional focus (Riemer, 2002). Academic writing is used to introduce engineering students to styles of writing, ultimately bridging into report and technical writing, fundamental requirements specific to English communication skills/practices for engineers (Collier & Toomey, n.d.). Familiarity with academic writing itself is also essential as part of English communication skills for engineers intending to conduct research and publish articles (Reinhold, 2017). Academic writing as part of English communication for engineering students usually adopts *English for Specific Purposes* (ESP) and *English for Academic Purposes* (EAP) approaches to frame and introduce the area of the curriculum.

The nature and structures of academic writing as part of the English communication course for engineers was introduced to the students via an *English for Academic Purposes* (EAP) approach and content, and delivered online via pre-packaged learning material, *English for Academic Studies (EAS): Writing*. The *EAS Writing* was generic online resources designed for universities worldwide to introduce academic English and writing via an EAP approach, with learning opportunities afforded for discipline and application contextualisation. The online learning material, *EAS Writing* was licensed by the university and was hosted on the university's online learning platform, Moodle. Moodle is a learning platform "designed to provide educators, administrators and learners with a single robust, secure and integrated system to create personalised learning environments" (Moodle, 2017).

The online learning material, *EAS Writing* was a sharable content object reference model (SCORM) 'mini-course'/package that contained various readings, videos and interactive activities. Chapter Four provides a detailed overview of the *EAS Writing* and the blended language learning implementation of this study.

The participants were allocated 12 days (including two weekends) to complete three planned hours of online learning in the *EAS Writing* SCORM package; inclusive of reading material, videos, activities and a quiz based on the learning material. It was acknowledged that students might use more than three hours to complete the online learning based on their individual paces at which they learnt comfortably. Upon completion of the online learning stage of the implementation by the participants, the researcher considered their online activity feedback, assessment results (from the assigned quiz), activity engagement, and completion reports (extracted from Moodle) to

contextualise and design a face-to-face teaching session. The researcher then presented a critical face-to-face teaching session designed to further the comprehension of core concepts of academic writing and deepen the level of critical understanding and reflection through in-class activities. The researcher was also guided by the blended learning teaching resources designed by the university, to complement the *EAS Writing* resources.

After the participants completed the online learning activities and attended the critical face-to-face teaching session, the blended flipped learning experience was concluded.

The researcher used a semi-structured focus group discussion and interviews as methods of qualitative data collection.

3.3.1 Semi-Structured Focus Group Discussion

The semi-structured in-depth focus group discussion (FGD) allowed the participants to engage in a natural conversational context, allowing for the advantage of the “spontaneity that arises from their stronger social context” (Finch & Lewis, 2003, p. 171)

The FGD took place on one of the university’s campuses on 14 November 2017 at 11:35am. Five student participants and the researcher engaged in the FGD. The audio of the FGD was recorded and the researcher took notes during the discussion.

The FGD was guided by open questions, but the researcher allowed the discussion to take natural courses (see Appendix A for FGD questions).

3.3.2 Semi-Structured Interviews

Semi-structured interviews allowed the researcher to gather data encapsulating the participants’ experiences and perceptions. Duff (2008) indicated that semi-structured interviews allows researchers “to collect data about the insights or perspectives of research participants” (p. 103) and explore the rich, individual experiences of each participant.

The interviews were also conducted on one of the university’s campuses on 15 November 2017 between 9:00am and 16:00pm. The same five participants of the FGD were interviewed by the researcher on a one-on-one basis privately. The audio of each interview was recorded and the researcher took notes during the interviews.

The interviews were guided by open questions, and the researcher allowed the participants to elaborate on views important to each of them (see Appendix B for interview questions).

3.3.3 Transcription of Focus Group Discussion and Interviews

The audio of the FGD and interviews were recorded and transcribed. The transcriptions were used for member checking to ensure validity and reliability, and were also used for data analysis in Atlas.ti.

3.4 Data Analysis

The qualitative data of this study were analysed through a process of qualitative coding, facilitated and conducted in Atlas.ti, a software programme designed for qualitative data analysis (QDA).

An inductive approach was adopted, using an emergent framework for the qualitative grouping of the data (Sunday, 2015). The inductive approach “involves the search for pattern[s] from observation and the development of explanations ... for those patterns through series of hypotheses” (Bernard, 2011, p. 7). In qualitative interpretivist research, hypotheses are not necessarily assumed and fixed at the commencement of the study but are continuously revisited through emergent findings surfacing from the data.

An exploratory, descriptive framework analysis ensued through broader thematic and relational coding and categorisation of data. Latent themes and semantic meanings were used as approaches to coding the data sets in the data corpus. Open coding was employed as it complemented the nature of the qualitative interpretivist study. Figure 3.4.1 provides a screenshot of the qualitative coding conducted in Atlas.ti as part of this study.

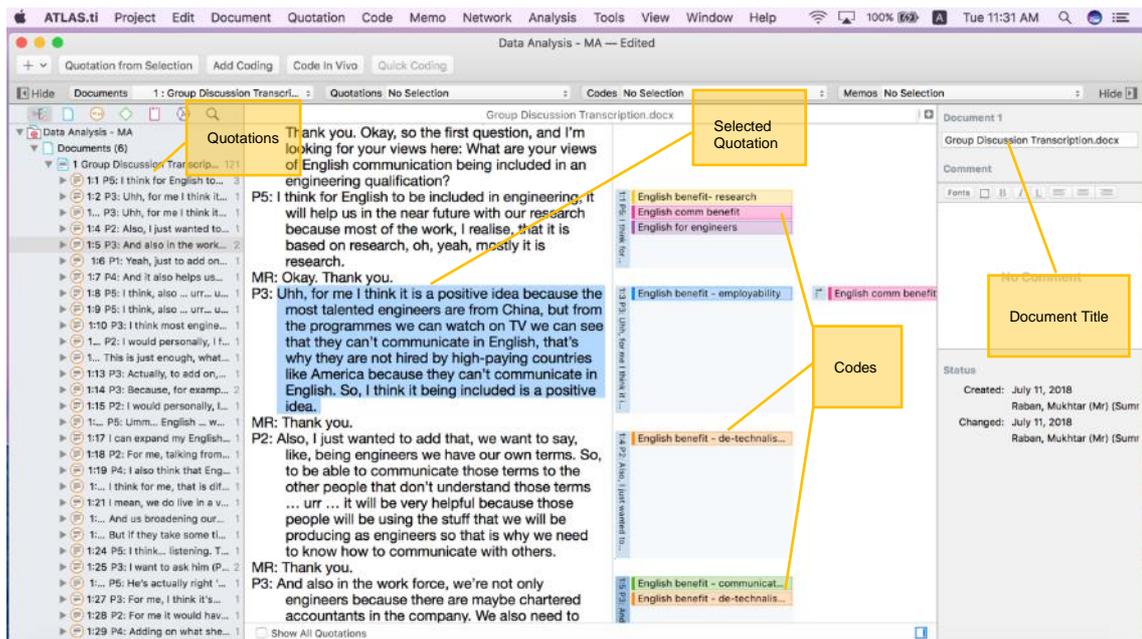


Figure 3.4.1 Screenshot of qualitative data analysis and coding in Atlas.ti

As illustrated in Figure 3.4.1, quotations were identified in the transcripts and coded by the researcher. Some of the responses and quotations were linked to multiple codes, following the exploratory, thematic and open approaches.

Participant responses and quotations were coded, exploring themes, meanings and relationships surfacing from the data. Recurrent themes and categorised responses from the data were identified in the reporting for the development of the study's findings, and ultimately informed the analysis and discussion of the findings.

3.5 Data Validity and Reliability

The interpretivist research paradigm was adopted for this study because the data and findings of interpretivist research are associated with high levels of validity and reliability (Dudovskiy, 2017). Interpretivist, qualitative data are considered reliable and valid as a result of the trustworthiness and honesty associated with the responses elicited within a sound interpretivist and qualitative framework (Dudovskiy, 2017).

The data of this study has been validated via a method of triangulation (Yin, 2003), which necessitated the use of two or more methods of data collection for the gathering of information (De Vos, 2002). Data triangulation has been used as a strategy for improving validation and increasing reliability of the findings (Patton, 2002).

Triangulation was also used to provide additional perspectives to the same issues under investigation.

Data source triangulation was employed through the use of different data sources, a focus group discussion and semi-structured interviews, to obtain multiple perspectives from different people that would lead to the validation and reliability of the data holistically.

Kaplowitz and Hoehn (2001), cited in Carter, Bryant-Lukosius, DiCenso, Blythe, and Neville (2014), found that using focus groups and interviews for data triangulation yielded positive results as neither tool was better than the other, instead the “two approaches were complementary” (p. 545). Based on selecting the approaches on the foundation of being ‘best-fit’ for the research question and nature of the study, the researcher selected a focus group discussion (FGD) and interviews for this study, which accomplished “validation of data through multiple source triangulation” (Carter et al., 2014, p. 545).

Carter et al. (2014) noted that the order of the employment of the two methods is not crucial in relation to final data sets, however, it is preferred that study be limited by the participants in both methods remaining the same, as this would strengthen data validation and facilitate the conclusion of validated and reliable study results. The same participants partook in the FGD and interviews that were conducted as part of this study.

Additionally, the transcriptions of the FGD and interviews were shared with the participants for member checking to strengthen the validity and reliability of the data sets.

3.6 Ethical Considerations

The researcher obtained ethical clearance from Stellenbosch University to conduct this study with the project reference: MOD-2017-0824-646. Initial approval was granted on 11 October 2017 with permission to commence with the study, and a stipulation made that the researcher obtain permission from the university at which the investigation will be conducted. The researcher was required to submit a permission letter obtained from the university to the Research Ethics Committee (REC): Humanities of Stellenbosch University within six months of approval. Permission was obtained from the university on 31 October 2017 with ethics clearance reference: H17-ART-DALS-EAP-001. The

permission letter was submitted to the REC: Humanities of Stellenbosch University and confirmation of ethical clearance of the project was provided on 8 March 2018 with reference: 0824 (see Appendix C).

Furthermore, due ethical considerations were taken to ensure all participants were informed beforehand of the nature and objectives of this study, with a particular focus on issues of informed consent, confidentiality, privacy, anonymity and access.

Participants were requested to sign informed consent forms that indicated their right to have access to the results and to withdraw at any time (see Appendix D). The informed consent forms and nature of confidentiality were explained to the participants before they were asked to sign the forms and participate in the study.

Participants' privacy was protected and anonymity maintained through the usage of pseudonyms when data was reported.

Participants were permitted to access the data and review transcripts for checking and validation.

3.7 Study Limitations

The data produced from research within the interpretivist paradigm was not generated for prediction, generalisation and transferability. Instead, the study's findings were context-specific and relative to the time, environment and values of the participants, which enabled the "discovery of new perspectives and richer understandings for the researcher" (Pizam & Mansfeld, 2009 in Dudovskiy, 2017).

The study was limited to the research context, and experiences and perceptions of the study's participants.

The limitations of this study included:

- First-year university engineering students
- Flipped blended language learning using *English for Academic Studies (EAS): Writing* in an English communication module for engineers
- Experiences and perceptions of the study's five participants

While studies conducted in an interpretivist paradigm primarily informed understanding of the social constructed realities of the participants and were contextually limited, the findings held the potential for contextual resonance and linkages to inform future research. Future researchers may analyse the context of this study, exploring the research scope, paradigm, methodology, subject and limitations that applied. Thereafter, future researchers may evaluate and determine if elements of other research contexts and environments resonate with this study in any way for possible consideration, conceptualisation or application in future research and practices.

3.8 Conclusion to Chapter Three

This chapter explored the interpretivist research paradigm and qualitative case study methodology used in the study. Issues relating to the research instruments of a FGD and interviews; convenient, purposive sampling; qualitative data analysis, and data validation and reliability were included. Ethical considerations and limitations that applied to the study were also discussed. Chapter Four includes an overview of the 'technology', the teaching and learning resources that were subjected to and used in the study's research design and methodology.

4 Chapter Four: Implementation of Flipped Blended Learning

The purpose of this chapter is to provide an overview of the actual implementation of blended learning in the English communication course for engineers that prevailed in this study. The technologies and resources presented in this chapter formed part of the study's research design and methodology discussed in Chapter Three. Chapter Four explores the strategic employment and completion of online and face-to-face learning and teaching in the academic writing section of the English communication curriculum taught to first-year university engineering students.

This chapter discusses the actual blended learning implementation strategy adopted in this study. The learning management system, Moodle, along with associated online resources are included. The *English for Academic Studies (EAS): Writing* online learning resources, as well as the related Teacher's Guide that was used for the face-to-face session are also explored.

4.1 Blended Learning Strategy

The implementation of flipped blended language learning in the English communication course adopted a blended learning implementation strategy. The English communication module taught to engineering students included the following areas:

- Communication theory and barriers
- Non-verbal communication
- Writing principles and paragraphing
- Academic writing styles
- Basic academic writing principles
- Reading and summarising skills
- Textual analysis
- Referencing conventions
- Report writing
- Technical writing
- Listening skills
- Oral communication and presentation skills
- Business correspondence

The academic writing sections of the curriculum were chosen for this study owing to the emphasis placed on writing in an English communication course for engineers (Sulcas & English, 2010; Reinhold et al., 2017).

The flipped blended learning was implemented in the academic writing sections of the course curriculum using an *English for Academic Purposes* (EAP) approach and content.

4.1.1 Teaching and Learning of EAP and Academic Writing

Academic writing was included in the English communication course taught to engineering students with the objective of introducing this cognitively-complex and rigorous style of writing in the curriculum. *English for Academic Purposes* (EAP) content and approaches usually include focused academic writing as a means of establishing the foundations of academic discourse and rhetorical structures. Since the module is taught on a first-year university level, students require additional support to frame the usage of English for academic purposes (particularly in engineering, as part of the engineers' English communication skills), and how English writing is adapted when used in academic contexts.

The academic writing section (introduced via EAP approaches and content) of the English communication module for engineers was selected for this study. Research also highlights that engineers need to develop and enhance their writing competencies in particular (Kassim & Ali, 2010; Kaewpet, 2009); hence the choice to focus this study on academic writing. As the sample included first-year university students, EAP material was chosen to facilitate the entry into and framing of academic writing owing to its suitability for first-year and introductory literacy courses.

The English communication module offered to the engineering students participating in this study was scheduled with about two-and-a-half hours of face-to-face teaching weekly (split into two sessions of 75 minutes offered on different days in the week). The entire module was taught in a single academic semester consisting of 14 weeks of teaching and learning.

