BLENDED LEARNING APPROACHES IN THE BED (FOUNDATION PHASE TEACHING) PROGRAMME: STRENGTHS AND CHALLENGES

A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy in the Faculty of Education, University of the Western Cape

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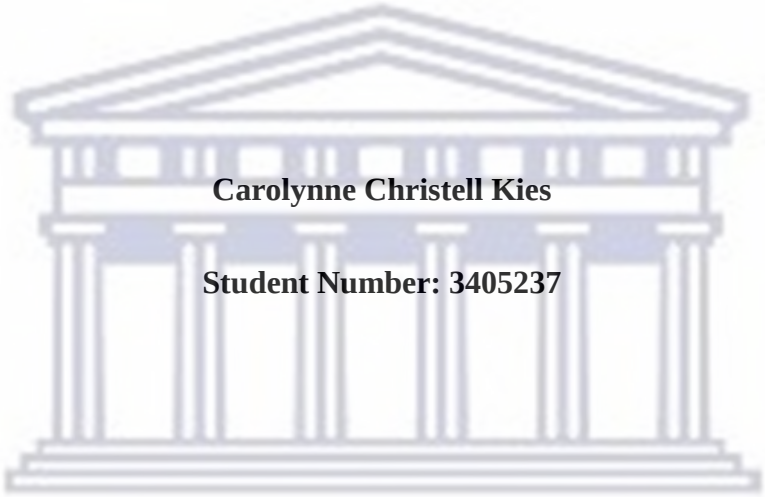


Supervisor: Professor Zubeida Desai

Co-Supervisor: Dr Juliet Stoltenkamp

ABSTRACT

Blended learning in Higher Education Institutions (HEIs) has become increasingly popular (Graham, 2006; Guangying, 2014; Win & Wyn, 2015). In 2015 and 2016 South African Higher Education Institutions struggled with the impact of the #FeesMustFall campaign, which sought to reduce and, in some instances, eliminate the fees required to engage in Higher Education studies. The #FeesMustFall campaign led to classes being disrupted and consequently suspended. Offering blended and purely online teaching was not a common practice, and was resisted by many teaching staff members of universities. Although blended learning was increasingly being used in the learning enterprise, it was only during the national 'lockdown' phase that most countries and educational institutions experienced the need to expand the implementation of online learning. Hence, there was a dire need to design interactive learning environments for effective learning and teaching.

Both the #FeesMustFall campaign and the Covid-19 pandemic accelerated the use and implementation of blended learning in the South African higher education sector. Accordingly, lecturers needed to diversify their teaching practices to cater for diverse students entering institutions of higher learning. The development of a blended learning environment includes the careful discussion, planning, and selection of eTools, for both physical classrooms and online environments. This method was used to enhance teaching practice and, more importantly, the learning process. It is important to note that students who enter university are not always English home language speakers. This factor could influence the quality and frequency of student interactions during face-to-face classes and teaching activities. It is also important to note that students learn in different ways and have different learning styles. In order to address the needs of diverse students, lecturers need to understand their target audience and how their teaching methods may assist students' learning.

Hence, this study focussed on the impact of blended learning approaches, which incorporated both face-to-face instruction and relevant online activities to enhance the contact session times with first-year students engaged in the BEd (FPT) programme[1]. The pedagogical value of eTools was highlighted and the impact on student learning analysed.

[1] The curriculum in the B.Ed. (FPT) Programme is common to all students. The only difference is in relation to students' home languages. Thus, Mathematics and Languages are compulsory for all students.

Thus, the main aim of this study was to explore the impact of blended learning approaches on the BEd (FPT)[2] programme for first-year students. The study focused on students engaged in the subject areas of Language and Mathematics in the BEd (FPT) programme. Through face-to-face interviews with lecturers, administering a questionnaire to students, and conducting a focus group discussion with BEd (FPT) Language and Mathematics first-year students[3], the researcher explored the use of blended learning and its impact on teaching, student learning and the development of students as independent learners[4]. Through exposing BEd (FPT) students to technology as a valuable tool in teaching and learning, it is hoped that they, in turn, will employ technology in their own classrooms once they qualify as teachers.

The main research question driving this study was:

> What is the impact of blended learning on first-year students in the BEd (FPT) programme?

The theoretical framework for this study draws on learning theories and how learning works (Ambrose et al., 2010), but with the focus on blended learning as a manifestation of learning. The aim of the study was to explore the blended learning approaches in the BEd (FPT) programme and its impact on first-year students, with the objective to explore the role of self-directed learning and assessment. For the purpose of this study, various blended learning models were discussed for the effective implementation of blended learning approaches. Elements of these models were aligned to the focus of this study specifically in relation to extensive planning and evaluation; readiness of staff and students; well-designed and structured online courses; the design of learning activities; and the teacher as a critical role-player in implementation.

A primarily qualitative research methodology was employed with some supportive quantitative data, including student performance and the online student access statistics in the respective modules. The researcher made use of observations as a method to monitor and document both students' and lecturers' engagement during face-to-face classroom and online interventions.

The inclusion of blended learning in the BEd (FPT) programme has been the conduit for developing students as confident reflective practitioners, who are able to share and express

[2] Henceforth the researcher will make use of the abbreviated BEd (FPT) programme to refer to the degree, BEd (FPT) programme.
[3] The term 'students'- refers to the students registered for the BEd (FPT) programme.
[4] The term 'learners'- refers to pupil at schools in the Foundation Phase level.

their unique views on their own learning, their development and their teaching practice. The present study found that lecturers used different blended learning methods in the three modules, English Home Language (ELT 111), isiXhosa Second Additional Language (SXL 101) and Foundation Phase Mathematics (FPM 111) to enable students to engage in the programme. The BEd (FPT) programme students were being prepared to become teachers.

KEYWORDS/PHRASES:

Blended Learning

First-Year Student

Student Development

Language and Mathematics

BEd (Foundation Phase Teaching) programme

Learning Styles

Self-Directed Students

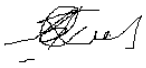
Assessment

DECLARATION

I declare that,

Blended Learning Approaches in the BEd Foundation Phase Teaching Programme: Strengths and Challenges

is my own work, that all the sources I have used or quoted have been indicated and acknowledged by means of complete references, and that this work has not been submitted previously in its entirety, or in any part, at any other higher education institution for degree purposes.



---------- **25 October**

Carolynne Christell Kies **2023**

DEDICATION

This thesis is dedicated to:

My parents, Ferdinand Thomas and Christoline Margaret Kies.
Your dedication to affording me every conceivable opportunity for a more promising future and a quality education has been nothing short of extraordinary. Your avant-garde mindset and purposeful decisions have steered the trajectory of not only your children's lives but also the stories of future generations.

It is with immense pride and heartfelt appreciation that I honor you both as "My Parents."
This one's dedicated to you!

ACKNOWLEDGEMENTS

Thank you to the Almighty who has chosen me to be on this earth and to fulfil a purpose. My beginning and end. I am but a grain of sand- a speck of dust. All things come from you and of your own do we give you.

The participating Language and Mathematics lecturers and first year BEd (FPT) programme students who have been the interest group and formed the basis of this study. Your active participation in this project has made this study possible.

My sincere gratitude and appreciation are expressed to my Supervisor, Extraordinary Professor Zubeida Desai. Our meeting in 2016 was a perfectly-timed event which has paved the way for this PhD Thesis. I was floundering but you brought it all together in less than 5 minutes and nudged me to start. Thank you for your direct, honest and knowledgeable supervision. I am inspired! If I could be a third of the academic, researcher, human being and woman that you are, and have a third of the energy you have, I will be pleased and will be able to contribute to the area of research. Thank you!!

To my Co-Supervisor, Mentor and Friend, Doctor Juliet Stoltenkamp who introduced me to the world of eLearning in April 2005, what a serendipitous meeting. You have shaped my professional journey and interest in this field and I thank you for seeing my potential! Your passion and resilience inspire and motivate me every work day!

My beloved godchildren, Alexis, Quddoosiyyah, Zach, I aspire for this activity to serve as a reminder in your lives which will illuminate a path of hope and to reaffirm the resounding truth that you can achieve anything you set your minds to.

To my dear sisters, Vivian Ross and Sumaya Ahmed, your daily inspiration lifts my spirits. I'm immensely grateful for your unwavering support, for listening to my countless conversations, and for consistently instilling in me the belief that brighter days are on the horizon.

Faried, in the final stretch of this race, you've raised my arms up high, inspiring me with motivating words, making sure every detail is attended to. I am eternally thankful for your wisdom and support.

Numerous individuals have crossed my life's journey, and it's with deep appreciation that I would like to honor and recognise the following cherished friends and family members. Though you are no longer with us in the physical realm, your presence continues to resonate within me, influencing my perspectives and serving as invaluable mentors in various aspects of my life. May your souls find eternal peace and bask in everlasting glory:

Dadda (Willis Kuhn), Oom Henry Arendse, Oom Piet August, Oom Sias Marthinus, Tannie Ann Kies, Ousus Jana Fielies, Mr Jan Abrahams (my std 2 teacher).

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GLOSSARY OF TERMS

The terms listed below are important concepts that are described and discussed within the context of this study.

Assessment: refers to the progress a student has made since the implementation of a specific teaching and learning intervention.