4.1.2 Blended Learning Implementation Strategy

The blended learning implementation that was used for this study was offered to all engineering students enrolled in the English communication module at the university as part of the module's teaching and learning strategy in place for the academic semester. It was not limited to the study's participants. Students participating as respondents in the study were permitted to reflect on their experiences of the implementation of blended learning based on the flipped blended learning delivery of *English for Academic Studies (EAS): Writing*.

The overall implementation of BL primarily followed the ADDIE model (Morrison et al., 2013) for instructional design. The design of the implementation of flipped blended language learning for the academic writing section of the curricula; incorporating and considering the steps in ADDIE (Morrison et al., 2013), namely, analysis, design, development, implementation, and evaluation; consisted of the various stages illustrated in Figure 4.1.1.

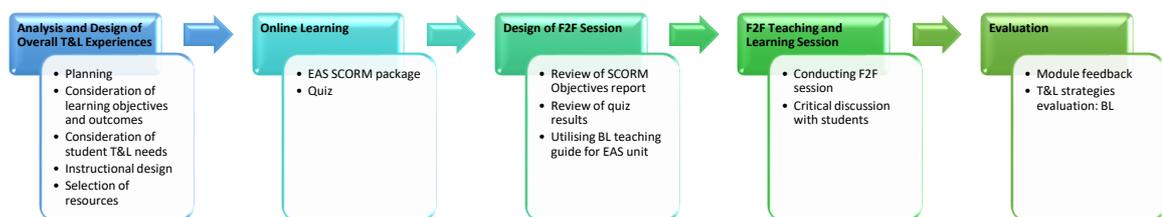


Figure 4.1.1 Blended learning implementation strategy

The five key stages illustrated in Figure 4.1.1 included:

1. Analysis and Design of Overall Teaching and Learning (T&L) Experiences
2. Online Learning
3. Design of Face-to-Face (F2F) Session
4. Face-to-Face (F2F) Teaching and Learning Session
5. Evaluation

4.1.2.1 STAGE 1: Analysis and Design of overall teaching and learning experiences

During stage 1, the implementation was planned, and the researcher considered the learning objectives and outcomes. An overarching objective for the researcher was to reduce “transactional distance” (Moore, 1993; Saba & Shearer, 1994) that could be encountered by the students while studying online. Therefore, the BL implementation was planned by prioritising appropriate pedagogy and approaches, acknowledging that relevant pedagogy reduces transactional distance (Gorsky & Caspi, 2005). Since Moore (1993, p. 23) highlighted that transactional distance is “a psychological and communications space [that needs] to be crossed”, the researcher focused on designing the learning encounters to mitigate possible communication breakdowns. Multiple face-to-face and online opportunities for communication were strategically included in the T&L design.

The holistic design of the BL implementation followed a Constructivist framework. Students were encouraged to construct their realities based on their experiences, conceptualisation of concepts and abstract thought; and be grounded in their perceptions as cognitive models were built (Jonassen, 1991). The knowledge of the students, that was to be built as they engaged and learnt in the BL environments, was intended to be a human product and socially constructed (Kim, 2001). The online and F2F elements of the BL implementation included opportunities for students to admit their own experiences, reflect on concepts, interact with others, and ultimately construct their knowledge realities.

The multiple opportunities and platforms for communication between the lecturer and students strategically included in the T&L design, both online and in F2F contexts, also facilitated ‘conversation’, thereby, allowing for the objectives of Conversation theory (Pask, 1979) to be fulfilled. The BL implementation included regular iterations of questioning the ‘why’ and ‘how’ alongside the construction of knowledge, which is a stark characteristic of Conversation theory (Scott, 2001a).

The researcher also considered the learning styles, preferences and needs of engineering students. The BL learning environments had to accommodate multiple learning styles and preferences (Mupinga et al., 2006), with particular accommodation of learning styles as advocated by Kolb (1971), and more so, of Felder and Silverman’s

(1988) learning style models that were based on engineering students. The learning environments in the BL implementation contained resources and learning opportunities that catered for an array of ways of learning.

Particular attention was also paid to students' general approaches to developing and constructing knowledge in academic writing, and the teaching of academic writing. An *English for Academic Purposes* (EAP) approach was adopted owing to the nature of the English communication module taught to engineers (Riemer, 2002). An EAP approach was used to support the development of academic writing (Wingate, 2011) and assist students with identifying "the kinds of language use" (Butler, 2006, p. 41). The approach in the BL implementation served as means to introduce the engineering students to the "discourses of writing" (Ivanic, 2004, p. 224).

Regarding instructional and learning resource design, the researcher selected and enabled the SCORM package, *English for Academic Studies (EAS): Writing*. The SCORM package was a pre-published resource acquired by the university, and available on the university's learning management system (LMS), Moodle for activation by lecturers.

A SCORM package was chosen to draw on elements of Connectivism. Students learnt by connecting "information sources" and engaging with the learning "located within the technology" (Siemens, 2004).

4.1.2.2 STAGE 2: Online learning

All students enrolled in the English communication module were required to complete the online learning, namely, *EAS Writing*, and complete an online quiz afterwards.

According to the SCORM package, the *EAS Writing* was designed to be completed by students in an estimated three or more hours. The three or more hours did not have to be completed consecutively, and students were encouraged to complete it as per their preferences. They could complete the online learning in multiple shorter sessions if preferred.

Students were encouraged to use the regular scheduled and timetabled F2F sessions of the module to complete the online learning, with computer lab access available to

students who might not have their own devices. Conventional F2F lectures of the module were not presented during the prescribed period of online learning.

Despite not offering F2F sessions during the online learning phase, students were still at liberty to interact with the lecturer (researcher) during this period. Students were also permitted and encouraged to post on a discussion forum on Moodle for peer and lecturer support. These communication inclusions and accommodations were critical to meet the requirements of reducing “transactional distance” (Gorsky & Caspi, 2005) and ensuring that a ‘conversational’ Constructivist environment was facilitated (Al-Huneidi & Schreurs, 2012).

The completion of the online quiz after working through the SCORM package served as an official conclusion to the online learning and teaching phase of the blended learning implementation.

4.1.2.3 STAGE 3: Design of Face-to-Face (F2F) Session

After completion of the online learning phase, the face-to-face session was designed and planned based on the data and resources the lecturer accessed from the:

1. SCORM package objectives report
2. Quiz results
3. Teacher’s Guide for a F2F session (as part of BL) based on *EAS Writing*

4.1.2.4 STAGE 4: Face-to-Face (F2F) Teaching and Learning Session

The F2F session was offered to all students enrolled in the module. The session was conducted following the teaching and learning recommendations provided in the Teacher’s Guide for *EAS Writing*. The face-to-face session lasted for about an hour.

The session served as an opportunity to reflect critically on academic writing norms and the students’ academic writing practices. The reflection and social interaction in the F2F session were vital steps in maintaining the Constructivist learning environment (Kim, 2001).

Students were engaged through in-class discussions, peer discussion and interaction with the lecturer. Students were also able to ask questions relating to the prescribed online learning and academic writing as a whole.

4.1.2.5 STAGE 5: Evaluation

Students were able to evaluate the blended learning implementation in the module, along with other areas of module delivery, teaching and learning issues as well as general satisfaction with the module. This was part of the required module feedback at the university.

The university required all lecturers to conduct a module evaluation that encompassed all areas of the teaching and learning experiences of the module, including methods of delivery, content and approaches. The feedback received from students informed the redesign of T&L practices and revision of curricula for future offerings of the English communication module.

Stage 5 of the BL implementation also fulfilled the evaluation requirements of the final instructional design stage of the ADDIE model (Morrison et al., 2013).

4.1.3 Timing considerations of the BL implementation

The SCORM package was designed to offer an estimated three or more hours of online learning. Students were allocated 12 days (including two weekends) to complete the learning. No face-to-face classes were offered during the assigned period of online learning.

The three or more hours of online learning was intentionally planned to substitute the regular two and half hours of scheduled face-to-face teaching. The F2F session took place after the 12 days of online learning had concluded.

4.1.4 Participants

All students enrolled in the module who had completed the online learning of *EAS Writing* and participated in the face-to-face session afterwards were eligible to form part of this study. Students were invited to participate in the study based on meeting the following criteria:

1. Being an engineering student in his/her first year of study
2. Being enrolled in the English communication module at the university
3. Having completed the online learning and participated in the face-to-face session (completed the blended learning implementation)

Five students served as the participants in the study based on their “willingness to participate” (Etikan et al., 2015, p. 2).

4.2 Learning Management System and Resources

The online learning, EAS Writing was hosted on the university’s learning management system (LMS), Moodle.

4.2.1 Moodle

The planned online learning was hosted on the university’s LMS, Moodle. Figure 4.2.1 provides a screenshot of the online learning resources on Moodle that formed part of this study.

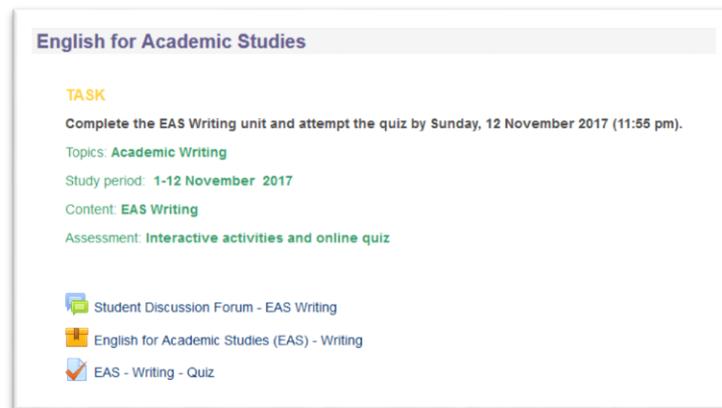


Figure 4.2.1 English for Academic Studies (EAS): Writing on Moodle

4.2.2 Online Learning Resources

The online learning resources made available on Moodle included the *EAS Writing* SCORM package and a quiz based on the *EAS Writing*. A discussion forum was also provided to allow students to post and engage with peers and the lecturer on topics specific to the content. The discussion forum provided an opportunity for increased communication, interaction and inquiry that would maintain the Social Constructivist and Conversationalist framing and objectives of the learning encounters.

4.2.2.1 EAS Writing

Figure 4.2.2 provides a screenshot of the SCORM package, *English for Academic Studies (EAS): Writing*. Each screen provided an estimate of the time required to

complete the content included therein, usually located at the top-right corner of the screen. Users were not limited to the recommended time allocation and could use less or more time to complete the activities of a screen, depending on their preferences and pace of learning. Different learning preferences and needs had to be accommodated, in line with BL design recommendations (Mupinga et al., 2006).

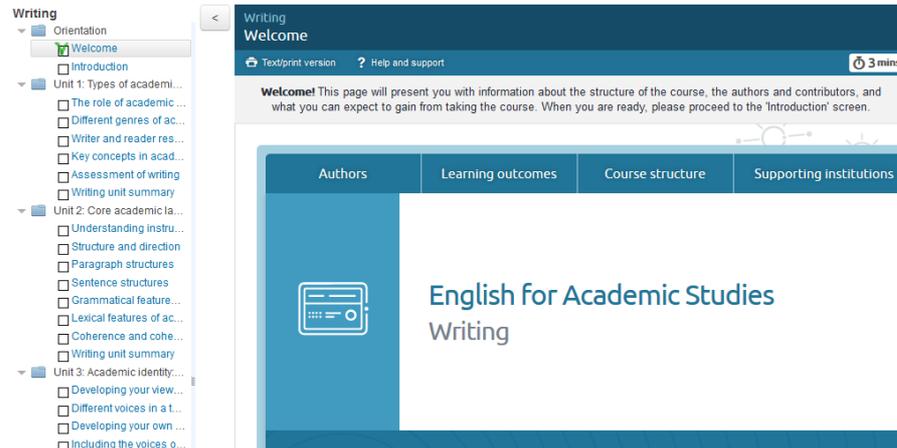


Figure 4.2.2 EAS Writing SCORM Unit

The SCORM package was on the module's Moodle site, so students could access it easily when logged into Moodle, the university's LMS.

Owing to the *EAS Writing* being a SCORM package, the content was embedded in the Moodle site page, so that students could navigate through the different units and pages (screens) of the package.

4.2.2.2 Quiz

A 25-question multiple-choice quiz based on the content of the *EAS Writing* was enabled for completion after the students had worked through the SCORM package. The quiz served as means of providing immediate feedback to student's learning as the results of a quiz attempt were available immediately after completion thereof.

Students were able to determine if they had to revisit sections of the *EAS Writing* based on the outcome of the quiz.

4.3 Structure of *EAS Writing* SCORM package

The *EAS Writing* SCORM package was structured with units of learning.

4.3.1 EAS Writing Structure and Units

The *EAS Writing* SCORM package, with self-references of being a course or mini-course, was bundled as a collection of units and pages (screens) that further contained texts and various types of activities and tasks. The *EAS Writing* provided students with an orientation to its content and an overview with tabs indicating the learning outcomes and course structure. Figure 4.3.1 provides a screenshot of the learning outcomes of *EAS Writing*.

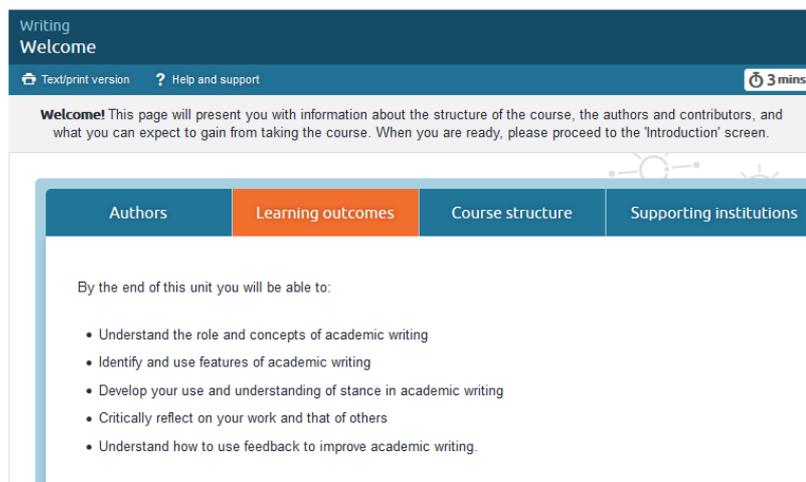


Figure 4.3.1 Learning Outcomes of *EAS Writing*

The *EAS Writing* course was structured into units focusing on the following areas:

- Types of academic English: Differences and key features
- Core academic language: Functions, meaning and grammar
- Academic identity: Position and voice
- Criticality: Evaluating and questioning
- Optimising your learning: Strategies and self-evaluation

Figure 4.3.2 provides a screenshot of the course structure and units of *EAS Writing*.

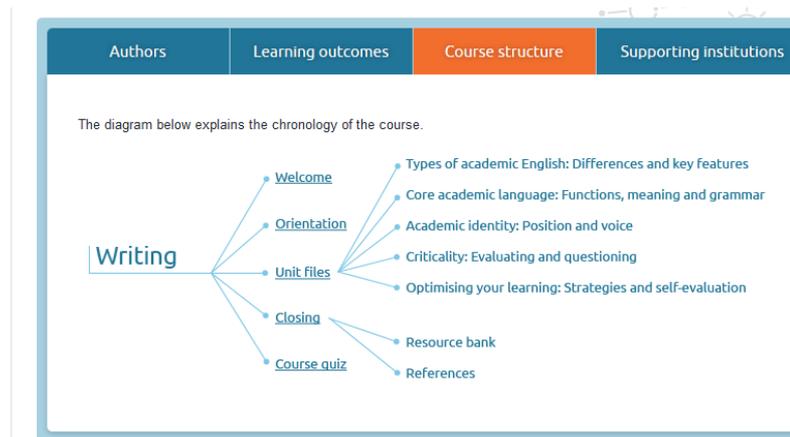


Figure 4.3.2 EAS Writing: Course Structure

4.3.2 Engagement Activities

The *EAS Writing* had various activities designed and included after textual and video presentations as a means to engage and consolidate the users' learning. Different types of activities (visual, textual, audio, video) accommodated multiple learning styles (Kolb, 1971; Felder & Silverman, 1988).

Some of the types of activities included were:

1. Drag-and-drop (Figures 4.3.3 and 4.3.4)
2. Click-and-match (Figures 4.3.5 and 4.3.6)
3. Text box (Figure 4.3.7)
4. Click-and-select (Figure 4.3.8)
5. Click-and-switch (Figure 4.3.9)
6. Video (Figure 4.3.10)

1.2 Identifying genres of academic writing

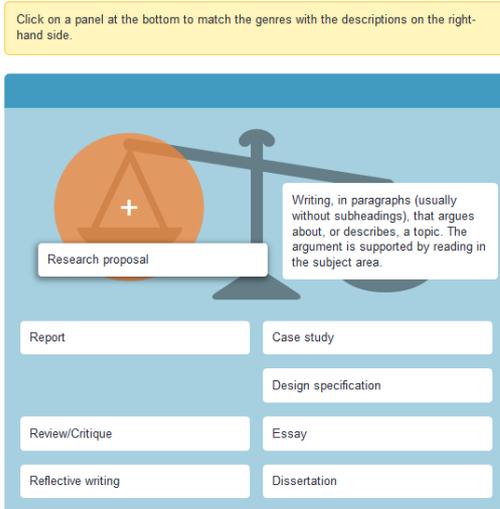


Figure 4.3.3 Drag-and-Drop Activity – Matching (1)

Drag-and-drop features were conventional in design and were a way of engaging users by shifting the focus of reading text to engaging practically with it by placing text on a scale, as depicted in Figure 4.3.3, or matching words to definitions, as seen in Figure 4.3.4.

1.1 Words related to sections of an academic text

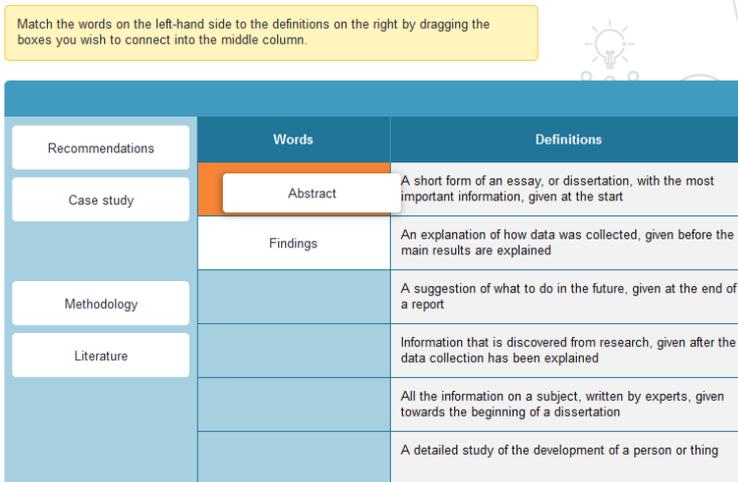


Figure 4.3.4 Drag-and-Drop Activity – Matching (2)

The click-and-match activities (see Figure 4.3.5) were an additional method of engaging the users, but did not have the similar physical requirement of dragging an item. Users would rather match items by clicking on them consecutively.

2. Identifying the functions of different genres

2.1 The functions of academic genres

These genres fulfil lots of different functions in academic development.

Match the functions on the left-hand side with the genres on the right-hand side by clicking on the boxes you wish to connect.

Prepare for professional practice	Case study
Demonstrate critical analysis of a topic	Design specification
Build and demonstrate research skills	Dissertation
Writing for self-development and awareness	Reflective writing
Demonstrate problem solving skills	Critique

Useful advice

In some academic cultures a 'dissertation' is called a 'thesis'. In others, a 'thesis' is much

[Click for more](#)

Your context

Types of writing and structure often depend on the subject you are studying. Try to find

[Click for more](#)

Figure 4.3.5 Click-and-Match Activity (1) and Supplementary Resources

Supplementary resources and additional “useful advice” were included and available from side boxes that provided easily-accessible links to the information and files. Figure 4.3.5 provides a graphic illustration of its design and inclusion.

3. Looking at key genres within disciplines

3.1 Key genres within disciplines

Different disciplines sometimes use different genres.

Look at the brief list of key genres within disciplines, then choose the correct disciplines from the drop-down menus.

- : Subjects like physics, health science, computer science and chemistry often use critiques, design specifications, essays and case studies.
- : Subjects like art, English and philosophy tend to focus on essays or critiques.
- : Subjects like business, law and politics mostly focus on critiques or case studies are used.

Arts subjects
Science subjects
Social sciences

3.2 Arts subjects

Figure 4.3.6 Click-and-Match Activity (2)

The click-and-match activities also included matching via choosing terms and concepts from an in-text drop-down menu, as depicted in Figure 4.3.6.

3.2 Analysing essay titles

As you can see, all disciplines tend to use essays. However, genres also have different approaches. Usually, analysing the subject and title can tell you what approach should be used.

Read the essay titles then answer the questions. Write in the space provided and then click to view some feedback.

Figure 4.3.7 Text Box Activity

The text box feature allowed users to enter text and be more constructive in their responses and feedback to prompting questions. Reflective activities completed in text boxes complemented Constructivist approaches to the development of knowledge (Jonassen, 1991). Figure 4.3.7 illustrates an example of the text box activity.

The click-and-select activity allowed users to categorise information by classifying options through the use of applying colour grouping. Figure 4.3.8 illustrates an example of this type of activity.

Figure 4.3.8 Click-and-Select Activity

The click-and-switch feature was useful for presenting different perspectives or views, allowing users to 'scroll' between options, or click on different objects to get information linked to those objects. Figure 4.3.9 provides an example of this feature that allowed users to get the views of different people.

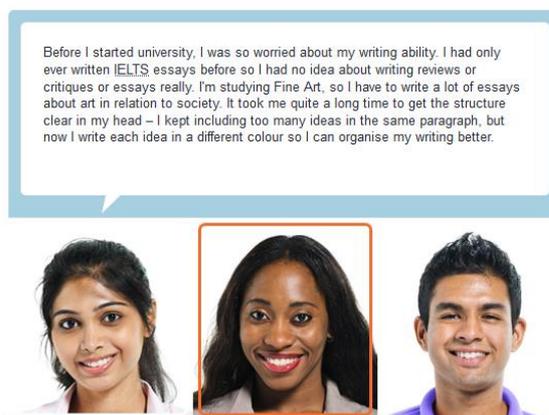


Figure 4.3.9 Click-and-Switch Activity

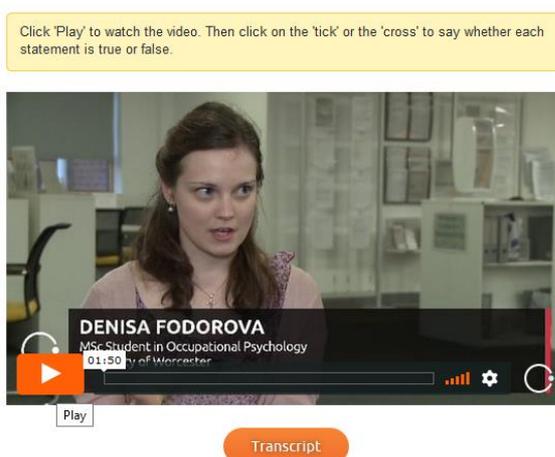


Figure 4.3.10 Video Activity

The *EAS Writing* also featured video activities with built-in video players containing video, presentations, interviews and commentaries. The inclusion of video in instructional design has also become an indispensable resource in current-day educational resource development. Figure 4.3.10 illustrates how videos were included in the *EAS Writing*, with transcripts available of the video content. The choice between watching videos or reading transcripts accommodated multiple learning styles, particularly the “Visual/Verbal” dimensions of the Felder-Silverman model (Felder & Silverman, 1988).

4.4 Monitoring Online Learning Activity

The online learning activity of students was monitored by the lecturer (researcher) via a review of the:

1. Objectives Report of the SCORM package
2. Quiz Results
3. Discussion Forum posts

The Discussion Forum was subsequently omitted as there were not any posts by students on the forum.

4.4.1 SCORM Objectives Report

The Objectives Report of the SCORM package provided an overview of how students engaged with the content in the package or course.

The EAS Writing was designed with each screen or page being set as an objective. A screen was typically a page containing text, videos and other resources for engagement. Figure 4.4.1 illustrates objectives being met in the *EAS Writing*, with green ticks appearing next to the link to a particular page or screen.

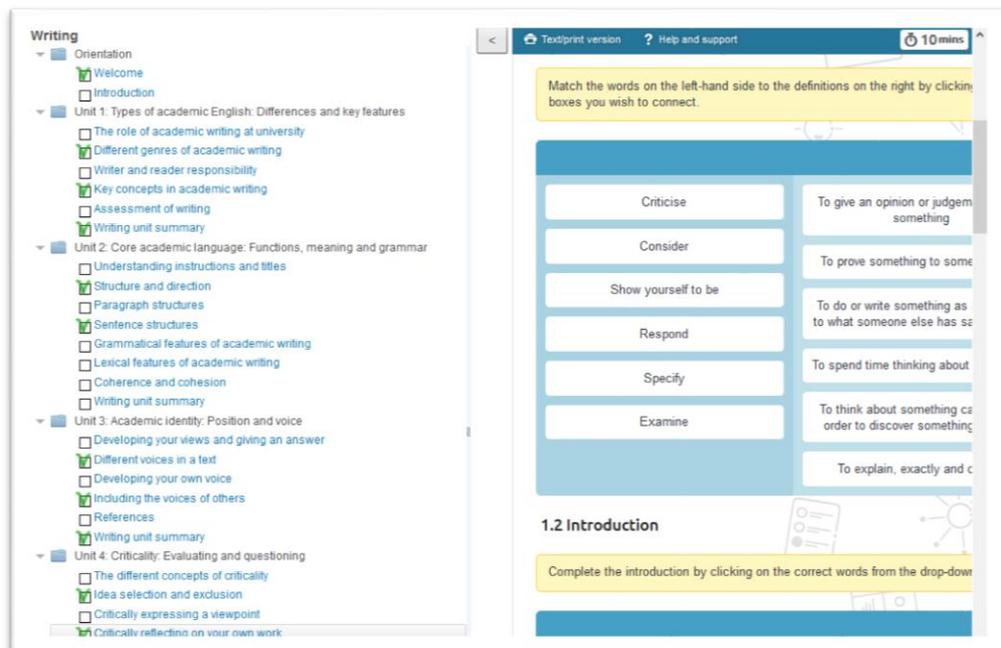


Figure 4.4.1 Objectives for EAS Writing

Once the student had worked through the page, the objective would be met, and the system would recognise and record that the student had completed that page, recording the amount of time spent on that page as well. A green tick then appeared in the box next to the link to or title of that page (see Figure 4.4.1).

The Objectives Report was generated at the end of the online learning period, providing data on student engagement with the SCORM package, *EAS Writing*.

4.4.2 Quiz Results Feature

The second feature that assisted with determining student progress and served as an indicator of their understanding of the content was the quiz that was prescribed to be completed after students had worked through the SCORM package, *EAS Writing*.

The multiple-choice quiz was based on the content of the *EAS Writing*. The quiz provided feedback to students and the lecturer on the students' learning. The lecturer was able to obtain an indication of how the class had fared in the quiz as a whole, with data on which questions in the quiz were more challenging and had lower student mark attainments.

A general feature of the quiz resource on Moodle is access to specific student quiz attempts. This feature and related data were not included in this study.

Figure 4.4.2 provides a random example of results of a quiz resource in Moodle, with ranges of grades or marks available to the lecturer.

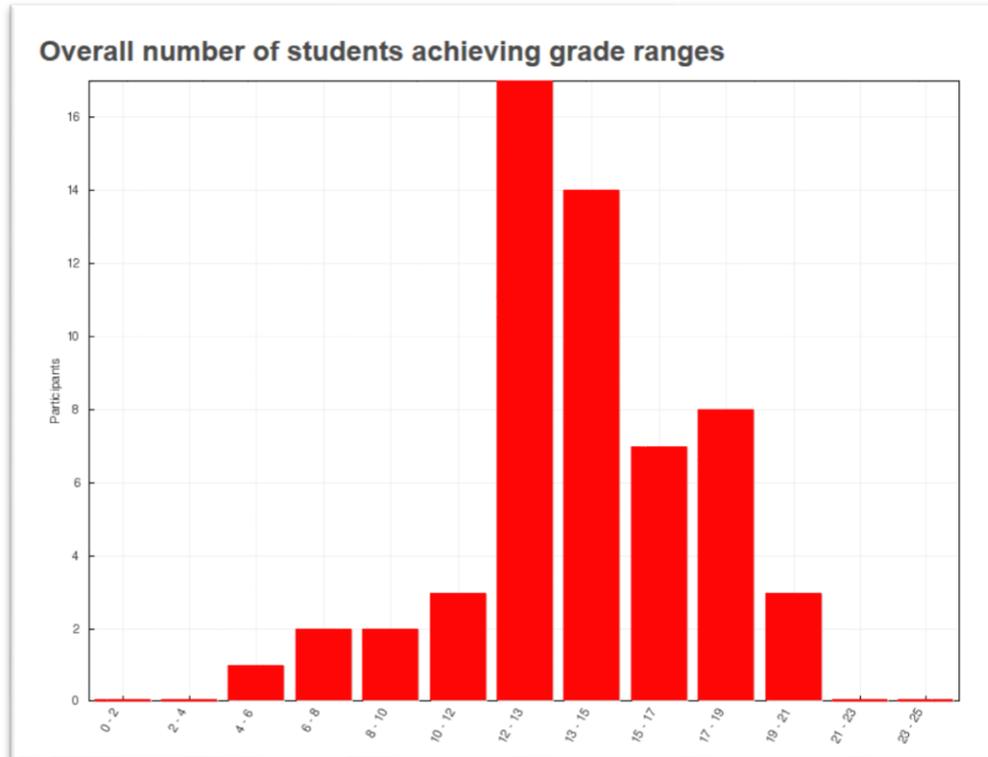


Figure 4.4.2 Sample of Moodle Quiz Resource Results

From the results, the lecturer would be able to gauge how the students had progressed in the quiz and content as a whole by reviewing the overall grade ranges (see Figure 4.4.2).