Blended learning: A mix of methodologies which includes face-to-face and online learning activities within the Learning Management System.

Classroom Technology: Teaching facilities are fully kitted with classroom technology, including data projectors, desktop computers, document cameras, interactive whiteboards (some specific venues) provided to lecturers for use in face-to-face lectures.

eTools: refers to the educational/electronic/emerging tools that can be used to assist with the development of teaching and assessment activities. These eTools are embedded within the institutional LMS- X.

First-year students: refers to the students enrolled in their first-year of study in the BEd (FPT) programme

Formative Assessment/Assessment for Learning: measures the level of learning gain through continuous and timely assessment activities.

Foundation Phase: refers either to the BEd (FPT) programme. Or to the Foundation Phase learning programme offered at school level.

LMS X: refers to the Learning Management System used at University X

Knowledge acquisition: the process where a deeper understanding of the subject matter is reflected through application of various assessment activities.

Multimedia Technologies: refers to interactive computer-based applications that allow people to communicate ideas and information with digital and print elements.

Reliable Assessment: assessments that yield the same positive or negative results when groups of students engage in an assessment activity

Validity of Assessment: refers to the quality of questions posed and its relation to the learning outcomes of the modules being tested.

Strategies: ideas and plans that should be implemented to reach a specific goal. In this study I focus on teaching and learning strategies which may develop teaching practice to enhance learning.

Summative Assessment/Assessment of Learning: assessment that measures the level of achievement, at the end of a module or section and is compared to a specific standard or benchmark.

Student development: the enhancement and improvement of students' learning.

Student learning process: the different learning activities students engage in to gain understanding of the learning content, various environments and technologies and didactical approaches, in order to apply their knowledge.

Student engagement: the process whereby students are able to participate freely in learning content and activities with peers, lecturers and tutors.

Teaching intervention: certain activities that may be employed to enhance, develop and improve teaching and learning.

Turnitin (Tii): is an anti-plagiarism detection system that compares text within a document to archived papers within the Tii database and the World Wide Web.

Pedagogical value: refers to the teaching and learning benefit for student development.

LIST OF ACRONYMS

AfL- Assessment for Learning

AoL - Assessment of Learning

BEd (FPT) - Bachelor of Education (Foundation Phase Teaching) Degree

CAPS - Curriculum and Assessment Policy Statement

UIECT – Unit for Innovative Education and Communication Technologies

DBE - Department of Basic Education

ELT 111 - English Home/First Language

eTools- educational/electronic/emerging Tools

4IR - Fourth (4^{th}) Industrial Revolution

FPM 111 - Foundation Phase Mathematics

LMS - Learning Management System

MAS- Marks Administration System

NDP - National Development Plan

T&L - Teaching and Learning

SXL 101 - isiXhosa Second Additional Language Module

Tii- Turnitin

CHAPTER 1: BACKGROUND AND INTRODUCTION

1.1 Background and Context of the Study

The term 'blended learning' has gained a great deal of importance and popularity in Higher Education Institutions (HEIs) both globally and nationally in the last two decades (Guangying, 2014). The support for this type of teaching and learning has increased rapidly across the globe in recent years as it provides opportunities to introduce dynamic teaching approaches (Graham, 2006). According to Guangying (2014), the increase and popularity of blended learning in the education area can be ascribed to the flexibility that blended learning lends to the teaching and learning process. The benefits of blending traditional face-to-face teaching with relevant and carefully selected online activities have been researched in many contexts. Koşar (2016, p. 736) states that it has become more difficult to contain education within the constraints of physical spaces and specific hours because of the advancement of technology. Hence, what is known as the normal lecture where knowledge is transferred, should be transformed to create a learning space that is creative and allows students to engage actively (Seltzer & Bentley, 1999).

In South Africa, both the #FeesMustFall campaign and the Covid-19 pandemic accelerated the use of and implementation of blended learning. The outbreak of the Covid-19 pandemic further intensified the use of blended learning practices in the education system. The pandemic affected all aspects of human life and various industries were forced to transform their practices in order to survive. The education system was deeply affected (Alenezi, 2021; Akat & Karatas, 2020). Educational institutions that were not accustomed to the use of technology and blended practices, were forced to transform to adapt to the changing environment (Alenezi, 2021). The impact of Covid-19 affected the education system as a whole, and university faculties of education in particular because they are responsible for preparing and training prospective teachers (Donitsa-Schmidt & Ramot, 2020). Many schools, colleges, and universities in South Africa still rely mainly on traditional face-to-face classroom-based methods of teaching, learning and assessment (Dhawan, 2020). The Covid-19 situation challenged education systems across the world and forced many educators to shift to an online mode of teaching overnight. South Africa was no different.

This study investigated the impact of blended learning approaches implemented in the BEd (FPT) programme offered at a Public Higher Education Institution in the Western Cape (henceforth referred to as University X). The focus was on first-year students engaged in the BEd (FPT)

programme as an example of how blended learning had influenced teaching and learning in the 2019 academic year, prior to the outbreak of Covid-19. It should be noted that the data collection was conducted during the 2019 academic year (February – November 2019[5]).

By making use of a blended mode of instruction, the role of lecturers shifts from that of subject matter expert and expands to facilitator of learning, administrator, moderator and many more roles (Clapper, 2009; Selinger, 2001). This also changes the role of the student from merely receiving content to memorise, to being engaged in the learning process, and a co-creator of knowledge (Bonk & Graham, 2006). According to Francom (2010, p. 38), educational institutions should strive to create opportunities for students to take responsibility for their own learning and also adapt to their new surroundings. Hence, first-year students need to be exposed to different teaching methods and spaces early on in their studies to develop as autonomous students, who take control of their learning. Furthermore, students who are exposed to different teaching styles, learning spaces and relevant technologies, stand to gain a variety of skills, competencies and learning experiences (Francom, 2010). This further requires lecturers to adapt their teaching styles to ensure that students are challenged and exposed to different forms of teaching and learning methods. Students should be comfortable in their learning spaces and be able to use these opportunities effectively within their studies and also in other spheres of their lives (Francom, 2010).

Prensky (2001) argues that one of the biggest problems facing education today is lecturers who have not embraced the changing times in which they teach, and thus often find themselves not being able to effectively appeal to the diverse learning needs of their students. The diverse learning styles have been categorised to focus on the visual, auditory or kinaesthetic senses of students. Prensky (2001) also denotes that the 21st century student processes information in a fundamentally different manner; hence there is a need for teaching styles and practices to change as well.

In light of the above arguments, this study focuses on the impact of blended learning within the BEd (FPT), a relatively new programme, with its first intake in January 2016 at University X. The study further focuses on the strengths and challenges with regard to the implementation of blended learning for first-year students. As the programme is still in its infancy, there may be more adeptness by lecturers to explore different teaching strategies to address the learning and teaching needs of students.

[5] It should be noted that the Covid-19 pandemic impacted teaching and learning processes during the 2020 academic year. The researcher was able to complete data collection during the 2019 academic year.

The aim of the research is to observe and explore the impact of blended learning approaches implemented within the relatively new BEd (FPT) programme. The focus of this approach takes cognisance of three specific modules namely, English Home Language (ELT 111), isiXhosa Second Additional Language (SXL101) and Foundation Phase Mathematics (FPM 111). In addition, the exploration of blended learning approaches is further investigated through interviews with lecturers, highlighting their specific teaching philosophies and practices. The exploration is done in an attempt to gain an understanding of the related strengths and challenges encountered by both lecturers and students. The findings may produce a better understanding of how such a teaching approach has impacted student learning. This is important because, despite the fact that many studies have been conducted to assess student learning, and although universities globally have invested heavily in technology, it has thus far not delivered evidence of widespread enhancement of student learning (Reeves, Herrington & Oliver, 2004).

As a researcher, I have a keen interest in investigating the impact of blended learning on enhancing learning and teaching practices. The interest in exploring this study stems from the fact that I have been employed within the Unit for Innovative Education and Communication Technologies (UIECT) at University X for the past sixteen years. This Centre was established in 2005 with its key responsibility to drive the effective use of emerging technologies to supplement traditional teaching practices. The aim is to build capacity amongst lecturers with regard to enhancing their teaching practices with emerging technologies and further enskill students to engage in their blended online environments (Stoltenkamp et al., 2007).

As an Instructional Designer employed within UIECT, I am responsible for consulting with and advising lecturers regarding the effective use of emerging technologies to enhance their teaching practice. My main task is to drive the effective use of the institutional Learning Management System (LMS) referred to as X[6] (henceforth), and other Personal Learning Environments (PLEs) and innovative collaborative projects to support teaching and learning. This role also includes engaging with lecturers and subject-matter experts regarding the design, development, facilitation and implementation of various blended and distance learning modules within the Higher Education landscape. Instructional Designers also need to work closely with subject experts to align and select appropriate instructional strategies and techniques based on the theoretical learning theories to facilitate learning (Ertmer & Newby, 2013). Hence this research has personal meaning as it gives

[6] The term LMS X- refers to the institutional Learning Management System used at University X

me the opportunity to reflect on the contributions my work can make to assist lecturers to diversify their traditional teaching practices. Furthermore, reflecting on the impact of blended learning; how it has been implemented within this specific programme and the impact on student learning has great significance, as the implementation of blended learning can be used as a blueprint for similar training programmes. It can also provide prospective teachers the option to explore the potential of blended learning approaches in their own teaching practices. Furthermore, it can assist with the creation and transformation of new learning environments that are more aligned to the changing world of work. In reflecting on the implementation of blended learning techniques and specific eTools to enhance and develop student learning, this research study aims to highlight the strengths and challenges of the blended learning approaches which were implemented.