The quiz also provided a breakdown of individual attempts and related grades or marks obtained in specific questions. Figure 4.4.3 illustrates attempts of a quiz on Moodle with marks obtained in the various questions.

	Q. 1	Q. 2	Q. 3	Q. 4	Q. 5	Q. 6	Q. 7	Q. 8	Q. 9	Q. 10	Q. 11	Q. 12	Q. 13	Q. 14	Q. 15	Q. 16	Q. 17	Q. 18	Q. 19	Q. 20	Q. 21	
1	/1	/1	/1	/1	/1	/1	/1	/1	/1	/1	/1	/1	/1	/1	/1	/1	/1	/1	/1	/1	/1	
	X 0	X 0	X 0	X 0	X 0	X 0	X 0	X 0	X 0	✓ 1	✓ 1	X 0	X 0	✓ 1	✓ 1	X 0	X 0	X 0	X 0	✓ 1	✓ 1	X 0
	✓ 1	✓ 1	X 0	X 0	✓ 1	✓ 1	X 0	✓ 1	X 0	✓ 1	✓ 1	✓ 1	✓ 1	✓ 1	X 0	X 0	X 0	✓ 1	✓ 1	X 0	✓ 1	
	✓ 1	✓ 1	✓ 1	X 0	✓ 1	✓ 1	X 0	✓ 1	X 0	✓ 1	X 0	✓ 1	✓ 1	✓ 1	✓ 1	X 0	X 0	X 0	X 0	✓ 1	✓ 1	✓ 1
	✓ 1	X 0	X 0	X 0	X 0	X 0	X 0	✓ 1	X 0	✓ 1	✓ 1	✓ 1	✓ 1	✓ 1	X 0	X 0	X 0	X 0	X 0	✓ 1	✓ 1	✓ 1
	✓ 1	✓ 1	✓ 1	X 0	✓ 1	✓ 1	X 0	✓ 1	X 0	✓ 1	X 0	✓ 1	✓ 1	✓ 1	X 0	X 0	✓ 1	✓ 1	✓ 1	✓ 1	✓ 1	✓ 1
	✓ 1	✓ 1	X 0	X 0	✓ 1	✓ 1	X 0	✓ 1	X 0	X 0	✓ 1	✓ 1	✓ 1	✓ 1	X 0	X 0	X 0	✓ 1	✓ 1	✓ 1	✓ 1	✓ 1

Figure 4.4.3 Sample of Moodle Quiz Results - Question Breakdown

The lecturer would be able to access a question that obtained lower grades or marks (correct attempts) by clicking on the question number at the top of the column or viewing the question from a particular student’s attempt (see Figure 4.4.3).

Once a specific question was re-opened from the overall quiz results view, the lecturer would be able to determine which area was problematic and challenging to students based on the content of the question. Figure 4.4.4 provides a sample of a specific question attempt.

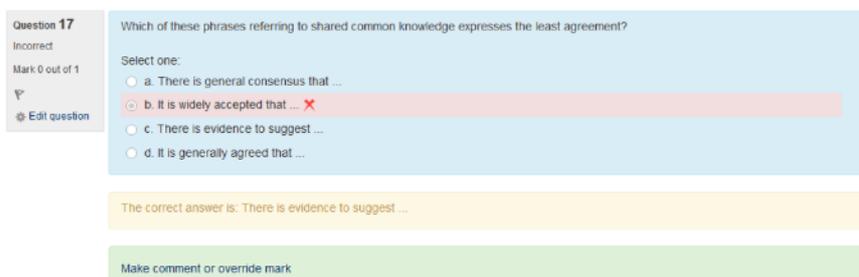


Figure 4.4.4 Sample of Moodle Quiz Resource - Specific Question View

This data would aid in the planning of a review or face-to-face session in the blended learning model.

4.5 Face-to-face Session

For this blended learning implementation and study, the lecturer (researcher) delivered a face-to-face session after the online learning concluded. The online learning included the *EAS Writing* and a quiz based on the content thereof. The online learning had to have definitive links to the face-to-face (F2F) session, in line with a BL framework (Rovai & Jordan, 2004).

A F2F session was planned considering the following data, analytics and resources:

1. Objectives Report of the SCORM package: *EAS Writing*
2. Quiz Results (overall and review of specific problematic questions)
3. Teacher's Guide (resource) for preparing a F2F session for *EAS Writing* – in following a blended learning format

The lecturer (researcher) accessed the supporting Teacher's Guide that accompanied the *EAS Writing*, which included lesson plan recommendations for critical face-to-face teaching and learning sessions.

The F2F session of the BL implementation had to consolidate critical thinking and deepen understanding of the content, fulfilling the features of a flipped classroom (Van Vliet et al., 2015) and nature of a general F2F session in a blended learning model.

Figure 4.5.1 illustrates the F2F lesson plan extracted from the Teacher's Guide for *EAS Writing* that was used to consolidate critical reflection and thinking.

Communicative activity 2: Writing	
Activity type:	Communicative, peer-to-peer, facilitator-driven
Activity title:	Review
Suggested location (unit/screen):	How to improve your writing <u>Skills-based format:</u> Writing, Unit 5
Implementation description:	This activity will work best using a peer-to-peer discussion method. Each small group should provide feedback to the class. The facilitator will use the feedback as a basis for a critical class discussion.
Suggested study time:	30 minutes
Learning outcome:	Completing this activity will test students' abilities to evaluate their strengths and weaknesses as a writer. It will also allow them to develop skills in constructing a plan to help them to improve their writing.
Guidelines for the facilitator:	<ul style="list-style-type: none"> ▶ Participants will review their writing skills by responding to a list of questions. They will share their responses and make a note of their peers' comments and feedback. ▶ The activity is designed as a peer-to-peer exercise, but you can use the feedback as the basis of a critical class discussion.
Guidelines for the participant:	Download the portfolio activity document from the screen 'How to improve your writing'. <ul style="list-style-type: none"> ▶ Review your writing by answering the following questions: <ul style="list-style-type: none"> • What are my current skills as a writer? • What do I have to improve? • What would I like to improve? • How could I improve? • What resources could I use to improve? ▶ How do your findings compare with those of others? Take the time to read and comment on your peers' responses. ▶ Make a note of any useful feedback or comments you receive from your peers.
Activity resources:	▶ Portfolio activity

Figure 4.5.1 EAS Writing - Face-to-Face Lesson Plan

The lecturer (researcher) conducted the face-to-face session using the recommended lesson plan (see Figure 4.5.1) for *EAS Writing*.

The session used an initial peer-to-peer discussion method and the following prompting questions:

1. What are my current skills as a writer?
2. What do I have to improve?
3. What would I like to improve?
4. How could I improve?
5. What resources could I use to improve?

These questions informed the peer-to-peer discussion as well as the class discussion.

The lecturer shifted the discussion to more critical concepts within academic writing; drawing on the content of *EAS Writing*, with strategic insight into how students learnt and engaged with the *EAS Writing*, as well as their quiz results and a broad idea of challenging areas of the content.

Students were able to participate and contribute to the face-to-face discussion based on their exposure to the content before attending the face-to-face class. The initial peer discussion also served as a means to encourage discussion and engagement, particularly in preparation for participating in the class discussion.

4.6 Completion of the blended learning experience

Once the students concluded the online learning of *EAS Writing*, and thereafter attended the face-to-face session based on *EAS Writing* and academic writing generally, the blended learning implementation was officially completed.

An evaluation of the blended learning implementation, along with other teaching and learning methods, strategies and issues, was included in the module evaluation that was conducted at the end of the academic semester.

4.7 Conclusion to Chapter Four

Chapter Four provided an overview of the blended learning implementation strategy adopted in this study. A background to the implementation of flipped blended language learning in the EAP and academic writing sections of the curriculum was provided. The university's LMS, Moodle, and the *EAS Writing* resources used during the online learning and F2F session were explored and discussed. Chapter Four specified the environments in which the teaching and learning of the study took place. Chapter Five provides the research findings and discussion thereof, informed by the research framework and environments sketched in Chapter Three and Four.

5 Chapter Five: Research Findings and Discussion

This chapter explores the findings of the study and provides an analysis and discussion thereof. Chapter Four provided the blended learning implementation strategy and overview of *EAS Writing* resources that were used in the study. Chapter Five provides the study's findings by exploring the participant demographics, findings from the FGD and interviews, and themes extracted from the qualitative coding. The findings are discussed in accordance with five themes, namely, Learning preferences and attitudes towards learning English, Flipped blended learning for inclusion and advancement, Clarity and understanding for broadening knowledge, Blended learning and the affective domain, and Blending in language learning.

5.1 Participant Demographics

Five first-year engineering students at a South African university participated in the study. Table 5.1.1 provides an overview of the participant demographics.

Table 5.1.1 Participant Demographics

Gender	Student Origin	English Speaker
Two females	Four local (South African)	Five English L2 (second language) speakers
Three males	One international	

The study did not specify whether L1 or L2 English speakers should participate. Surprisingly, it was discovered during the focus group discussion and interviews that all participants were English L2 speakers. This finding added further perspective on how some of the data was analysed. As a result, the data was additionally analysed via the lens of English second language acquisition theories and literature that address how English L2 speakers learn and experience the English language.

5.2 Findings

The empirical and qualitative methodological design to research used in this study underpinned the interpretivist paradigm and the approach that was adopted to understand and explore meaning generating from the participants' responses.

The data corpus was comprised of a focus group discussion and five semi-structured personal interviews. This subsequently resulted in the development of data sets from these data-gathering methods that culminated in rich and varied perspectives when analysed as a whole.

The same participants of the focus group discussion were interviewed in the semi-structured one-on-one interviews with the researcher.

5.2.1 Focus Group Discussion

The focus group discussion (FGD) was conducted by the researcher on one of the university's campuses in a setting designed to welcome and encourage natural discussion and freedom of expression. The room in which the FGD took place was isolated from other students and university activities, which promoted privacy and a sense of ease. The seats were arranged in a circle without any desks or barriers between participants, which promoted open communication. The increased sense of privacy and practical design of the environment aided in fostering open discussion.

The focus group discussion followed a semi-structured format with guiding questions to stimulate conversation (see Appendix A for the guiding questions of the semi-structured focus group discussion). The semi-structured nature allowed participants to share views and raise issues that were important to them, and matters which they felt related to their experiences of learning via a blended learning mode.

The group dynamic and social interaction elements catalysed and further encouraged some participants to comment on others' views, leading to debate at times.

Debate and disagreement among participants appeared to centre around one specific topic, namely, generalising student learning preferences. Some participants did not want others to misrepresent their preferences by indicating that all students preferred to learn in a particular way. One participant responded to another's statement regarding student learning preferences by stating and asking:

*Like for me nê, like **there are other kids who don't like listening** actually. For example, we have different styles of learning. For example, for me, I can learn by reading on my own, whereas you can learn by just listening to music, not [listening to] what the lecturer said. So, **have you put those kids into consideration?** (FGD: P3)*

Participants responded to each other's questions, which resulted in a rich discussion holistically. This also provided the researcher with additional insights for probing angles that were subsequently used in the second phase of data gathering, the semi-structured personal interviews.

5.2.2 Semi-Structured Interviews

The semi-structured personal interviews followed the focus group discussion (FGD) and the same participants of the FGD were interviewed on a one-on-one basis. The semi-structured interviews were guided by questions to stimulate and encourage discussion and conversation (see Appendix B for the guiding questions of the semi-structured interviews).

The participants were eager to share their personal views and experiences in the more private space, providing an additional layer to the interpretation of meanings attached to their experiences. Participants generally and repeatedly emphasised that the views were their own and not representative of other students. This cautionary approach to sharing views could have emanated from the previously-conducted focus group discussion in which some participants highlighted that others should not generalise and misrepresent students as a whole by purporting their personal views.

The one-on-one interviews afforded the researcher opportunities to probe and ask individual participants specific questions based on their personally-experienced realities of blended learning implementation in the English communication module, along with related issues, such as personal learning preferences and their use of technology.

The participants' responses were to a large degree unique, exclusive and varied in many topics across the spectrum of interview points. While many topics had diverse responses, a complementing number of topics also had a general sense of agreement and support among the different participants. This consensus was acknowledged by the researcher as being limited to the context of this study and the values of the participants.

The data obtained from the semi-structured personal interviews provided more in-depth insight into the attitudes, perceptions and experiences of the participants. This provided the researcher with additional richness to establish and understand meaning attached to their experiences of blended learning in an English communication module.

5.2.3 Coding and Word Count

The transcripts of the focus group discussion and interviews were initially read by the researcher to establish familiarity before a detailed and focused analysis, and reading took place.

The data sets generated from the FGD and semi-structured interviews were qualitatively coded in Atlas.ti following an exploratory, inductive and open approach.

Owing to the broad range of issues raised in the data, the codes were initially grouped according to general content (see Appendix E for an Atlas.ti Report of codes with code groups). The code groups were then further categorised according to broader and general topics before a cross-analysis was completed for the determination of emergent and final themes.

The codes and code groups were initially and provisionally categorised according to the following general topics:

1. English communication
2. Student learning preferences
3. Flipped blended learning (including online and face-to-face learning)
4. *EAS Writing* experiences
5. Learning challenges
6. Learning opportunities
7. Recommendations

The word count was also analysed to determine key words recurring in the data. Table 5.2.1 provides an overview of relevant key words extracted from the data sets.

Table 5.2.1 Key words extracted from data sets related to the study's central foci

Word(s)	Total Count	FGD	Int. 1	Int. 2	Int. 3	Int. 4	Int. 5
learn, learner, learners, learning	346	114	50	52	66	34	30
online	183	59	19	29	33	22	21
face-to-face	177	43	28	34	30	26	16
blended	131	56	18	21	15	10	11
lecturer, lecturers	130	44	24	12	25	17	8
time, hours	121	55	11	16	17	14	8

own	103	41	27	15	10	4	6
understand, understanding	101	40	11	16	9	7	18
English	87	28	6	15	13	12	13
communicate, communication, communications	85	35	9	9	14	9	9
student, students	83	38	19	2	2	11	11
study, studying	66	11	19	9	8	12	7
feel, feeling	59	24	7	9	7	4	8
lecture, lectures	53	16	4	1	4	12	16
module, modules	53	34	2	7	6	2	2
class	51	12	9	14	0	14	2
personal, personally	41	17	6	7	5	3	3
engineer, engineering	40	17	5	4	4	8	2
course, courses	33	13	7	3	3	2	5
good	27	9	9	3	0	4	2
different	26	15	3	1	7	0	0
knowledge	26	11	10	4	1	0	0
prefer	26	6	0	8	8	3	1
pressure	26	19	1	2	0	0	4
teacher, teaching	26	6	4	1	14	1	0
computer, computers, internet, technology	26	9	0	6	6	4	1
language, languages	24	11	1	0	7	3	2
research	24	12	5	3	3	0	1
challenge, challenges, challenging	23	5	5	2	3	3	5
flipped	22	0	4	4	2	8	4
listen, listening	22	10	7	0	1	2	2
experience, experienced	20	4	3	8	1	2	2
better	19	6	2	4	0	1	6
clarity, clarification	17	4	0	0	0	9	4
preference, preferences	16	1	7	2	2	2	2
helps	15	6	4	0	0	5	0
opportunity, opportunities	15	0	3	3	1	2	6
speaking, talking	15	8	5	2	0	0	0
disadvantage, disadvantages	14	12	0	0	1	0	1
effective	14	8	0	0	2	0	4
important	14	9	0	2	3	0	0
information	13	4	3	1	0	1	4
approach	12	5	1	1	2	1	2
advantage, advantages	11	10	0	0	1	0	0
broaden	11	5	1	3	2	0	0
complete	11	5	0	0	4	2	0
reading	11	6	1	1	0	2	1
difficult	10	7	1	2	0	0	0

recommendation, recommendations	10	0	4	2	1	1	2
access, accessed, accessing	9	6	0	2	0	0	1
benefits	9	0	2	2	1	2	2
struggle	8	3	0	1	3	1	0
prepared, prepares	6	2	0	0	0	4	0
bad	5	3	2	0	0	0	0
discipline	5	1	2	0	0	0	2
improvement, improvements	5	1	1	0	1	1	1
manage	5	1	0	3	0	0	1
perspective	5	2	2	1	0	0	0
barriers	3	2	0	1	0	0	0
procrastinate	3	1	0	0	0	0	2

From Table 5.2.1, it is evident that the words which were mostly used related directly to the overall subject of the study. These words included: “learning”, “online”, “face-to-face” and “blended”. It is also noteworthy that words which were frequently used included “time”, “understanding” and “feeling”. These high-frequency words were used to shape and inform the formulation of the final themes.

A second and more thorough review of the data sets, codes, provisional categories and key words led to the discovery and development of emergent and overarching themes. The emergent themes were finalised into five critical and inclusively representative themes (see Section 5.2.4).

5.2.4 Themes

The themed findings were established and grouped by following an inductive approach, within an emergent framework, to establish the latent themes that surfaced from the data. The final themes that emerged from the data were:

1. Learning preferences and attitudes towards learning English
2. Flipped blended learning for inclusion and advancement
3. Clarity and understanding for broadening knowledge
4. Blended learning and the affective domain
5. Blending in language learning

5.2.4.1 *Learning preferences and attitudes towards learning English*

The participant responses foregrounded their unique learning styles and learning preferences as well as the attitudes they had as students towards learning generally, and towards the subject matter, specifically English communication, in this case.

The concept of learning style was not immediately apparent to the participants and the researcher often had to elaborate and explain what was being asked. When prompted by the researcher to self-identify themselves as auditory, visual or a combination of auditory and visual learners; two participants selected visual, one chose auditory, one chose a combination of auditory and visual, and another abstained from choosing as the participant did not want to limit personal learning to any of the suggested categories. Their responses included:

“I learn best when I’m listening.” (Interview: P1)

“I like seeing something when I learn.” (Interview: P4)

“I think a combination of both [auditory and visual].” (Interview: P5)

Participants opted to explain their learning style in their terms. Their responses to learning style were diverse in certain areas but presented strands of commonality in others. Participants responded to their learning styles as follows:

“I like to study alone a lot. Of course, I do sometimes get into group discussions and so on, but I like to tackle my ideas and how I understand something on my own...” (Interview: P1)

“My personal learning preferences are [that] when I study, I prefer more writing ... and summarising the stuff. and then, from there, I use flash cards and mind maps...” (Interview: P2)

“I prefer online learning” (Interview: P3), “I can learn by reading on my own” (FGD: P3), “I can learn on my own online.” (FGD: P3)

“I prefer studying before and then attending the lecture afterwards.” (Interview: P4)

“[My preferences for] learning, okay, using resources for my learning, and then asking the lecturer or going to the lecture after that.” (Interview: P5)

In summary, the participants were all English L2 speakers and shared consistent positive views about studying English communication. They presented positive attitudes to the English language generally, and more contextually specific, to studying the English communication module in their engineering qualification. The responses ranged from general perceptions of English to practical benefits of its use, frequently tailored to

their professional field of engineering. Responses included the international and typical nature of the English language, enhancing general communication skills, facilitating success in studies, and improving an engineer's employability and ability to communicate with professionals from other disciplinary backgrounds.

One participant recognised the use of English globally by indicating that:

"It helps us... it actually prepares us for the future. Because English is the most common-used language all over the world, so, we need English to communicate." (Interview: P4)

Another participant, an international student at the university, commented on the use of English in South Africa by stating that:

"...in South Africa no-one really speaks my home language. Everyone speaks different languages. So, English, for me, became like the main language, because a lot of people understand English and that became my basis for communication" (FGD: P2)

Participant 3 argued in favour of English as a key factor affecting global employability by providing a personal perception and also commented on a presumably employed engineer's ability to communicate effectively with other non-engineering colleagues in a company by purporting that:

"I think it is a positive idea [to study English] because the most talented engineers are from China, but from the programmes we can watch on TV, we can see that they can't communicate in English, that's why they are not hired by high-paying countries like America because they can't communicate in English" (FGD: P3)

"And also in the work force, we're not only engineers because there are maybe chartered accountants in the company. We also need to communicate with them. So, maybe we have our own engineering terms, but for them, they won't be able to understand it, so, we need English..." (FGD: P3)

Competency in English communication was also recognised as a contributing factor towards success in the engineering-related and core modules of an engineering qualification with a participant stating that:

"...in engineering we do use English in most instances, so if we take some time to learn the language, we will have a smooth-sailing way of understanding the engineering course[s] as well." (FGD: P1)

Participants felt that English was particularly relevant for engineers, linking English as a whole to the development of a core language skill and practice for engineers, namely, reporting writing. One participant indicated that:

“...it also helps us with, like, reports, writing reports because of experiments in engineering...” (FGD: P4)

“...I used to struggle in writing my reports, then when we started doing the module, Communications, then I started improving in my reports...” (FGD: P4)

English communication was acknowledged as helping engineers with simplifying technical and engineering concepts when they are required to explain and communicate effectively to lay people. One participant stated that:

“...being engineers we have our own terms. So, to be able to communicate those terms to the other people that don't understand those terms ... it will be very helpful because those people will be using the stuff that we will be producing as engineers...” (FGD: P2)

The issue of English communication being perceived by engineering students as easy and requiring less priority also arose. Participants indirectly raised the issue of prioritisation, often linking it to challenges with studies and course prioritisation. In reference to prioritising studies, participants stated:

“... it's not only about the big or the very scary modules. It's also about the ones that we take so lightly, which is communication...” (FGD: P1)

“...That means that you prioritise on other modules giving all your time to those modules and forgetting that you have an assessment on another module [English communication] ...” (FGD: P5)

Participants recognised and acknowledged importance of English communication, and also raised that the subject received less priority in comparison to the engineering modules in an engineering qualification.

5.2.4.2 Flipped blending learning for inclusion and advancement

The second theme that emerged from the data was the overall views the participants held towards flipped blended learning and their experiences thereof.

Participants felt that blended learning with its inclusion of online and face-to-face learning, catered for all types of students and accommodated different learning preferences:

“... blended learning also caters like 50-50 for all the students. There are some students who prefer face-to-face, and some students who prefer online. So, it caters like 50-50. It's not, like, unfair to the others.” (FGD: P2)

“... since blended learning offers the student opportunities on both sides [face-to-face and online]. When you don't get something on one side, at least you can understand this [on another] side” (Interview: P5)

Blended learning was seen as a favourable approach to teaching and learning because of its explicit use of technology and perceived congruence with technological advancement. One participant highlighted this point by stating that:

“For me actually, it [blended learning] is a positive, like, it has got a positive impact on most of learners ‘cause most of us are typically on our computers and cellphones. So, online learning is more like an advanced learning for us ‘cause we can learn better.” (FGD: P3)

A flipped approach to teaching was generally welcomed by the participants. Some required the concept to be explained to them prior to responding, while others recalled the term from hearing it being used by lecturers in class. One participant commented on the strength of flipped teaching to promote learning by indicating that:

*“... **flipped learning is quite good** also because it **challenges you**. You get to think about this without knowing what’s going on, and try to explore all angles that you have ...[It] **ignites your mind** in a way so that when you come back and you get into a lecture, you don’t just browse through your thoughts and think about other stuff. You’re trying to figure out if the **lecturer is going to say something that is linked to what I have**. When that happens, you tap into the idea that: ‘maybe I am learning’ or ‘**this is working for me**’...” (Interview: P1)*

A repeated highlight and benefit of blended learning that was felt and argued by participants was the structure of the blended learning model, namely, the inclusion of online and face-to-face learning. Participants cited this in multiple contexts and linked it to different aspects of the teaching and learning experiences. Participants indicated:

“When you have blended learning, you don’t only learn from going to the lectures, as most students like to avoid. You can also learn what is being taught online or in some other resources.” (FGD: P1)

“If you fail to understand something from online learning, then the lecturer can clarify it [face-to-face]. Or maybe you did not understand something the lecturer said, and then he’ll refer you to, maybe, an online source...” (FGD: P5)

“I don’t think it’s good to have long periods of time for lessons [face-to-face] or being in class. Honestly, it tends to get boring at times. But if you blend that with prescribing online learning, it becomes fun and challenging.” (Interview: P1)

The inclusion of online learning and accessing of online resources from the internet in the blended learning model was also cited as being a key advantage of the approach, allowing students to obtain additional views. One participant stated that:

*“I think for me, and what I’ve seen is that **lecturers in some way or the other**, are just like us, students. They have their own methodology in which*

*they understand the work or the scope of it. So, **when they teach** in class, they are in some way, **subjective**. They give us what they know in that way. So, when we have a **blended type of learning**, you go online and you get exposed to hints and **other things** that relate to the scope of work ... not only what the lecturer has said, so in that way it becomes an **advantage**.” (FGD: P1)*

One participant also highlighted a perceived limitation of face-to-face or in-class only English communication instruction, that it might be disconnected from international views and advancements. The participant felt that linking online learning to face-to-face instruction, specifically in teaching and learning English, as found in blended learning, would address this limitation. The participant argued that:

“English isn’t just, like, one country’s thing. It’s not a thing like you’re in a box. English is just all over the world. So, being in a classroom is like [being] boxed, and then doing online stuff, which in a sense ... you get to reach places, and you can access things from Australia, China, and stuff ...”
(Interview: P2)

The sequencing of online and face-to-face learning iterations in a blended learning approach held mixed views. Participants held differing views of when face-to-face teaching and learning should take place, namely, before or after online learning, or before and after online learning. Some participants also explicitly linked their views of sequencing blended learning to their personal preferences in learning generally. Relating to sequencing online and face-to-face learning in the blended learning model, participants indicated:

“...face-to-face first ...”, “...the face-to-face must be an introduction to the work. Online [afterwards] will lead to more clarity on what the lecturer was saying.” (Interview: P4)

“...blended learning ... [should] be offered by [a] method in which online learning is first, then the face-to-face is after.” (Interview: P3)

“online then the lecture”, “It is better to try to do things or understand on your own. And then, when you do go to the lecture, it becomes easier when the lecturer says something about the topic you went through...” (Interview: P5)

One participant self-identified as not being a strong supporter of blended learning owing to a personal lack of assurance and trust in technology generally, but also highlighted and recognised blended learning as being part of a movement towards general modernisation and technological advancement. The participant stated that:

“... since we are being modernised ... I feel like the blended learning is a way for us to like, move into ... [the future]. We are evolving. Also, technology is moving ahead. We can’t stay behind with education. We must also move with

the technology because eventually there is going to be an imbalance. That's why blended learning should be put into everything [we study] ..." (FGD: P2)

Flipped blended language learning was holistically positively received and experienced by the participants, with constructive views held regarding the implementation thereof.

5.2.4.3 Clarity and understanding for broadening knowledge

A strongly-embedded theme that was drawn from the data was the participants' desire to expand their learning and knowledge through obtaining additional clarity and being exposed to opportunities that could broaden their thinking.

Some participants felt that online learning in a blended learning model granted opportunities for additional clarity and knowledge. One participant identified that when F2F instruction preceded online learning, there was more clarity:

"Online [learning] will lead to more clarity on what the lecturer was saying."
(Interview: P4)

Other participants felt that clarity on what was learnt online would be obtained in the F2F environments.