Increasingly, research is showing that students across the globe expect that some part of their tertiary studies should include the use of technology (Kennedy, 2014; Arabasz & Baker, 2003). This is a phenomenon experienced by students at University X and other national and international institutions. The UIECT Instructional Design support team has encountered many first-year students and students in other year levels, who expect that all modules should be placed online. Hence, the UIECT team is continuously visited by students demanding access to their online environments. It needs to be mentioned here that I, as the researcher, also consult and advise lecturers and students on a daily basis in my capacity as Instructional Designer. Based on my own observations within the natural environment, there is a growing assumption amongst students at University X that all modules should have an online component.

Through the integrated support offered to lecturers and students, they are exposed to different eTools that can be used within their learning and own development as prospective educators. The study also investigates whether these eTools and blended learning techniques could prepare students in their profession as prospective educators. Exploring how they would implement and use these techniques within their professional careers could change the way learners are taught at schools within the Foundation Phase.

1.2 Research Problem

Despite the ushering in of democracy in South Africa 28 years ago, after the formal abolition of apartheid, South Africa's education system remains an unequal one which is dismally failing the

majority of its learners. This is echoed very strongly in a recent book edited by Spaull and Jansen (2019) titled, *South African Schooling: The Enigma of Inequality*. According to Spaull (2019, p. 2), inequality within education in South Africa is apparent in "every aspect of South African schooling and policy making". This includes from "how curriculum is designed and implemented to where teachers are trained and employed" (Spaull, 2019, p. 2). Sadly, both the previous apartheid regime and the current democratic state have contributed to the grave inequality experienced within the education system. Almost three decades later, "with the various progressive policies implemented in terms of school governance, curriculum and school finance, these policies have hurt the very students they have intended to help, of which the 2005 Curriculum is an example" (Spaull, 2019, p. 2).

This sense of inequality is also echoed in a study by Howie et al. (2017), which states that 8 out of 10 South African children in Grade 4 cannot read for understanding - a distressing finding that impacts how students are taught within the education system. Spaull and Pretorius (2019) as cited in (Jansen, 2019, p. 361) proceed to make two alarming observations about the reading literacy in early grades: The first observation is that the "children who do not learn to match the sounds of language with the symbols of text remain in catch-up mode for the rest of their lives"; and the second is that "poor students from dysfunctional schools attend weak universities to become inadequately trained teachers in the same class of schools from which they barely graduated". This research also shows that "some of the fourth-year BEd students were not functionally literate" (Jansen, 2019, p. 361). Based on these shocking research findings, it is imperative that higher education institutions rethink their teaching and learning practices. Higher Education Institutions are not sufficiently focussing on the use of technology for teaching and learning. The use of technology should be encouraged as a supportive tool rather than a disruption.

Given the era we live in, an approach that is needed is for higher education institutions to integrate digital tools in their existing systems, thereby enriching their traditional pedagogical approaches and education system through advanced education delivery tools (Alenezi, 2021). Although blended learning is a method that can adapt and change the education system, it is not the answer to all educational woes that have been experienced. Those that are well-versed in the use of technology may easily be able to adapt and flourish with this approach. However, students and lecturers who are not well-versed with the necessary ICT skills and technologies required to engage in the blended approach, may be hurt more by the implementation of blended learning. Hence, this approach should be implemented after careful thought and consideration.

Kalantzis and Cope (2010, p. 200) claim that a revolution has been brewing in education, which is partly fuelled by the development of new information and communication technologies (ICTs). This fundamental change is rooted in how humans communicate and learn. Previously, teachers were seen as autonomous knowledge keepers who transmitted information to their learners which the learners in turn needed to memorise. However, in the present period, also referred to as the 4th Industrial Revolution, learning has changed and is now more focussed on where and how information can be obtained through the use of digital technologies, also referred to as emerging technologies. The way learning takes place has changed and students (in this case, prospective teachers) are taught the skills to obtain information, instead of just receiving information to memorise. They are further taught how to design active physical and online learning environments and organise their own learning processes, in order to effectively teach the learners in their classrooms (Karatas & Arpaci, 2021).

1.3 Rationale

In this era of the 4th Industrial Revolution, education across the globe has increasingly come to depend upon the incorporation of Information and Communication Technologies (ICTs), with much literature reflecting on the emergence and rise of blended learning technologies (Stoltenkamp & Siebrits, 2015; Cross, 2004; Nicholson, 2007; Mlitwa, 2005). Modern day higher education institutions have designed effective plans and have embraced new technologies to transform their teaching and learning practices, business models and processes. Due to the changing world through globalisation and the rise in technology, higher education institutions need to adapt and change their traditional ways of teaching in order to survive the challenges that the rise of the 4th Industrial Revolution brings with it. In seeking solutions, universities have made attempts to adopt the use of ICT and appropriate digital technologies to become more flexible in their teaching approaches and become more competent (Mlitwa, 2005). Universities worldwide have engaged plans to improve their competitiveness in the new and challenging distributed knowledge production system (Mlitwa, 2005). In this quest, they are making widespread use of new ICTs in order to appeal to new students, and to improve co-operation with different stakeholders (Gutlig, 1999; Middlehurst, 2003). It is important to review the teaching approaches used within Higher Education when developing prospective teachers. Pappas et al. (2019) insist that today's learning systems need to become more flexible, thoughtful, and adaptive, in order for 21st century individuals to understand online learning. It is also further important to ensure that undergraduates such as the BEd (FPT) students are adequately prepared to engage in the new world of work.

In an attempt to address the inequality that exists within the education system and to align the education system with modern day needs, it is important to explore innovative ways to introduce new pedagogical approaches through the inclusion of digital technologies. Hence, digital transformation is a process that higher education institutions have begun implementing, albeit hesitantly. Fortunately, or unfortunately, the world was confronted with the Covid-19 pandemic which necessitated a move towards the use of ICTs. In this way, an intention to explore the use of technology in education was fast forwarded by the pandemic, thus exacerbating the problem of addressing the inequalities in the education system. It has become very clear that the education system in South Africa, and many other countries, needs reform. Despite many policies having been developed to assist with the education crisis in South Africa, there has been a delay in implementation.

> The need for a new pedagogical approach to learning has arisen through a range of complex factors – among these, the changes in society and the economy; the potential for new forms of communication made possible by emerging technologies; and rising expectations amongst learners that education will maximize their potential for personal fulfillment, civic participation and access to work. (Kalantzis & Cope, 2010, p. 22)

Therefore, in the context of the 4th Industrial Revolution and the forced necessity of Covid-19, digital transformation has gained momentum within higher education institutions. The latter have focussed on the development of new, more advanced and effective methods to transform their teaching practices (Alenezi, 2021). It is important to define what digital transformation refers to, in light of the introduction of new pedagogical approaches. Digital transformation is especially important within higher education, as noted by Alenezi (2021), to ensure that practices, processes, policies and the general way of doing things are updated to stay relevant in this Fourth (4th) Industrial Revolution we operate in. Alenezi (2021, p. 5) expresses it thus:

> leaders in higher education have identified four consistent goals to remain relevant within the education industry. These goals are to improve the students' learning environment, to increase operational efficiency, increase computing power for cutting-edge research, and to stimulate innovation in education.

Based on the goals highlighted by leaders in higher education, there is a need to look more closely at how we teach our prospective educators and identify which teaching methods are used. In lieu of the first and last goal in particular which is to "improve the students' learning environment and lastly to "stimulate innovation in education" (Alenezi, 2021, p. 5) it is of critical importance to address the methods we use to teach prospective educators. Transforming the teaching methods can revolutionise the potential output of education and the inclusion of technology in order to blend the traditional face-to-face classroom with more modern technologies can be far reaching. Hence,

blended learning is focused on in this study. It highlights that learning is not just a one-time event, learning is a continuous process, as is also discussed by Rao **(**2019). *"*Blended Learning is an approach that provides innovative educational solutions through an effective mix of traditional classroom teaching with mobile learning and online activities for teachers, trainers and students*"* Rao (2019, p.1).

The teaching methods lecturers use to teach in their classrooms are very important and affect how learning takes place for the students across all year levels. However, within the context of this study, the first-year prospective teachers taught in the BEd (FPT) programme are the target audience. Actively engaging within the 4th Industrial Revolution as a teacher means teaching towards ensuring that learners (in the school environment) are stimulated in different ways - auditory, visually and kinaesthetically. This necessitates employing teaching methods which may require both traditional (face-to-face) and technological (online) approaches. Hence, a blended learning approach is advocated more progressively within the 21st century. As teachers are considered the teaching professionals who direct the classroom learning for their learners in schools, it is important that prospective teachers are developed as independent and knowledgeable students who can direct their own learning activities for themselves and so too for their learners. According to Kalantzis and Cope (2010), exploring the potential of new pedagogical approaches, assisted by the inclusion of digital technologies, which include blended learning, can create new learning environments and expose prospective teachers to new ways of learning and teaching in the future. How humans communicate and learn, as discussed by Kalantzis and Cope (2020) has changed and more student-centred approaches have been adopted, developing the students from passive consumers of information to knowledge creators. Students are taught the skills to source information as opposed to looking to the teacher as the main knowledge keeper and only transmitting information which they deemed proper for the student to consume and memorise. Students are taught to source information and create new knowledge through their attained skills and replicate this process within their own classrooms as well-prepared teachers.