"...I'm actually looking for further clarification of it ...", "...clarity of the [online] content ...[when attending face-to-face]" (Interview: P5)

One participant felt that with blended learning, students were learning in the online space that welcomed and encouraged additional research because of the apparent feature of being online. Examples included access to online resources and the internet for facilitated searches. The participant felt that studying via the blended learning model would lead to knowledge being broadened and stated:

"... [With] blended learning you go on your own and you do your own research and then you come back, and then you broaden that knowledge according to what needs to be done." (Interview: P1)

Another participant felt that knowledge was broadened in the F2F session that followed online learning, by stating that:

"When I go to class after the online learning, I will have more understanding. My knowledge would have been broadened." (Interview: P2)

There was a general sense among the participants that the F2F session in particular, as part of a blended learning model, presented opportunities for increasing student understanding and broadening their thinking and knowledge. One participant highlighted

that it was important for a lecturer to link the content of F2F sessions explicitly to the online learning through using similar terminology as a means to broaden thinking. The participant stated that:

“... some learners have put hours into the online learning component. So, if the lecturer [in the F2F session] can just continue with it [using terminology found in the online content], it will broaden the learners’ minds.” (Interview: P3)

5.2.4.4 Blended learning and the affective domain

The participants’ reflections and expressions of their feelings and emotions experienced during and as a result of blended learning were carefully noted and grouped to formulate this theme. The participants expressed an array of feelings and emotions encountered in their learning, with one participant expressing *happiness* by merely studying English communication in an engineering programme:

“... I can expand my English skills, and then being introduced to [English] communication, actually made me happy. I used to love it ... that class, like seriously. Because I felt like this helps me understand most of the things I didn’t know.” (FGD: P5)

Another participant commented on feeling *motivated* when understanding a concept during a face-to-face session after having completed online learning:

“... if I understand when the lecturer explains, I feel motivated ...” (Interview: P2)

A feeling and emotion that a few participants cited were that of being under pressure and the anxiety related to that feeling. Participants linked feeling under pressure to becoming familiar with the online learning system and method initially, as well as linking it to time management. The time management was explicitly related to online learning and the completion of online activities, with participants stating that:

“Online ... it just became like a whole new world for me. And also the pressure was very much. Because, like, just knowing how to use system was very difficult for me.” (Interview: P2)

“... the only challenge I can think of [related to blended learning] was the results of my actions. Whereby, I feel the pressure for completing the task. And that usually happened when I procrastinate. So, I end up feeling the pressure.” (Interview: P5)

“... the biggest thing is that it [blended learning] puts you under pressure...”, “Let’s say you have a quiz to do [online], and you have to study for a test, and so many things during the day, so eventually you forget that you actually have a quiz to do [online].” (Interview: P2)

Participants acknowledged that they were, to a certain extent, responsible for feeling under pressure as a result of poor time management or misplaced prioritisation.

Participants stated that:

“... it’s our own choices that put the pressure on us ...” (FGD: P5)

“when you have other modules ... you feel the pressure... [but it becomes less] when you manage your time correctly...” (FGD: P1)

One participant highlighted that the study load in an engineering qualification as a whole contributed to the concerns about feeling under pressure and poor time management:

“I wouldn’t necessarily say that blended learning is actually the one that impact on our time. I would say that generally, everything, all the modules do have that impact. So, it is not only the blended learning that consumes our time, all the modules do so” (FGD: P5)

Another participant felt that blended learning actually alleviated pressure and stated that:

“... if we weren’t having blended learning, you would have much more pressure ... to go to lectures ‘cause you only rely on that information, not on the other resources.” (FGD: P1)

Blended learning allowed a participant to acknowledge that it led to that participant feeling more responsible, with the participant stating that:

“One of the main benefits [of blended learning] is that you learn as an individual. What I’ve learnt is to become more responsible, because like, let’s say for the blended learning, you have your online work and all those things and they have due dates. And so, you have to manage your own time, and no-one comes after you and says, ‘oh, this thing is due.’ You have to manage everything by yourself.” (Interview: P2)

Participants also highlighted feeling free and at ease with the pace of learning when learning online in the blended learning model. One participant commented that the absence of a physical lecturer during online learning led to feeling free:

*“... [Blended learning] allows you to stretch your mind to explore more ‘cause you’re **not always in the presence of your lecturer** or you’re not always alone... where you are just going in your wildest ideas, in your wildest thoughts. You have some radar [a scope guiding online learning]. But in the sense, you have a radar, **you’re still free to have your own perspective** of the knowledge, or your own perspective of the idea that is being taught to you.” (Interview: P1)*

Another participant commented on the pace of learning and stated that:

“Most of the times, for online learning, you have the right pace. You have more time to do it. And you can take your time if you are a slow learner. Then you understand while you are taking your time...” (Interview: P3)

The flipped blended model also contributed to participants feeling more relaxed when attending a face-to-face session after having been introduced to the topic online. One participant stated that:

“I’m more relaxed when the lecturer brings the new [additional] information [in a F2F class after online learning]. Compared to when the lecturer just starts the new concept in the class.” (Interview: P2)

The implementation of blended learning in English communication allowed participants to experience and reflect on feeling happy, motivated, at ease, more responsible, free, and relaxed. It also afforded the participants an opportunity for them to reflect on feeling under pressure and anxious, analysing why they might have felt that way and what might have contributed to it.

5.2.4.5 Blending in language learning

The implementation of blended learning in a language teaching and learning context led to the participants acknowledging a few critical points as they reflected on their experiences in the study.

In terms of the *EAS Writing*, participants appreciated the method of presentation, the manner in which the content was organised and scaffolded, as well as having the freedom to access the content unlimited times. A participant stated that:

“The best part about, like, the EAS, for me, what was good about it, it had levels before we had to do a quiz. ... You could access all of this information over and over again, it wasn’t limited. That was very good ...” (FGD: P2)

Three participants highlighted that the amount of time allocated to complete the online work (*EAS Writing*) was too long. One participant indicated that the excessive time led to forgetting that a component of the online learning still had to be completed (Interview: P4). Another highlighted that:

“I would say that if in the future there is going to be the EAS, they shouldn’t extend the time.” (FGD: P2)

The views of too much time (12 days including two weekends) allocated to the *EAS Writing* online learning (estimated three or more hours) was contrasted by participants

indicating that they felt under pressure to complete the work. Participants attributed this sentiment to a lack of prioritisation, and poor planning and time management.

On the point of time allocated to online learning versus time for face-to-face teaching and learning in a blended language learning model, participants responded that:

*"I'd say 60% face-to-face, and the 40% would go to online learning."
(Interview: P1)*

"I'd say, face-to-face – 60%, online – 40%" (Interview: P2)

"I think it should be 70-30. 70% online, 30% face-to-face" (Interview: P3)

*"I think it has to be a 50-50% thing. They must be equally balanced."
(Interview: P4)*

"I think ... online and face-to-face [should be] ... two is to one." (Interview: P5)

Another benefit of studying the *EAS Writing* and English communication online (in the blended model) highlighted by participants was that any problematic terms could be easily searched and translated online, more so for English L2 speakers. One participant confirmed that:

"... [I] just go on the internet, check the terms, translations, since Google can translate, [and] I normally translate to my language so that I understand better..." (Interview: P5)

Participants shared reflections on completing the *EAS Writing*, indicating that it led to self-awareness of their writing and areas in need of improvement. One participant stated that:

*"... as I've seen, like, so far ... is that I still can develop the way I write..."
(Interview: P2)*

All participants felt that a blended learning approach complemented the teaching of English communication in an engineering programme and supported its adoption as a teaching and learning approach. Concerning blended learning in English communication, one participant shared that:

"... you get to go and try and figure out something on your own [online], and then come back to ask. Other than listening and trying to figure out what the person is talking about [in a F2F session only] and not know, and then be given something to do. Then you already feel discouraged because you like, 'if I didn't concentrate in class, how much more [difficult] will it be outside of class?' So, blended learning really helps in that aspect." (Interview: P1)

A crucial point that was raised was that the approach must be pedagogically-sound, with lecturers understanding the purposes of the online and F2F modes, and appropriate links between the learning that should take place in the two modes. A participant stressed that lecturers should link the learning of the two modes, highlighting how a student could feel lost if there were insufficient links:

“... with blended learning, you do it online, then you have to do face-to-face with the lecturer. That’s where some of the learners like me get lost. Because the lecturer will explain differently, using different concepts and different terminology. Then we will be lost.” (Interview: P3)

Participants felt that the F2F session in the flipped blended language learning iteration engaged them. The participants indicated that the online learning equipped them with knowledge of the topics, which allowed them to relate to what the lecturer presented, and the practical component of the session allowed them to apply their knowledge from informed and confident perspectives. The participants supported these views by stating that:

“It [EAS Writing] kind of made me engaged, take part in the lecture. I wasn’t really bored trying to figure what the lecturer is talking about, and I already knew some of the aspects. And when they explained to us what some of the things meant, I could link what I had in mind with what they are talking about.” (Interview: P1)

“It had a positive impact on most of us. If you learnt online, then the face-to-face, you would enjoy it actually. It links in your mind with what you read, what the lecturer said.” (Interview: P3)

“That [the F2F session] was the best thing ever. You go to the class and you know what’s going on. The lecturer gives you clarity. It was the best thing ever.” (Interview: P4)

“The [F2F] session was actually nice as students were more involved during the lecturing session.” (Interview: P5)

5.3 Analysis and Discussion

The various themed findings are analysed and discussed to explore and explain new understandings of the research problems after the study’s findings have been taken into consideration.

5.3.1 Learning preferences and attitudes towards learning English

Participants responded to learning preferences and style with varied and diverse responses, indicative of the reality that teaching and learning spaces would contain a diversity of learning preferences shared among a more substantial student body.

The concept of a 'learning preference' or 'learning style' was not immediately clear to all participants, which resulted in the researcher having to explain and simplify the concept to elicit responses. The researcher prompted for responses from the participants by having referred to the "auditory" and "visual" choices extracted from the original Felder and Silverman (1988) model for learning styles. The model was found to resonate with general patterns of learning styles for engineering students (Felder & Spurlin, 2005). The "auditory" and "visual" options might have simplified the consideration and choice for the participants by merely evaluating input, but ultimately limited and constrained their responses to the suggested choices, which may be categorised to fall within the cognitive domain (Keefe, 1979).

The limitation was noted when a participant chose not to respond directly and choose any of the options that were presented. This in itself demonstrated that learning style and preferences were a personal matter that could not necessarily be categorised by 'choices' afforded by a lecturer or researcher. In reflection of the broader Felder-Silverman model, the authors questioned, "What can be done to reach students whose learning styles are not addressed by standard methods of engineering education?" (Felder & Silverman, 1998, p. 674). This led to the revision and expansion of the model of learning styles to be more inclusive and considerate of diversity among students.

While some of the participants were not initially clear on learning preferences as possibly framed from an academic perspective, they all opted to explain their preferences in their terms. A noteworthy observation from the participants' responses was the expression of autonomy that many provided. With participants preferring to study on their own, prepare and read on their own prior to a lecture, this explicitly indicated that online learning was preferred, which was reasonably autonomous. As a result, it became evident how the participants' learning preferences complemented the flipped blended approach to teaching and learning.

The participants' learning preferences also impacted on their choices of sequencing online and face-to-face learning in the blended learning model. Participant 3

demonstrated a strong sense of independence and preference to studying alone and online, with limited face-to-face interaction with a lecturer afterwards. This was solely to support and consolidate online learning, and for the lecturer to be able to answer students' questions (Interview: P3). This led to Participant 3 insisting that online learning preceded face-to-face learning as a norm. The link between the participant's individual learning preference and preference for sequencing of blended learning events became apparent.

Participant 4, on the other hand, indicated that learning support was required at the commencement of learning and the end (Interview: P4). Participant 4 subsequently suggested that blended learning included an element of F2F learning before online learning was prescribed and commenced, to ensure students were familiar with the platform and were ready to learn online. This also demonstrated how individual learning preferences would affect the learning design and sequencing of blended learning events. Laine, Myllymäki and Hakala (2015) argue that blended learning designs have the potential to accommodate multiple learning styles and preferences of different types of students.

The participants' views and attitudes towards learning English agreed with what was found in the literature, particularly from the perspective of practical benefits and implications of having increased competencies in English communication.

Participants highlighted the importance of English communication as a means to develop engineers professionally. Morraele and Pearson (2008) also argued that English communication accomplishes professional development and equips students with needed competencies to interact in the professional world effectively.

Participants raised the issues of interacting with and accessing information from other countries as well as engaging in a global market. Researchers have emphasised the role of English communication in use by engineers to engage in cross-cultural and global interaction (Riemer, 2002), and allowing engineers to be part of the global market (Grünwald, 1999).

The issue of English communication facilitating engineers' capacity to explain and simplify technical concepts to lay audiences, as raised by the participants was cited. This resonated with Riemer's (2002) argument that *English for Specific Purposes* (ESP)

curricula in engineering education equipped engineering students to accomplish this objective of 'de-technicalising' information effectively.

Participants identified that English communication was vital for engineers to interact with non-engineering colleagues and professionals in their future places of employment. The study conducted by Sulcas and English (2010) also cited this as the fundamental justification for its effective instruction in an engineering programme.

Employability was raised by participants in that English communication increased an engineer's chance of finding employment globally if the engineer was proficient in English. Kassim and Ali's (2010) study argued that poor standards of English communication often led to engineering graduates struggling to be employed in the global market.

When participants reflected on the skills and practices of English communication, they repeatedly mentioned the importance of oral and written communication that engineers had to be able to speak and write effectively in English. Researchers have similarly highlighted these two areas of English communication, namely, speaking and writing, as being vital for engineers (Kaewpet, 2009; Kassim & Ali, 2010).

The general positive views and attitudes held by the participants towards English appeared to be consistent with findings of other studies, specifically considering that the participants of this study were found to be English L2 (second language) speakers. Engineering students from English L2 backgrounds were found to have positive views regarding studying English as part of their engineering education, which impacted on their commitment to academic success in their studies (Al-Tamimi & Shuib, 2009; Anuradha & Rengaraj, 2017).

Preferences that participants had for learning, coupled with their attitudes towards studying academic writing as part of the English communication module, impacted on how they experienced the implementation of blended learning in the English communication module. The participants' values and beliefs influenced their interpretations of their experiences of the different stages and modes of learning in the blended language learning iteration, which were nuanced at different intervals.

5.3.2 Flipped blended learning for inclusion and advancement

Participants shared that flipped blended learning was an inclusive model that catered for students with different preferences for learning, be it based on learning online or in face-to-face domains. This sentiment agreed with the fundamental tenets of the design of blended learning, namely, to accommodate students in two different learning ‘spaces’ (Laine et al., 2015).

Participants highlighted an attractive feature of blended learning, namely, that it was ‘technological’ and that students were in tune with technology. Hence, the approach appealed to this generation of students, with the participants stating that:

“... nowadays’ generations, we are so linked to technology, which is computers and cellphones...” (Interview: P3)

“... [Blended learning] is a positive, like, it has got a positive impact on most of learners ‘cause most of us are typically on our computers and cellphones...” (FGD: P3)

While this view might have merit on a surface level, researchers have highlighted that technology-enhanced methods of teaching and learning should not be adopted solely because of the inclusion of technology and perception that students are ‘techno-savvy’ and would naturally assimilate to the method. These technology-enhanced approaches cannot be implemented without consideration of pedagogical implications, students’ readiness for online learning, and levels of digital literacy (Kaminski et al., 2003; Ratliff, 2009).