It is important to review the teaching approaches used within Higher Education when developing prospective teachers. It is also important to note that the learning needs of students within the BEd (FPT) programme are varied across factors such as gender, age, socio-economic background, values, religion, language and level of schooling (De Jager, 2017). The diverse student population at University X could also reflect the varied learning needs of students, according to University X's Institutional Operating Plan (2021-2025), as students in the 21st century entering universities are

supposed to be more adept and familiar with different types of technologies. The Draft White Paper on e-Education (2015), claims that it is practical to infuse technologies into teaching practices, and could be a beneficial way to address the diverse learning needs of students.

The introduction and continuation of online teaching and learning is an important focus area of the Institutional Operating Plan (IOP, 2021-2025) at University X. Making effective use of different technologies to design an interactive curriculum helps to develop students' competencies and 21st century skills. Karatas and Arpaci (2021) suggest that, 21st century skills needed by prospective teachers should be developed to empower them to engage online learning environments and designing online activities for their learners in the classroom. These 21st century skills, include information and communication technologies (ICT) literacy, critical thinking, creativity and innovation, self-directed learning skills and metacognitive awareness. While the implementation of blended learning can be used to teach first-year students it also prepares them as prospective educators and to address the inequality in the education system to effect real change. These changed teaching methods should allow the teachers to broaden their scope of expertise and to explore and introduce varied blended learning activities into their teaching. This could further enable the teachers to make use of their autonomy as a professional to design and deliver their teaching activities according to their learners' learning styles and needs. Alenezi (2021) claims that digital transformation has been emerging as one of the top priorities of educational institutes in present times, particularly in higher education institutions. It is an essential process to achieve a competitive edge in the education industry, as it is in business.

Hence, the present study investigated the impact of blended learning approaches implemented in the BEd (FPT) programme at first-year level. It also sought to explore to what extent there is a focus on assessment within the blended learning approaches implemented within the programme. In addition, the design of effective learning environments can be based on the learning needs, interests, language preference, schooling background and learning styles of students (Hall, 2002). Similarly, Pappas et al. (2019) found that modern learning systems need to become more flexible, thoughtful and adaptable so that individuals in the 21st century could understand online learning.

The Unit for Innovative Education and Communication Technologies (UIECT) was established in 2005 at University X to adopt and advocate the use of flexible teaching approaches. Since 2008, the UIECT embarked on an 'Awareness Campaign' to inform and inspire the academic staff at University X to use blended learning methods to enhance their teaching practices (Stoltenkamp, et

al., 2007). Through weekly blogs and scheduled monthly workshops, lecturing staff were informed of how their peers had implemented blended learning and made effective use of eTools to enrich their traditional teaching practices across various disciplines at the university. Discussing the pedagogical value of using eTools in their teaching motivated more academics to adopt the blended learning approach in their teaching. Since then, examples of good teaching practices using blended learning have been shared to acknowledge the significant effort lecturers have made to transform their teaching practices. They have used eTools on the institutional LMS such as content creation, communication, and assessment to monitor and track student activities during certain time periods. The use of LMS and its related eTools will be discussed in greater detail in the chapter that follow.

In addition, the impact of blended learning, as well as the challenges and strengths experienced in the first year BEd (FPT) programme at University X are discussed to review the aid that technology can provide to alleviate the education crisis. Furthermore, the study investigated whether the use of blended learning can assist with the development of students as self-directed learners. It investigated whether the use of blended learning in the BEd (FPT) programme could prepare prospective teachers to design learning activities and environments to teach Foundation Phase learners effectively using digital technology. The use of blended learning is discussed as a way to bridge the gaps in the training of Foundation Phase teachers. Essentially, the research problem focusses on literacy and numeracy training in the BEd (FPT) programme and how teacher education at the BEd (FPT) level can address this problem in schools.

Blended learning is also discussed as an essential arsenal of tools the teachers engaging in the 4th Industrial Revolution should have in their teaching toolkit, if they are to change the past inequalities inherited through a political system which promoted social injustice along racial lines. In order to achieve these goals, the researcher used Language and Mathematics modules of the BEd (FPT) namely, English Home Language, isiXhosa Second Additional Language and Foundation Phase Mathematics) as the focus of the investigation.

1.3 Research Question

Based on the research problem, which focuses on the impact of blended learning approaches on first-year students in the BEd (FPT) programme, answers to the following main research question and sub-questions were sought:

Main question

- What is the impact of blended learning on first-year students in the BEd (FPT) programme?

In addressing this question, the researcher considered both the strengths and challenges that might arise.

Sub-questions:

- What is the role of self-directed learning in the blended learning approach?
- Is there a particular focus on assessment in the blended learning approach?

1.5 Aim of the Study

The main aim of this study was to explore the blended learning approaches in the BEd (FPT) programme and its impact on first-year students.

Objectives of the Study

As discussed, the main aim of the study was to explore the blended learning approaches in the BEd (FPT) programme and its impact on first-year students. In order to achieve the main aim of the study, two main objectives needed to be addressed. The research objectives were:

- To explore the role of self-directed learning in blended learning approaches in the BEd (FPT) programme.
- To explore whether there was a focus on assessment within blended learning approaches implemented in the BEd (FPT) programme.

1.6 Theoretical Framework

The theoretical framework for this study draws on learning theories and on how learning works, with a specific focus on blended learning as a manifestation of learning. The aim of the study was to explore blended learning approaches in the BEd (FPT) programme and how it impacts first-year students' learning.

Hence, a literature review focuses on definitions of blended learning and how it aligns with this study in higher education. As blended learning approaches are implemented, the study focuses on the diverse learning styles of students as this has an impact on the lecturers' design of the blended learning classroom and online activities.

An objective of the study was to explore whether self-directedness was a possible outcome of blended learning interventions in the BEd (FPT) programme. Hence, the development of students as self-directed learners is explored in the literature. The study also focusses on the assessment practices included in the programme as part of the blended learning approaches and how it impacted on student learning.

1.6.1 Learning Theories and How Learning Works

Learning theories form an important part of this study and directs how the teaching philosophy of lecturers impacts the specific teaching approach they apply. Learning theories focus on how learning takes place and how lecturers can position their teaching in order to cultivate learning. Influential theorists such as Pavlov (1849-1936), Piaget (1896-1980), Vygotsky (1896-1934) and their work related to behaviourism, cognitivism, and constructivism are contextualised and discussed within this study. The learning theories guide the lecturers in designing their learning and teaching activities.

According to Skinner (1953), students are seen as passive learners who need extrinsic motivation in order to absorb information and learn effectively. Hence, students will learn to behave in a certain way if the lecturers reward them for a certain behaviour. Behaviourism is linked to conditioning the behaviour of individuals. Learning under the cognitivist theory focuses on the mental processes that occur in the minds of students. Cognitivist learning theory founded by the theorist Piaget focuses on the knowledge that is accrued by students and how they make sense of things through concepts, systems, organisms and models. Constructivist learning theory focuses on the interaction of students in learning activities, which is an important factor of learning, according to Heaslip et al. (2014). Constructivism relates to the construction of one's own learning through one's own experiences. Lecturers make use of these different theories to plan their lessons and related activities in order to develop student learning. Hence, learning and how it works is an important aspect that should be discussed.

According to scholarly literature, learning can be classified as a process that leads to change. This change normally takes place in the student or individual that is engaged in the learning process or activity (Alexander, Schallert & Reynolds, 2009; Knowles, 1972; Mayer, 2002: adapted in Ambrose, Bridges, Lovett, DiPietro & Norman, 2010).

Using learning theories and what learning is, as the basis for the decision to include a specific approach, the researcher proceeds to discuss the implementation of a blended learning approach.

1.6.2 What is Blended Learning?

It is important to define what blended learning is, as it can be both a simple and a complex term to define. The practice of supplementing face-to-face classes with relevant web-based eTools is known as blended learning (Garrison & Kanuka, 2004). The integration of various eTools to supplement face-to-face teaching practices is a method of blended learning in its simplest form (Garrison & Kanuka, 2004). In his definition, Krause (2007) includes the effective integration of different modes of delivery and models of teaching and learning styles that combine the systematic use of technology and the best features of face-to-face interaction. Blended learning is also seen as an approach that harnesses reflection, discussions and online interaction between students and lecturers. This technology-enabled method can further focus on student reflection and the engagement of content in different formats (Mebane, Porcelli, Iannone, Attanasio & Francescato, 2008). Blended learning interventions should be used for teaching and learning reasons and not merely to make use of technology for technology's sake. Kose (2010) adds that blended learning includes different teaching techniques and the creative use of eTools to complement the teaching process.