Participants held the view and perception that F2F-only classes (without any online component) presented limited knowledge, were disconnected from the world, and often outdated. On the other hand, the participants felt that the inclusion of online learning allowed them to access additional perspectives. This finding could be justified and also contested, based on the teaching and learning context as well as the approaches adopted by the lecturer in the classroom. The sentiments of F2F classes being limited and possibly anachronistic could be mitigated through continual curriculum renewal and regular inclusion of diverse views in the content presentation as well as the discussions ensuing in the F2F spaces.

The sequencing of online and F2F learning in the blended learning model had mixed views among the participants. The preferences for learning sequence could be linked to the individual student learning styles of the participants. Blended learning as an

approach called merely for teaching and learning in the online and F2F modes, but was not prescriptive concerning the sequence of online and face-to-face learning, allowing freedom in the employment of the method. Holmwood (2016) indicated that blended learning could be delivered in multiple ways, and the flipped classroom approach is only one of many methods and approaches available in the blended learning domain.

5.3.3 Clarity and understanding for broadening knowledge

The seeking of clarity and understanding with an objective of broadening knowledge that was highlighted by the participants was not necessarily unique to them but could be argued as being a general learning objective of university students. BrckaLorenz, Cole, Kinzie and Ribera (2011) postulate that the objective of effective teaching at universities is to ensure that clarity is ultimately obtained, and that teaching should take place with this in mind.

The participants' responses significantly demonstrated their desire to obtain clarity at differing intervals in the blended learning experience. Some participants wanted to obtain clarity and additional understanding in the online learning stage after a F2F session. Other participants felt that clarity would be obtained in the F2F session after online learning was concluded, placing emphasis on the lecturer playing a significant role in providing the additional clarity. These mixed responses could be attributed to learning preferences of the participants and the beliefs they had regarding the potential of the learning spaces, namely, online and F2F. Researchers have found that the perception students have of their learning environments has direct implications for their academic outcomes, discovering that the academic outcomes are influenced by the approach students take towards their actual learning as a result of the perceptions they have (Lizzio, Wilson & Simons, 2002).

Participants felt the online learning would yield opportunities to obtain additional perspectives and broaden their thinking. This notion was undisputed due to the proliferation of information and knowledge sharing as well as access facilitated with the digital age. However, supporting the navigation of the online space is crucial in assisting students with guided learning trajectories and pathways that prevent them from feeling overwhelmed with too much information, or getting confused when they come across contradictory and momentarily, irreconcilable concepts (Anderson, 2008). The participants highlighted that they wanted the F2F sessions as opportunities to reconcile

and consolidate their online learning by having the freedom to question the lecturer, to obtain guidance and additional clarity. The approach of students learning online to establish their learning pathways as well as seeking support from F2F local universities and lecturers is considered by many as the current trend and possible future norm for higher education (Bates, 2015).

Bonk (2009) posits that technology-enabled environments such as online learning “continues to open new learning pathways” (p. 3371) as students seek to learn and obtain knowledge and perspectives from multiple sources. The participants also recognised this as an attractive multiple source feature of the flipped blended language learning implementation.

5.3.4 Blended learning and the affective domain

Participants highlighted that during the study they experienced an array feelings and emotions, which necessitated that they be addressed in relation to their language learning and teaching encounter. Participants reported feeling happy, motivated, at ease, more responsible, free and relaxed. They also shared that they felt under pressure at times during the study. The area of reflecting on feelings and emotions in relation to learning was explored in literature around the concept of the ‘affective domain’.

Affective learning has been described by Bloom, Krathwohl and Masia (1956 in Schaber, Wilcox, Whiteside, Marsh & Brooks, 2010, p. 2) as

demonstrated by behaviors indicating attitudes of awareness, interest, attention, concern, and responsibility, ability to listen and respond in interactions with others, and ability to demonstrate those attitudinal characteristics or values which are appropriate to the test situation and the field of study.

Schaber et al. (2010) have argued that the blended learning design should take into consideration the affective issues that have an impact on students’ learning. The feelings and emotions experienced by the participants have relevance in understanding the meaning they gave to their experiences of flipped blended language learning.

The ‘affective domain’ and ‘affective filter’ are often addressed in second language acquisition (Brown, 2007), and with the participants being English L2 speakers, the consideration of affect was pertinent.

Participants provided a range of expressions of feelings and emotions concerning experiencing the flipped blended language learning iteration. Participants felt “free”, “responsible”, “at ease”, “relaxed”, and “motivated”, which were interpreted as being positive in relation to the language learning encounter. Participants also reported feeling anxious and “under pressure” during the study. Feelings of anxiety and pressure were attributed to getting used to the online learning system and managing time. These two aspects have implications for future implementations of flipped blended language learning.

The consideration of students’ feelings and emotions in a blended language learning context would prevail in the redesigning of blended learning. Boelens et al. (2017) found that “fostering an affective learning climate” is one of the critical blended learning design challenges currently. Blended language learning designs have to explore which elements contribute to positive student feelings and emotions, and which led to negative experiences. These interpretations will have to be subjected to the type, values and context of the students that will be experiencing the BL encounter, which justifies why it may be challenging to design with a vast number of variables, learning styles and contexts that are applicable. Transferability might be challenging when student learning contexts are distinctive.

The findings of this study in the area of affective exploration further Stepp-Greany’s (2002) argument that technology-enhanced language learning environments have the potential to yield positive results concerning the affective domain in language learning and acquisition.

5.3.5 Blending in language learning

The participants provided valuable insights into their experiences of the flipped blended language learning iteration, the *EAS Writing* online and face-to-face session.

The findings provided an overview of elements of the blended learning design that appealed to specific participants. Scaffolded and grouped online content as well as unlimited access to the online content, were identified as positive characteristics of the design. The highlighted instructional design features have practically become a norm in online learning packages available currently. The grouped and scaffolded approach allows users to keep track of their progress and be aware of the structure of the online learning experience.

Participants indicated that too much time was allocated for the completion of the online learning. Their views contrasted with too much time and views of feeling pressured to complete the tasks. They traced their feelings to poor time management on their part. However, the views the participants shared concerning time could be linked to their learning approaches and could not be generalised. Participants confirmed the importance of having F2F sessions, and some felt that the F2F sessions did not necessarily have to be cancelled during the online learning period as they would have preferred more regular F2F interaction to support the online learning. This sentiment was also not unanimous, and could also be linked to individual learning preferences and its impact on blended learning.

Participants shared diverse views of time ratios that could be allotted to online and face-to-face learning, based on their personal preferences, approaches to learning and linked to their familiarity with online learning as a whole. Views regarding time were linked to time management, which were repeated throughout the focus group discussion and interviews.

The issue of time management with online learning as part of blended learning has been recorded in literature with researchers acknowledging that it remains a valid concern. Xu and Jaggars (2013) reported that student preparedness, time management and ability to self-direct were established challenges that university students experience when exposed to online learning. Students might need support to self-direct, to experience the sense of responsibility, which one participant voiced.

The researcher noted that two participants raised the issue of not being familiar with online learning, and the lack of familiarity contributing to how they experienced blended language learning. The study was designed to offer the implementation of blended learning in the second semester after students would have completed computer literacy as a module in the first semester. It was timed strategically to have taken place towards the end of the second semester, after other blended learning opportunities had taken place already in the English communication module and other modules. The views expressed by the participants highlighted that lecturers had to confirm online learning readiness prior to prescribing it, and should not take it for granted that all students were sufficiently capacitated to complete online learning. Ratliff (2009) confirmed that first-year university students should be evaluated in terms of digital literacy and preparedness for learning in technology-enhanced environments.

To a lesser extent, the study also touched on multilingual teaching and learning opportunities afforded in a blended learning model through the availability of translating content using online translation tools and machine translation. One participant stated that Google Translate was used to translate complicated terms in English to the participant's first language to facilitate comprehension and understanding.

Participants raised the issue of appropriate and pedagogically-sound delivery of the F2F session in blended language learning, urging lecturers to link the F2F to the online learning, and ensure students were engaged. In addition, pedagogy in blended learning continues to be an area which is actively researched. Driscoll (2002) argued that pedagogy must be foregrounded and prioritised when conceptualising the online and face-to-face components of blended learning. The links between online and face-to-face learning have to be explicitly clear to students, and students have to be engaged when experiencing the F2F session.

5.4 Conclusion to Chapter Five

Chapter Five explored the study's findings and provided an analysis and discussion thereof. The participant demographics and an overview of the FGD and interviews were included. The findings were categorised, analysed and discussed in accordance with five themes, namely, Learning preferences and attitudes towards learning English, Flipped blended learning for inclusion and advancement, Clarity and understanding for broadening knowledge, Blended learning and the affective domain, and Blending in language learning. Chapter Six provides the overall final conclusions of the study and recommendations for future research.

6 Chapter Six: Conclusions & Recommendations

This chapter provides the overall conclusions of the study with the inclusion of recommendations made by the researcher. Chapter Five provided the research findings, discussion and analysis. Chapter Six concludes the study by discussing the research objectives determined at the commencement of the study. Recommendations and considerations for future research are also included.

6.1 Reviewing the Study's Research Objectives

The researcher determined three research objectives at the commencement of this study, which are discussed in this chapter.

6.1.1 OBJECTIVE 1: Design a flipped blended learning approach to the academic writing section of English communication study and evaluate its effectiveness

The study fulfilled this objective through the design of the flipped blended learning implementation of academic writing delivered via *EAS Writing*, detailed in Chapter Four.

The effectiveness of the design was qualitatively framed and examined through the experiences of the participants. According to the participants, they unanimously agreed on the effectiveness of the flipped approach in a blended learning model.

Participants expressed feeling motivated, confident and engaged in the face-to-face session that followed the online learning, in accordance with a flipped teaching approach. They linked their feelings of motivation, confidence and engagement to their familiarity of the content as a result of learning it during the flipped online learning phase.

The effectiveness of the approach cannot be generalised, however, it can be assumed with reference to the experiences of the study's participants. This conclusion is limited to the study's context and its participants.

6.1.2 OBJECTIVE 2: Explore the pedagogical application of flipped teaching and learning in a blended learning context with reference to student learning preferences

The pedagogical application of flipped teaching and learning in a blended learning context was undoubtedly explored theoretically and practically via the review of literature and theories, and the design and implementation of the flipped blended language learning encounter as detailed in Chapter Two and Four. The inclusion of student learning preferences was incorporated into the pedagogical exploration of blended learning, which further resurfaced in the findings of the study.

Multiple links between blended language learning and student learning preferences were discovered and established in the findings and analysis of this study.

It was found that the uniqueness and individuality of a participant (student) were directly linked to how the participant experienced blended language learning, and preferences the participant had for blended language learning.

It can be deduced that student learning preferences would impact on various areas of blended language learning, including the need to consider

- Affect in the design of blended language learning
- Relevant pedagogy to complement student learning preferences and styles
- Amount of support required by the student prior to online learning
- Amount of time afforded to online learning
- Frequency of face-to-face instruction
- Sequencing of online and face-to-face learning sessions and phases
- Type of activities and resources available in the online learning phase
- Type of engagement activities in face-to-face learning

6.1.3 OBJECTIVE 3: Explore student learning perceptions and experiences of the effectiveness and applicability of a flipped blended learning approach in English communication study

The study fulfilled this objective by adopting an interpretivist qualitative approach to explore the perceptions and experiences of first-year engineering students studying English communication at a South African university.

The engineering student participants shared mostly positive views of their experiences with flipped blended language learning holistically. The flipped online learning was warmly received as participants felt the 'pre-exposure' to learning material and content in the online domain prepared them for F2F classes, motivating them to participate in in-class discussions. The participants' views of experiencing positive emotions in a flipped BL environment complemented research that argued the positive effects TELL methods have in the affective domain of language learning and acquisition.

Participants highlighted that time management and self-direction were challenges experienced during online learning. Some participants stressed the need for sufficient capacitation prior to receiving online learning. One participant highlighted that additional support should be available during online learning.

The F2F session after the online learning was deemed by the participants as a crucial stage in the BL model. They felt that the F2F session allowed for engaging discussions and lecturer support, and presented as an opportunity for increased criticality to be gained.

The participants experienced the blended learning implementation in the academic writing section of the English communication module as a contextually-appropriate teaching and learning strategy. They highlighted its suitability in meeting the English communication learning needs of engineers to further develop and enhance their English communication competencies applicable to their immediate academic and future professional contexts.

The perceptions and experiences of the participants concerning flipped blended language learning were found to be linked to their individual learning preferences and styles. Participants that generally preferred learning on their own opted for more online learning and less F2F instruction in a BL model.

Participants shared challenges that were encountered in the blended language learning model that were unique to their backgrounds and the context.

The barriers and challenges highlighted by the participants experienced in their capacities included:

- Not being sufficiently familiar with learning online
- Needing self-regulation and self-direction

- Having too much time allocated to the period for online learning
- Experiencing difficulties with planning, prioritisation and time management
- Feeling under pressure as a result of poor time management

The responses were limited to the participants of this study, providing perceptions that were unique to the students' and the study's contexts.

6.2 Study Limitations

Convenient, purposive sampling within this interpretivist qualitative case study limited the findings to the participants of this study. The sampling made the findings unique to the study's context, and the findings were not suited for general transferability nor generalisation. Although the sample size was deemed sufficient and appropriate for the nature of this study, it would have to be increased to evaluate the findings against other students and in diverse contexts.

The study is limited to the experiences of the five participants, lending itself to interpretivist interpretation. However, future researchers may evaluate and establish whether contextual resonance with the findings of this study might apply.

6.3 Recommendations

Based on the review of the findings of the study, the researcher recommends that future research should:

- adopt alternative research paradigms and methodological approaches to determine comparative results and findings
- increase the sample size of related studies where applicable
- assess student readiness for online learning if the study includes online learning
- investigate blended language learning in different *English for Specific Purposes* (ESP) fields (other than engineering) to compare experiences with engineering students' experiences
- investigate the implementation of blended language learning among senior university students to compare findings with first-year students

6.4 Conclusion

Flipped blended language learning is a vast area that lends itself to research that can be conducted in a substantial number of avenues.

In order to explore flipped blended language learning in this study, different elements and factors that contribute to the model had to be explored, namely:

- Models of blended learning
- Blended learning in higher education
- Theoretical frameworks that underpin and inform blended learning
 - Constructivism and Conversation theory
 - Connectivism
 - Transactional Distance
 - Community of Inquiry
 - Guided Didactic Conversation
 - Industrialised Education
 - Equivalency theory
- Student learning styles
 - Experiential Learning Theory
 - Learning Style Inventory
 - Nine-Region Learning Styles
 - Felder-Silverman Learning Style Model
 - Learning styles in blended learning
- Blended learning design
 - Instructional design
- Flipped learning
- Technology-readiness and digital literacy
- English language teaching
 - English communication
 - Technology-enhanced language learning
 - Language teaching theories
 - *English for Academic Purposes*
 - Teaching academic writing

Therefore, the study provides a comprehensive consideration of flipping language learning and teaching in a blended learning context. Specifically, the study included the flipping of teaching academic writing via *English for Academic Purposes* (EAP) approaches and content through the usage of the *English for Academic Studies* (EAS): *Writing* SCORM package.

The study focused on the experiences and perceptions of five participants, first-year university engineering students, exposed to flipped blended language learning. Having followed an interpretivist research paradigm and qualitative case study methodology, the study yielded rich findings on the uniqueness of student learning preferences and its effect on how the flipped blended language learning was encountered. The participants held positive views of flipped blended language learning holistically. Participants with personal preferences for independent and self-learning opted for more online learning and less face-to-face learning in a blended learning model. Participants also shared challenges experienced with time management during the online learning.

In particular, the study provided insights into the positive role technology-enhanced language learning methods can play in affective issues of language learning and English communication skills/practices development of engineering students, and concluded that the participants' general learning preferences were linked to the interpretation of their experiences and perceptions of blended learning in English communication.

7 Bibliography

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8 Appendices

8.1 APPENDIX A: Semi-structured focus group discussion

1. What are views of English communication being included in an engineering qualification?
2. Is English communication important to you? Why?
3. Of the LSRW (listening, speaking, reading, writing) communication skills, which area do you feel requires most improvement/attention? Why?
4. What are your views of online learning?
5. How do you view blended learning?
6. What are some of the advantages/disadvantages of this mode of learning?
7. Was the blended learning implementation in this course effective? Explain your answer.
8. What barriers or challenges did you experience (if any)?
9. Do you feel this is a viable approach for universities to adopt? Why?
10. Does this approach suit all disciplines/courses? Explain your answer.

Note:

- These questions serve as a guideline.
- The conversation must be allowed to deviate where needed.

8.2 APPENDIX B: Semi-structured interview schedule

1. What are your personal learning preferences?
2. What are your personal views of studying English communication?
3. What is your understanding of blended learning?
4. What is your understanding of flipped learning?
5. Comment on the time allocated to the online and face-to-face learning respectively.
6. What opportunities or benefits can you identify for studying via a blended learning mode?
7. What are some of the challenges you experienced in learning in this manner?
8. What are your views on the face-to-face session that took place after the online learning?
9. Do you feel a blended learning approach compliments the study of English communication in an engineering programme? Could it be applied to other subjects/courses?
10. What improvement recommendations would you make for this mode of study?

Note:

- These questions serve as a guideline.
- The conversation must be allowed to deviate where needed.

8.3 APPENDIX C: Ethical Clearance



NOTICE OF APPROVAL

REC Humanities New Application Form

8 March 2018

Project number: 0824

Project Title: The implementation of blended learning in an English communication course for first-year university engineering students – a case study

Dear Mr Mukhtar Raban

Your REC Humanities New Application Form submitted on **08 March 2018** was reviewed and approved by the REC: Humanities.

Please note the following for your approved submission:

Ethics approval period:

Protocol approval date (Humanities)	Protocol expiration date (Humanities)
11 October 2017	10 October 2020

Please take note of the General Investigator Responsibilities attached to this letter. You may commence with your research after complying fully with these guidelines.

If the researcher deviates in any way from the proposal approved by the REC: Humanities, the researcher must notify the REC of these changes.

Please use your SU project number (0824) on any documents or correspondence with the REC concerning your project.

Please note that the REC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

FOR CONTINUATION OF PROJECTS AFTER REC APPROVAL PERIOD

Please note that a progress report should be submitted to the Research Ethics Committee: Humanities before the approval period has expired if a continuation of ethics approval is required. The Committee will then consider the continuation of the project for a further year (if necessary)

Included Documents:

Document Type	File Name	Date	Version
Research Protocol/Proposal	Research Proposal - Mukhtar Raban - 2017 (LB)	30/07/2017	
Informed Consent Form	SU_Consent_to_Participate_in_Research_Completed	30/07/2017	
Data collection tool	Interview and Discussion Guides	31/07/2017	
Default	H17-ART-DALS-EAP-001 Ms E Bergman-Mr M Raban.31Oct2017	31/10/2017	
Default	Response to REC Stipulations	15/02/2018	
Proof of permission	H17-ART-DALS-EAP-001 Ms E Bergman-Mr M Raban.31Oct2017	21/02/2018	

If you have any questions or need further help, please contact the REC office at cgraham@sun.ac.za.

Sincerely,

Clarissa Graham

REC Coordinator: Research Ethics Committee: Human Research (Humanities)

National Health Research Ethics Committee (NHREC) registration number: REC-050411-032.

8.4 APPENDIX D: Consent Form



UNIVERSITEIT • STELLENBOSCH • UNIVERSITY
jou kennisvennoot • your knowledge partner

STELLENBOSCH UNIVERSITY

CONSENT TO PARTICIPATE IN RESEARCH

The implementation of blended learning in an English communication course for first-year university engineering students – a case study.

You are asked to participate in a research study conducted by Mukhtar Raban that will contribute towards his fulfillment of the degree, MA (Technology for Language Learning) in the Department of Modern Foreign Languages at Stellenbosch University.

You were selected as a possible participant in this study because you are a first-year engineering student studying English communication full-time at a South African university.

1. PURPOSE OF THE STUDY

The purposes of this study include to:

- propose a blended learning approach to an aspect of English communication study;
- explore the methodological usage of flipped teaching and learning in a blended learning context; and,
- determine students' learning experiences of the effectiveness and applicability of a blended learning approach in English communication study.

The objectives of this study include the following:

- Obtain university engineering student perceptions of studying an aspect of English communication in a blended learning context;

- Identify any barriers experienced by students with studying English communication in a blended learning context;
- Determine the effectiveness of flipped teaching and learning in a blended learning mode; and,
- Explore a correlation between blended language learning instruction and student learning preferences.

2. PROCEDURES

If you volunteer to participate in this study, we would ask you to do the following things:

1. Complete an online study (about 3 hours in total) of a component of English communication (inclusive of reading short pieces, watching videos, engaging with online activities and completing online quizzes). You would be allocated one week to complete the 3-hour online study, which can be done in short periods of time and in different sittings based on your convenience.
2. Attend a face-to-face session (of about 45 minutes) after the online study based on the content of the online study and interact with the lecturer in class.
3. Attend a semi-structured small focus group discussion (not exceeding 1 hour) and respond to group discussion questions honestly.
4. Attend a one-on-one interview with the researcher (not exceeding 30 minutes) and respond to questions honestly.

Online learning can be completed in computer labs on campus, or using your mobile device on and off campus.

All face-to-face interaction will take place on the University campus during normal University hours.

3. POTENTIAL RISKS AND DISCOMFORTS

A possible discomfort to participating in this study could be the usage of personal mobile data to access the online learning material. Should this prove to be problematic, then rather use the University facilities on campus or University-provided Wifi networks off campus to access the learning material.

4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

Research subjects will not benefit financially from this study.

The study could potentially benefit society and future researchers by providing insights into student experiences that could provide contextual resonance for future blended learning designing and implementation.

5. PAYMENT FOR PARTICIPATION

Subjects will not receive any payment for participation.

6. CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of pseudonyms.

Research activities will be recorded (audio only) for purposes of transcription. Subjects will be allowed to access the recordings and review the transcriptions.

The results of this study will be published without the name of the University and names of the subjects.

7. PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so. You may be withdrawn if you deregister from the course or programme, or not complete and participate in each activity and stage of the study.

8. IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the research, please feel free to contact

Mukhtar Raban on 071 866 3036 or via email: mukhtar.raban@gmail.com.

9. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Ms Maléne Fouché [mfouche@sun.ac.za; 021 808 4622] at the Division for Research Development.

SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE

The information above was described to me by Mukhtar Raban in English and I am in command of this language or it was satisfactorily translated to me. I was given the opportunity to ask questions and these questions were answered to my satisfaction.

I hereby consent voluntarily to participate in this study. I have been given a copy of this form.

Name of Subject/Participant

Name of Legal Representative (if applicable)

Signature of Subject/Participant or Legal Representative

Date

SIGNATURE OF INVESTIGATOR

I declare that I explained the information given in this document to

_____ [*name of the subject/participant*] and/or [his/her] representative

_____ [*name of the representative*].

[He/she] was encouraged and given ample time to ask me any questions. This conversation was conducted in English and [*no translator was used/this conversation was translated into* _____ by _____].

Signature of Investigator

Date

8.5 APPENDIX E: Atlas.ti Report of Codes and Code Groups

ATLAS.ti Report

Data Analysis – FGD and Interviews – MA(TeLL)

Codes grouped by Code groups

Report created by Mukhtar Raban on 12 June 2018

◇ BL Advantages and benefits

14 Codes:

- BL - additional knowledge
 - BL - advanced
 - BL - benefit
 - BL - caters for all students
 - BL - clarity
 - BL - effective
 - BL - freedom of learning
 - BL - in theory subjects
 - BL - learn in OL or F2F
 - BL - own research
 - BL - prepared for class
 - BL - prevent procrastination
 - BL - real world preparation
 - BL - support of learning
-

◇ BL complementing Comm

2 Codes:

- BL - complementing Comm
 - BL implementation
-

◇ BL Disadvantages

13 Codes:

- Against BL
 - BL - challenges
 - BL - in theory subjects
 - BL - initially not understanding
 - BL - not suitable for all subjects
 - BL Challenge
 - BL challenge - lecturer confusing students
 - BL Disadvantage
 - BL Disadvantage - None
 - BL Disadvantage - Paper more in control
 - BL Disadvantage - Time
 - BL vs none
 - Computers - not familiar
-

◇ BL Model

2 Codes:

- BL - time allocation
 - Correlation between OL and F2F
-

◇ BL Opportunities

8 Codes:

- BL - clarity
 - BL - in other subjects
 - BL - lecturer guiding instruction
 - BL - Opportunities
 - BL - own research
 - BL - plan your learning
 - BL - possibility to expand knowledge
 - Broaden knowledge
-

◇ **Clarity**

7 Codes:

- BL - additional knowledge
 - BL - advanced
 - BL - clarity
 - BL - Opportunities
 - Broaden knowledge
 - Clarity
 - OL Clarity
-

◇ **EAS**

9 Codes:

- EAS - content multiple access
 - EAS - difficult at first
 - EAS - scaffolded
 - EAS - too much time
 - LSRW - listening
 - LSRW - speaking
 - LSRW - writing
 - Multiple access
 - Writing
-

◇ **English Comm**

23 Codes:

- Communication - easy, less important
- Communication - use in other subjects
- Engineering curriculum loaded
- English - emotion - happy
- English benefit - assist with comprehension
- English benefit - common language - international
- English benefit - communicate other professionals
- English benefit - de-technicalise info
- English benefit - employability
- English benefit - expand knowledge
- English benefit - intercultural comm
- English benefit - report writing
- English benefit - skill development
- English benefit - success in studies
- English benefit - research
- English comm - amount
- English comm - amount and time

- English comm - objective communicate
 - English comm - view
 - English comm benefit
 - English for engineers
 - English perception
 - English perception – Westernised
-

◇ **F2F Sessions**

19 Codes:

- Cancellation of F2F during online learning
 - Correlation between OL and F2F
 - Engagement in F2F
 - F2F - compromise oneself
 - F2F - familiarity of content leads to relaxed feeling
 - F2F - lecturers subjective
 - F2F - no technology - disengaged
 - F2F - not long sessions
 - F2F - participation
 - F2F in BL effective
 - F2F must increase
 - F2F only
 - F2F only - not sure of important points
 - F2F pace
 - F2F Recommendation
 - F2F Session - know critical concepts
 - F2F session after OL - study
 - F2F Time
 - More practicals in F2F
-

◇ **General Challenges**

19 Codes:

- Barrier - not understanding English
 - BL - challenges
 - BL - initially not understanding
 - BL - not suitable for all subjects
 - BL Challenge
 - BL Disadvantage
 - BL Disadvantage - Time
 - Computers - not familiar
 - F2F - compromise oneself
 - Learning challenge - prioritising tasks
 - Pressure
 - Procrastination
 - Reminder to complete tasks
 - Struggle to prepare before class
 - Technology - don't trust
 - Time - pressure
 - Time management
 - Workload
 - Workload - forget OL tasks
-

◇ Learning Preferences

24 Codes:

- Against BL
 - Applying writing preference in OL
 - Auditory learner
 - BL - caters for all students
 - BL - freedom of learning
 - BL - learn in OL or F2F
 - BL - lecturer guiding instruction
 - BL - plan your learning
 - BL - support of learning
 - Group learning
 - Learning digitally
 - Learning preference - F2F then online
 - Learning preference - study alone
 - learning style preference
 - Learning style preference - not listening
 - learning style preference - online
 - Neutral view
 - Online then F2F
 - Students linked to technology
 - Students orientated to BL
 - Success linked to technology
 - Technology - students on devices
 - Visual and auditory learner
 - Visual learner
-

◇ Online Learning

12 Codes:

- OL - different ways of practicals
 - OL - not for all subjects
 - OL - pace
 - OL Clarity
 - OL Recommendation
 - Online is complicated
 - Online learning
 - Online learning - access resources and info
 - Online learning - advanced
 - Online learning - positive
 - Online learning - saves time
 - Online learning - study alone
-

◇ Prioritising and Responsibility

9 Codes:

- BL - challenges
- Motivated
- Online learning - saves time
- Pressure
- Procrastination
- Responsibility
- Struggle to prepare before class

- Workload
 - Workload - forget OL tasks
-

◇ Recommendations

3 Codes:

- BL Recommendation
 - Engagement in F2F
 - Feedback
-

◇ Time Management

4 Codes:

- Time - pressure
 - Time management
 - Workload
 - Workload - forget OL tasks
-

◇ Views of BL

3 Codes:

- Against BL
 - BL - understanding BL term
 - BL – view
-

◇ Views of FL

5 Codes:

- FL - benefit
 - FL - effective
 - FL - experience
 - FL - structure
 - FL - understanding FL term
-

◇ Views of OL

7 Codes:

- OL - different ways of practicals
 - OL - not for all subjects
 - OL - pace
 - On your own
 - Online is complicated
 - Online learning
 - Online learning – positive
-

No code group

15 Codes:

- Hard copies for research
- Inclusion of other students - no generalisation
- Interacting with others
- Not all books online
- P3 - exclusion of learning style
- P3 - first to support OL
- P3 - prefer online
- Practical in F2F
- Practice of BL improves use

- Ratio of time for BL
 - Relatable content
 - Scaffold knowledge in BL
 - Soft copies
 - Use of technology - engaging
 - Video
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