At the Griffith Institute for Higher Education, blended learning has been identified as the means to enhance student learning and teaching activities. McKenzie, Pelliccione and Parker (2008, p. 622) state that 'blended learning at international higher learning institutions has become commonplace'. In a survey of Higher Education Technology, conducted by professionals at the Centre for Digital Education (CDE, 2012), 84% percent of participants reported that blended learning technologies improved their understanding and retention of course content. A study conducted by the University of Sussex found that recorded lectures and other online content increased student comprehension and, in some cases, test scores (CDE, 2012). These are strengths that make the inclusion of effective blended learning very popular at higher education institutions internationally. At the University of Massachusetts, Lowell, university administrators believe that the blended learning offerings attract students. The Director of Instructional Technology Support at the University of Massachusetts, Lowell states that "Students are demanding that technology be infused in all aspects of their learning on campus" (Lucas, 2012, p. 7). A qualitative study conducted at a South African HEI, focusing on student expectations with regard to blended learning and self-directed learning, yielded similar results. The study, conducted with a group of pre-service teachers, reported that the students'

expectations of using blended learning were positive and that they found this to be more informative than traditional face-to-face learning (du Toit & Pool, 2016).

It should be noted that students in the 21st century expect to be exposed to more engaging teaching, reflective practices and the use of digital media to explain difficult concepts (Kennedy, 2014). In support of Kennedy (2014), the researcher observed that some of the younger students at University X expected lectures should not just entail listening to the 'sage on the stage' and doing classwork in isolation. These expectations challenge conventional teaching methods that have been exercised by experienced and less experienced lecturers for years.

The need for diversification of teaching practices calls for the implementation of blended learning approaches which include the use of varied media content and activities for student engagement. In order to address the growing diversity of student learning needs, blended learning using lecture capture. This involves recording a lecturer's presentation in a physical or online classroom and making the recording available to students online (Owston, Lupshenyuk & Wideman, 2011). This practice has been growing steadily and carefully at the University of Massachusetts, Lowell since 2005 (Moskal, Dziuban, & Hartman, 2013).

Approximately, a third of campus classrooms at the Griffith Institute have been equipped with lecture capture systems that are used for classes in multiple departments and disciplines. This is a growing tendency among international and national universities and leads to an important question being asked: Can blended learning approaches enhance student learning? This question is addressed in the following section.

Staker and Horn (2012, p. 22) define blended learning as "an educational process in which a student learns in part through a blend of both face-to-face and online delivery of content and instruction with some element of the student gaining control over time, place, path, and/or pace and at least in part at a supervised brick-and-mortar location away from home." For the purpose of this study, blended learning is defined as the infusion of various emerging technologies in the teaching process used to enhance the learning process for students. It is about blending the learning and teaching activities through a combination of both face-to-face and online activities hosted within the Learning Management System to expose students to different forms of content, communication and assessment activities.

The aim of this study is to explore blended learning approaches in the BEd (FPT) programme and its impact on first-year students' learning. **For** the purpose of this study, the researcher focused on definitions of blended learning and how these align to this study within higher education.

1.6.3 Blended Learning and Diverse Student Learning Styles

Learning can be defined as the process that enables a student to gain new skills, abilities or understanding of a specific concept or activity. Collaboration and cooperation can take place through group tasks and activities and students can engage with each other and the subject matter by discussing learning material, an activity that can lead to a better understanding of the learning content (McClaren, 2014). Collaborative interaction between students as they discuss learning content also develops their social skills; this can also be classified as cooperative learning. These activities all contribute to how students learn (Clare, 2015).

Learning is further enhanced when students actively engage in the learning process. Through this process of active engagement students learn by doing, which can lead to better cognition and memory (Bonwell, 2000). Students also learn by seeing how their peers engage in activities and in the learning process. Once learning or the understanding of a certain concept resonates with students, it can affect their behaviour and how they perceive or conduct themselves in different situations. The development of an active blended learning environment may be implemented by various university stakeholders to ensure the promotion of student-centred learning activities. These blended learning experiences are implemented with the hope that it will further develop the students' learning whilst engaging in these environments. Ismail (2018) asserts that university lecturers may create a balance between the face-to-face and innovative learning strategies in order to make the student learning experience more fun and in so doing develop their learning process. However, it is important that this blend is well balanced as highlighted by Ismail (2018), as it can become too overwhelming for some users. According to authors, Vaksalla et al. (2019) many people complain of becoming socially isolated especially when they engage in extensive use of the internet and different technologies. It can also be seen as a waste of their time, if the activities are not educational and well balanced. The extent to which educational technologies are inserted into teaching practices, can also lead to antisocial behaviour and impact negatively on students' social lives (Vaksalla et. al., 2019).

Research has shown that students learn in different ways (Mulroy & Eddinger, 2003). Various research studies have been conducted to investigate how students learn (Subban, 2006). The diverse learning needs and styles of students have prompted processes to adopt new models of teaching. This has led to the understanding that instructional practices and assessment need to change in order to accommodate the growing diversity of students. Research related to changing and adapting the teaching process to enhance student learning is important. Hence, the inclusion of blended learning in Higher Education has grown extensively (Guangying, 2014).

The idea of learning styles fits well with individualising and customising education methods (Robinson, Yan & Kim, 2023). Hence, the concept of learning styles sounds right and is thus presented as a vital pedagogical tool for educators (Strauss, 2013). However, authors Robinson, Yan & Kim (2023. p77) argue the longstanding debate around the concept of learning styles and the "*perpetuation of neuromyths—misconceptions about the brain*" and that people are understanding the concept of learning styles incorrectly. According to Robinson et.al (2023) learning styles are frequently justified by misunderstanding Howard Gardner's theory of multiple intelligences. These multiple intelligences as described by Gardner include musical, interpersonal, spatial-visual, linguistic, logical-mathematical, body-kinesthetic, intrapersonal and naturalistic intelligence. Various educational psychologists have refuted this identification of multiple intelligences as it could also be described as people's personality traits and talents rather than an intelligence per se (Essington, 2023). However, researchers over the decades have interpreted Gardner's theory incorrectly and may claim that students can only learn if their learning style matches the lecturer's pedagogic style of teaching (Essington, 2023). Learning styles creates a fixed ability and mindsets by students, who may think they can only learn if their learning style is aligned with a lecturer's, pedagogical style. However, this is not the notion adopted for this study. Although learning styles are included and discussed in this research study, it does not hold the view that students can only learn using one learning style or type of intelligence. It rather states that as lecturers include a blended learning approach, this way of teaching can appeal to more than one type of learning style which accommodates more students.

Research indicates that blended learning is based on a sound pedagogical foundation that is linked to specific learning theories (Conole, Dyke, Olivier & Seale, 2004, p. 17; Fowler & Mays, 2005 p. 2; Hadjerrouit, 2007, p. 283). To this end, learning theories should be one of the driving forces behind the development of blended learning. It is also important that the pedagogy should direct the

careful selection of emerging technologies in teaching practices. Balancing both the traditional face-to-face contact time with relevant emerging technologies, will depend on both the discipline, target audience and the learning outcomes of the modules being offered. Blended learning has the capability to facilitate learning under different conditions (du Toit & Pool, 2016). It adds an important reflective element with multiple synchronous and asynchronous forms of communication in order to meet specific learning requirements (Garrison & Kanuka, 2004).

This study focusses on the impact of blended learning approaches implemented in the three Language and Mathematics modules in the BEd (FPT) programme. It has sought to identify students' diverse learning styles and preferences in the 21st century. The blended approach can be successful as it includes different, inclusive modes of delivery (De Jager, 2017). In a developing country like South Africa, rich with diversity, the use of blended learning can be used to positively develop students with different learning needs (Anderson, 2007). The skewed socio-economic status quo in South Africa has an impact on all sectors and is glaringly apparent in the education sector. De Jager (2017) found that many public schools were not adequately resourced to address diverse learning needs, thereby depriving students of exposure to blended learning. The proportion of students who might have had access to private schooling with well-resourced campuses, and those who attended under-resourced public schools might vary widely. As University X has a rich history and reputation for including marginalised communities, the task of teaching students from diverse backgrounds provides interesting opportunities.

This vision and mission of University X with its complex culture may make the task more challenging for lecturers teaching at the institution. Levelling the learning landscape for all who enter the institution is complex, as students and lecturers need to engage at different levels.

Most studies focusing on analysing learning styles of students have been conducted in developed countries where almost all students have been exposed to the use of technology. However, in South Africa, and more specifically at University X, students' backgrounds and their exposure to technology varies widely (Leonard, Mokwele, Siebrits, & Stoltenkamp, 2016). Due to socio-economic inequalities, there might be students who are quite familiar with technology in one programme, while in another the students might have problems with access and ability. There could also be students who have had limited interaction with computers and other technologies. Thus, developing a module which caters for all students could be quite difficult as lecturers might not be aware of the specific skills levels of all their students.

Based on these complexities, it is quite difficult for lecturers to develop effective strategies and interventions in their teaching practice. However, as a university that needs to stay abreast of change, aligned to international trends, and maintaining a competitive edge within the higher education sphere, it is necessary for lecturers at University X to adapt their teaching practices (University X, IOP 2021-2025).

Blended learning is not the proverbial 'silver bullet' to address all challenges of teaching and learning, but can assist to address varied student learning needs (Gleason, 2013). However, it is important that courses are designed carefully to get the optimal learning experience for the students involved. Various challenges can also be linked when implementing blended learning in any learning context. In a country like South Africa with a skewed socio-economic status, the challenges which may accompany the implementation of blended learning is varied depending on the location of the school or university. Under-resourced public schools may have limited IT infrastructure and will not be able to accommodate access to network connectivity and proper technological devices (De Jager, 2017). A lack of adequately trained lecturers in the use of technology and their lack of ICT competence, is another challenge that may impede the effective implementation of blended learning especially in under-resourced public schools (Rahman, Hossain & Khaalid, 2022). Lecturers that are poorly trained on the use of ICT will not be able to implement and adapt their teaching practices effectively (Rahman, Hossain & Khalid, 2022). The lack of continuous professional development for lecturers challenges the alignment of face-to-face instruction with online learning activities. If there is a misalignment between the face-to-face instruction and the inclusion of online assessment tasks, it can challenge the students' ability to learn and perform well within a blended learning environment (Rahman, Hossain & Khalid, 2022). This is difficult to design, especially if the lecturers do not attend and engage in regular professional capacity building sessions to equip them with the necessary skills and 'know-how' to blend their teaching activities, this is further challenged when lecturers and teachers do not understand their students' and/or their learner's skillsets prior to rolling out the blended learning intervention. Another challenge that can hinder the successful implementation of blended learning interventions can occur when lecturers create multiple blended assessment activities and underestimate the skills required of students to complete the multiple online tasks (Rahman, Hossai & Khalid, 2022).

Lecturers need to be familiar with their students' needs to provide learning environments that are stimulating and which enable students to operate in a safe learning space. Once students feel safe and included within their learning space, they will feel more comfortable to interact and engage

within the learning environment (Subban, 2006). The feeling of safety before progress can be linked to notions suggested in Maslow's hierarchy of needs. Educational institutions have the responsibility to prepare students to take responsibility for their own learning through various classroom experiences and carefully selected assessment activities (Nantz & Klaf, 2012). Strategies which enable learning to be personalised to the needs of a wide range of students are likely to be valued. Kennedy (2014) found that students valued their own ability to adapt the technology and activities in a learning design suited to their own learning needs.

The aim of this study is to explore blended learning approaches in the BEd (FPT) programme and its impact on first year students' learning. Hence, for the purpose of this study, the researcher focused on diverse student learning styles, as this has an impact on the lecturers' design of the blended learning classroom and online activities.

1.6.4 Blended Learning Approaches and Self-directed Students

Students will be better prepared for their future if they are to be developed as self-directed students concerned with learning rather than just performance inside the classroom (Kicken et al., 2009). It is important that these factors are addressed during the teaching and learning process when enrolled as a student at the university. One of the most cited definitions of self-directed learning is developed by Knowles (1975, p. 18), that defines self-directed learning as:

> a process in which individuals take the initiative, with or without the help from others, in diagnosing their learning needs, formulating goals, identifying human and material resources, choosing and implementing appropriate learning strategies, and evaluating learning outcomes.

This definition, although quite dated, is one which is still the most widely and relevantly cited as it includes the most holistic definition of what self-directed learning entails. This process requires a high-level of maturity, commitment and responsibility on the part of the student. It should also be noted that this development process takes time. However, during the initial stages of self-directed student development, it is the behavioural characteristics of the lecturer that students are required to emulate (Zimmerman, 2002). This task is challenging for the lecturer and needs to be reinforced constantly to ensure that learning does take place. However, as students develop the responsibility for their own learning, it is a task that becomes an act of intrinsically motivated individuals who value working independently and engaging in reflection (Guglielmino, 2013). Geduld (2014) found that students enjoy the level of autonomy that is linked with self-directed learning, but they find the increased responsibility and effort daunting.

As mentioned before, students should take responsibility for their own learning; a process of ownership that defines self-directedness. The development of a self-directed student is embedded in theories such as behaviourism, cognitivism and constructivism (Geduld, 2014). Hence, the theory of self-directedness can be identified as the culmination of various learning theories applied to further enhance the learning processes for students. In addition, for self-directed learning to be effective, a good level of understanding is required from the student. The process of self-directedness further leads to a reflective practice, which enables students to evaluate and manage their learning achievements (Geduld, 2014; du Toit & Pool, 2016).

An objective of the study is to explore whether self-directedness is a possible outcome of blended learning interventions within the BEd (FPT) programme.

1.6.5 Assessment within Blended Learning Approaches

Assessment and learning are interlinked in teaching practice; learning cannot be measured without accurate assessments (James, 2006). The results of learning are seen in the process of assessment activities included and student performance. It is important that assessments should be valid in terms of the concepts which are assessed and reliable in order to produce the same outcome each time they are taken.

A blended learning approach should start with the "curriculum outcomes, and constructive alignment should be created with activities, content and assessment to ensure internal coherence, consistency and transparency" (van der Merwe et al., 2015, p. 11). Courses must be designed in alignment with assessment activities to ensure "the best results" (Sun et al., 2008, p. 1196). There is an increasing use of formative assessment tools in blended learning in order to enhance student knowledge and the quality of student learning (Febriani & Abdullah, 2018). Online assessment also enables timeous feedback and in turn allows the students to engage in consistent self-assessment. In addition, the flexibility in relation to time and location enabled self-paced, and independent student learning (Padayachee et al., 2018).

An objective of the study was to explore whether there is a focus on assessment in blended learning approaches implemented in the BEd (FPT) programme. Hence, for the purpose of this study, the researcher focused on the assessment practices included in the BEd (FPT) programme and how these influenced student learning.

1.6.6 Blended Learning Models

There are various blended learning models that exist. Higher Education Institutions (HEIs) have to consider their contexts and adopt accordingly. In addition, these models also assist with effective implementation and evaluation of blended learning approaches. The researcher deliberates on five blended learning models in Chapter Two of this study.

Shewhart's Cycle emphasises the importance of deep reflection and extensive planning prior to transforming any course into a blended learning approach. The model emphasises the importance of the evaluation of the actions and future reviews, in addition to the teaching interventions (Serrano, 2019, p. 282).

Six Dimensions of Blended Learning Model also addresses planning, and specifically the importance of the readiness of staff, specifically in-service teachers, and discusses the six dimensions of blended learning to consider (Saboowala & Mishra, 2021).

Gilly Salmon's Five- Stage Model focuses on the actual implementation of a blended learning course, and specifically the importance of a well-designed course. The main focus of the model is to enable lecturers to design blended learning courses that ensure students are able to actively participate in the blended learning activities to support their learning and development (Salmon, 2002).

The *Rotation Model* focuses on the actual design of learning activities within a blended learning environment and its impact on student engagement. Furthermore, the rotation model integrates both the online and face-to-face classroom in order to achieve effective student engagement (Staker & Horn's framework, 2011).

The *Teacher Plays a Central Role in Effective Blended Learning Implementation Model* reflects on the critical role of the teacher in order to impact student motivation, engagement and student success (Minhas et al., 2021).

The researcher has sought to discuss these blended learning models and has indicated which models or elements of the models best fit with the aim of the study, which is to explore the impact of blended

learning approaches on first-year students in the BEd (FPT) programme. The next section focusses on the research methodology employed in this study.

1.7 Research Methodology

The aim of the research was to explore blended learning approaches in the BEd (FPT) programme and its impact on first-year students. The focus of this research takes cognisance of three specific modules namely, English Home Language (ELT 111), isiXhosa Second Additional Language (SXL101) and Foundation Phase Mathematics (FPM 111). For the purpose of this study, a mixed-method approach was adopted using, a primarily qualitative research methodology with supporting quantitative data. The qualitative research approach incorporates the collection and analysis of qualitative data aligned with the supporting quantitative sets of data (Johnson, Onwuegbuzie & Turner, 2007).

A research method can be described as the manner in which research is designed to collect and analyse the data in order to answer the main research question (Bryman & Bell, 2007; Saunders 2019). It focusses on the research methods employed to collect, process, prepare, present and analyse the data in order to respond to the main research question. Qualitative research is an anti-positivist approach and seems to focus more on the methods that one seeks to use to answer the research question. A research design as defined by Babbie and Mouton (2001, p. 74) is "a plan of how a researcher intends conducting the research". A mixed-method approach was employed for this study. The researcher made use of a research framework designed by Saunders et al. (2019) namely the 'Research Onion Ring', which assisted the researcher to deliberate on the various stages and processes that were employed. A research strategy is designed to test the theory through the research conducted. The interpretivist paradigm was selected as the best suited to the context of this study. This study makes use of the inductive approach which generates theories from data collected through research.

Research Process

A mixed-method approach was adopted for this study and makes use of a single case-study in order to probe a particular phenomenon deeply. As part of the two phased strategy for data collection, the first phase (semester one) of the data collection constituted face-to-face classroom observations; online environment observations, lecturer and HOD interviews, student online questionnaire and a

student-led focus group discussion. This data collection strategy was repeated during the second phase (semester two). The qualitative component was integrated with the supporting quantitative component of the study, constituting the retrieval of student activity statistics in the LMS, and the overall pass-rate for each module.

Data Collection Instruments

A mixed-method approach was adopted using, a primarily qualitative research methodology (face-to-face classroom observations, lecturer and HOD interviews, online student questionnaire and student-led focus group discussion), with some supportive quantitative data such as student performance (student overall pass-rate) and the online student access statistics in the respective modules LMS were used. As the research project made use of a qualitative case study design, the data were collected in a controlled environment to reflect on the interpretations of first-year students and lecturers regarding the impact of blended learning in the BEd (FPT) programme. According to Creswell (2014) and Babbie (2013), the qualitative approach is conducted most often in the participants' natural setting and describes beliefs, actions, human behaviour, the opinions and insights as experienced by participants. The data collected were used to review and analyse the impact of blended learning on the students' learning experiences, their development as self-directed learners and the teaching approaches of lecturers. A qualitative research design focuses on the individual's point of view (Seale, 1999).

The researcher engaged in both face-to-face classroom observations as well as in the online environments for the FPM 111, SXL 101 and ELT 111 modules. She also observed the online environments created on the institutional LMS (X) for the respective modules. The teaching and assessment practices of lecturers were investigated through semi-structured interviews. Lecturers were interviewed to ascertain their understanding and interpretation of blended learning as well as their teaching style and assessment practices. The student online questionnaire consisted of both closed and open-ended questions. The first part of the questionnaire made use of close-ended questions while the second part posed open-ended questions. A small focus group discussion with a purposive sample of ten (10) students was conducted and during this session open-ended questions were posed to the students. Morris, Onwuegbuzie and Gerber (2018) found that detailed interviewing and observation in qualitative studies provided them with rich information and enhanced understanding.

The supporting quantitative data were collected through the *Statistics* eTool via the institutional LMS and recorded the student engagement within the online environment. The *Statistics* eTool was embedded in each online environment hosted on the LMS. This enabled the researcher to prepare data in relation to the number of student engagements, such as viewing and downloading the course content, completing online assessments and engaging in communication events within an online environment. In addition, quantitative data were also collected via the Marks Administration System (MAS) within the Education Faculty.

Analysis and Discussion

The researcher obtained raw data that had to be investigated, interpreted and displayed. These data were presented in various formats including text, tables and images. Conducting interviews or collecting materials can produce field notes, transcripts from interviews, documents, videos and the like (Dey 1993 pp. 11, 15 cited in Graue, 2015). The researcher embarked on a process of data analysis to organise, code and theme the raw data collected through the research instruments identified. Hence a thematic analysis was conducted which is a method to identify, analyse and indicate patterns within the data as described by Braun & Clarke (2006).

1.8 Ethical Considerations

Ethical considerations were considered and implemented, aligned to University X's policies and procedures. All student details and responses of those who participated in this study were treated confidentially. The research study was approved by the Ethics Committee in 2018 and renewed in May 2020. (See Appendix 1: Ethical Clearance). Participants engaged in the study were required to complete consent forms to engage in interviews and were allowed to disengage from the study at any given time. Permission was further requested from both Department Heads and lecturers teaching the modules for the researcher to observe both the face-to-face classroom and the online environments without interfering in the teaching and learning processes. It should be noted that the researcher is employed at the Unit for Innovative Education and Communication Technologies (UIECT) at University X.

1.9 Significance of Research

The significance of this study lies in the role that prospective educators can play in encouraging the educational development of the Foundation Phase learners at school level. In turn, these prospective educators have to be trained effectively in order to deliver their teaching using innovative practices within the BEd (FPT) programme so that they could serve as models to be emulated.

Based on the research study, the value and use of blended learning was identified. The research results show the impact of blended learning on student engagement and learning. The benefits and challenges of the approach are reflected and discussed. The findings were used to illustrate the strengths and challenges of the inclusion of blended learning in the BEd (FPT) programme Language and Mathematics modules. Lecturers teaching in the same disciplines and Faculty could make use of the outcomes of the study. This can assist lecturers to adopt certain strategies when implementing blended learning within their modules.

The findings can contribute to the delivery of other BEd (FPT) programmes at University X and at other universities in South Africa.

1.10 Limitations of the Study

In this study the researcher analysed whether blended learning approaches had an effect on the teaching and learning processes of the BEd (FPT) programme.

The literature available around the blended learning approaches within a BEd (FPT) programme in the South African context was limited, as this is a fairly new field that needs to be further explored both nationally and globally.

In addition, a limitation was that this study included a single case, namely University X. However, the case study design was relevant and significant, as a similar study had not been conducted at the institution before. This study focussed on a small sample, three first-year modules of the BEd (FPT) programme. Smaller numbers of students engaged in a study might affect its validity. However, the student sample of 155 was sufficient to enable the researcher to answer the research questions. Another limitation could be linked to the focus group discussion where more confident students dominated. It should also be noted that 10 students formed part of the focus group which is a limited number from a pool of 155 students. The researcher acknowledges that this focus group discussion was impacted by the #FeesMustFall protests, which led to students feeling quite unsettled and working mainly from home. The researcher tried to facilitate the discussion so that the quieter

students could participate more actively. The purpose of the focus group was to supplement the data retrieved from the student online questionnaire.

As the researcher was the only one observing the classes, it may be a subjective viewpoint. However, these perspectives were cross-referenced with lecturer insights and student experiences through the online student questionnaire and focus group discussion.

Another ethical issue that should be discussed is the fact that the researcher is employed as an Instructional Designer within the Unit for Innovative, Education and Communication Technologies (UIECT). The unit is responsible for driving the emergence of technologies and to innovate and include this within the curriculum. As the researcher is employed within the unit and consults with lecturers on a daily basis, on how to adapt their teaching practices to enhance their teaching delivery, it can be highlighted as an ethical issue. It should be noted here that although the researcher is an Instructional Designer, she did not engage with the lecturers regarding adapting their practices during the time of conducting the research study. The researcher engaged with the lecturers through observations during face-to-face classroom sessions and interviews with the selected lecturers and students for the purpose of the study.

Moreover, this study cannot make generalisations about all modules in the Education Faculty.

1.11 Chapter Layout

This thesis consists of seven chapters.

Chapter One serves as the introduction to the study and outlines the context and background to the research, the aims, objectives, the rationale and significance of the study. The research methodology used to explore the impact of blended learning on first-year students is also discussed.

Chapter Two presents the literature review. The theoretical framework of this study draws on learning theories and how learning works, with a specific focus on blended learning as a manifestation of learning. It further focuses on blended learning and its impact on learning and assessment as well as whether it is instrumental in developing students as self-directed learners. The use of various blended learning models for effective implementation of a blended learning approach is deliberated.

Chapter Three presents the positionality of the researcher as she is employed within the Unit for Innovative Education and Communication Technologies (UIECT) which forms part of the study. The researcher discusses her impact on the research study as she is both the researcher as well as an Instructional Designer and addresses the possible implications and effects of her presence in the classroom for both lecturers and students. The researcher further acknowledges that her role as Instructional Designer, her responsibilities, interests and experience have influenced the research topic and tools chosen for this study.

Chapter Four presents the research methodology used in the study. A single-case study was selected, using a mixed-methods approach. The research design used the 'Research Onion' framework as formulated by Saunders et al. (2019). It focusses on the research methods employed to collect, process, prepare, present and analyse the data in order to respond to the main research question.

Chapter Five presents the data that were collected through both the qualitative and quantitative research methods. Qualitative data were collected through observations, interviews, focus group discussions and an online questionnaire. The supporting quantitative data were collected through the final student results obtained via the Marks Administration System (MAS). The quantitative data in relation to the student engagement within the LMS, were obtained via the *Statistics* eTool.

Chapter Six discusses the findings of the study and analyses the data in more depth. In doing so, it draws on the literature reviewed and the conceptual framework of the study. The data collected were categorised according to emerging themes.

Chapter Seven summarises the main findings in relation to the main research question and the sub-questions. It also draws conclusions and provides recommendations based on the impact of Blended learning on the BEd (FPT) programme.

CHAPTER TWO: THEORETICAL FRAMEWORK

2.1 Introduction

As institutions of higher education seek to implement blended learning approaches, they need to evaluate various blended learning models based on their specific context. It is important to note that various models and variants of blended models exist, and there is not one model that may be applicable across institutions. Hence, the researcher will discuss five blended learning models for the effective implementation of blended learning approaches. The five models discussed in this study are, *Shewhart's Cycle for Blended learning, Six dimensions of Blended learning, Gilly Salmon's Five Stage Model, Rotation Model by Staker and Horn, and the Central role Teachers play in effective Blended Learning*. Elements of these models can be adopted and adapted for effective implementation. The researcher discusses the various models in the above order highlighting the following elements: (i) extensive planning, (ii) readiness of lecturers and students (prospective teachers) to implement blended learning, (iii) design of blended learning courses for active student participation, (iv) teacher as the central role for effective implementation of blended learning.

In order to address the main research question on the impact of blended learning on first-year students in the BEd (FPT) programme, it is important to examine the body of literature which focuses on blended learning, its impact on learning and assessment, as well as, whether it is instrumental in developing students as self-directed learners. This chapter, therefore, focuses on the existing body of literature, that relates to the topic under investigation, and which focuses on learning theories and how learning takes place within the teacher education sector.

Blended learning is a manifestation of learning and draws its strength from the three basic learning theories, namely: *behaviourism*, *cognitivism*, and *constructivism*. All three basic learning theories are reviewed and discussed as they have relevance to the design of blended learning environments created in the BEd (FPT) programme. A review of learning theories and how learning occurs is important to provide a scaffold upon which this study can be grounded. These theories and learning methods are investigated with a specific focus on first-year students enrolled for the BEd (FPT) programme or a similar qualification.

The specific focus is directed at prospective teachers, also referred to as pre-service teacher education students. It is not only their own learning that is the focus but also the way in which they will assist learners when they teach at schools. The modules under investigation include the compulsory language and mathematics subject areas which form the basis of the BEd (FPT) programme. This includes English Home Language (ELT 111) and isiXhosa Second Additional Language (SXL 101) as well as Foundation Phase Mathematics (FPM 111). Furthermore, the study explores and discusses the impact of blended learning as a pedagogical approach.

This review explores specific literature related to both the strengths and challenges of blended learning approaches. In order to elaborate and discuss the key findings in terms of blended learning, it would be wise to first discuss the various learning theories which form the cornerstone of any teaching approach. The philosophy, which lecturers conform to, will indicate which learning theory their teaching styles are based on. This aspect is discussed in depth in the data presentation and analysis chapters. Thus, the various learning theories that have an impact on the way blended learning is implemented and their impact on students are discussed. The review further endeavours to establish whether blended learning can assist with the development of students as self-directed learners, and whether a link exists between learning and assessment in the blended learning approach.

The researcher proceeds to look at the theories mentioned above.

2.2 Learning Theories

Learning theories form an important part or focus of this study as they influence the teaching philosophy of lecturers and how they impact on the specific approach they apply in their teaching. The teaching approach under investigation for this study focuses on blended learning. The three learning theories which underpin this study are, behaviourism, cognitivism and constructivism. Learning theories focus on how learning takes place and how lecturers can position their teaching to encourage learning. Lecturers teach from a specific theoretical perspective and their work should be grounded in one or more of the learning theories discussed. To this end, it is important to note that the work of influential theorists such as Pavlov (1849-1936), Piaget (1896-1980) and Vygotsky (1896-1934) related to behaviourism, cognitivism, and constructivism are contextualised in this study. Discussing the specific learning theories and how these impact on the teaching strategies

lecturers implement are important guiding principles. Each one of these learning theories has a unique set of characteristics. Hence, it is important that lecturers should be familiar with the unique set of criteria in order to select the most appropriate theory aligned to their teaching practice.

2.2.1 Behaviourism

Behaviourism is the theory that explains learning as a set of behavioural responses to external stimuli. The works of theorists such as Pavlov, Skinner and Thorndike are most popularly linked to behaviourist theory. This theory focuses on the importance of the learning environment as a determining factor for learning. Lecturers who ascribe to this theory focus on the factors that condition students' behaviour as they strive to achieve a particular set of activities. Lecturers design and structure their complex courses into manageable sections linked to specific learning outcomes. Predetermined tasks are set up in order for students to work through carefully structured learning content to achieve specific milestone tasks. Achieving the tasks through practice and reinforcement, students accumulate skills which equate to learning. Once students have reached a certain level of competence, it can be said that learning has taken place (Gagne, 1965; Fosnot & Perry, 2005; Bloom, 1956; James, 2006).

According to Skinner (1953), students are seen as passive learners who need extrinsic motivation in order to absorb information and learn effectively. Hence, students will learn to behave in a certain way if their lecturers reward them. Through the behaviourist approach lecturers provide presentations to explain the specific body of content and through clear communication. These activities create opportunities for students to engage with the content in a structured manner, practise, and reinforce learning while the learning process is motivated and assessed (Fosnot & Perry, 2005). By providing clear feedback on activities, lecturers further guide the students in order to achieve a level of competence that ensures learning has taken place (Gagne, 1965). The students' behaviours are conditioned and rewarded through either positive or negative reinforcement. Thus, this type of teaching can be connected to and is similar to Newton's third law of motion where, for every action, there is a similar or consequent reaction. Lecturers may choose to reward students for completing and, thereby, conditioning certain behaviour. If students achieve the task, they move to the next level in the learning continuum. If students feel that the reward is worth the activity, they will be motivated to engage actively.

The behaviourist approach might serve well in disciplines where memorisation of one section is critical in order to move to the next level. Students engaged in learning a new language may need

to memorise specific phrases in order to become proficient in the basics of a second additional language. Structuring specific learning material, aligned to learning outcomes and further accompanied by lectures with clear communication of what is expected, may assist students to gain the necessary skills to become familiar with an indigenous or foreign language. It is also important to note that a large proportion of the South African educational system makes use of the traditional behaviourist teaching approach (Fosnot & Perry, 2005).

According to Ertmer and Newby (2013), the basic characteristics of behaviourism are embedded in instructional design practices. Many audio-visual learning materials have been designed based on the behaviourist theory. The theory suggests that the lecturer, in collaboration with the instructional designer, needs to first determine which content and activities will prompt students to behave in a specific way. Making use of instructional design principles enables the design and development of measurable outcomes - an important step in this process. The focus should be on establishing a learner profile in order to find out what prior knowledge learners have at the onset of a programme. These steps will assist the instructional designer to know at which point the instruction should start. Based on this, the specific practical activities should be designed and paired in order to ensure that the students will respond in a specific manner.

This learning theory has its benefits and can be used constructively in different disciplines to demonstrate conditioned behaviour and a change in behaviours. However, it does not focus strongly on the concept of thought and cognitive processes of the human mind. This leads us to the next theory that focuses more on the mind and mental processes.

2.2.2 Cognitivism

Learning under the cognitivist theory focuses on the mental processes that occur in the minds of students. Cognitivist learning theory was established by the theorist Piaget, and focuses on the knowledge that is accrued by students and how they make sense of things through concepts, systems, organisms and models. The emphasis is focussed more on the complex cognitive processes instead of the behaviour of the students. The cognitive processes are focussed on problem solving, language learning and the processing of information and the understanding of concepts (Snelbecker, 1983). The construction of knowledge is important in cognitivist theory. In contrast with behaviourism, cognitivist theory is more concerned with mental processing, thinking, problem solving, language and concept formation (Snelbecker, 1983; James 2006, Sarem & Shirzadi, 2014).

Cognitivism further focuses on how students mentally organise and structure concepts in order to retrieve them at a later stage. The students play an active role in this approach and the focus is on how the students acquire the information. This further relates to the understanding of certain concepts by different students and the mental processes involved in acquiring knowledge (James, 2006).

Understanding concepts, that have been taught, can be tested through different assessment tasks. Once students are able to explain and apply the concepts through active examples, it shows that learning has indeed taken place, which is also referred to as deep learning (Tickle, 2001). However, some students might memorise the content with no ability to align what they have memorised to other areas in order to repeat it during assessments and no further application is applied which is also described as surface learning. In order for students to understand and retain information and convert it to knowledge they can apply in different environments, the process of reinforcement and repetition is important. Learning is viewed as a process of reorganising thoughts and mental structures to store information. Piaget further notes the processes of accommodation and assimilation that are used to distinguish how students change their cognitive behaviour based on the experiences and the environment in which they operate. Accommodation is the process of changing existing mental thoughts in order to accept the changing environment. Hence, the perceptions and understanding of a specific concept is revised so that new information can be incorporated. On the other hand, assimilation is the process of changing the environment so that it can fit into the pre-existing cognitive structures. When lecturers use this theoretical approach, students are actively involved in their learning and constantly reorganise their thoughts to accommodate new information. In this way they can determine how information can be assimilated within their pre-existing cognitive framework. Different assessment tasks can be developed in order to assess the cognitive abilities of students. Applying and adapting techniques which have been seen to be effective in different environments and circumstances is an example of evaluating cognitivism. The retention of information in the memory is given a prominent role in the learning process. Learning results when students can recall the information which is stored in the memory (Ertmer & Newby, 2013).

2.2.3 Cognitive Constructivism

The theory of cognitive constructivism states that students will not immediately understand new information. Students first need to invest substantial thought into a subject or learning material.

However, they need to engage with the content and then construct their own meaning related to the information (Piaget, 1953). Students need to construct their thinking around the process of assimilation and accommodation. Piaget (1953) identifies four stages of development that all humans go through. Assimilation occurs when new information is included into already existing knowledge and schemas which reinforce the learning process. Accommodation refers to a process where students need to make room to change their existing knowledge to make room for new information. This process of assimilation and accommodation needs to be facilitated by the lecturer in the classroom (Powell & Kalina, 2009). Furthermore, learning takes place effectively when an encouraging learning environment is created for learners and students are active agents within their learning.

Cognitive constructivism focuses on the construction and accrual of knowledge based on the students' own understanding and learning experiences. In order for this learning to take effect, the method in which instruction is designed and implemented is crucial. Learning takes place for the student through a process of self-reflection and making meaning of specific events. This further indicates the active engagement of students in their own learning and how they 'come to know' (Jonassen, 1991). Hence constructing knowledge is an entirely individual process as each learner learns at a different pace.

2.2.4 Constructivism

Constructivist learning theory focuses on the interaction of students in learning activities, which is an important factor of learning, according to Heaslip et al. (2014). Constructivism relates to the construction of one's own learning through one's own experiences. Learning experiences are developed through the interaction with both the learning content, experiences and related activities (ibid). Based on what is known and highlighted of constructivism, student interaction during both face-to-face and online engagements creates opportunities for them to construct their own learning with peers as well as on their own. This notion of student interaction in the framework of constructivism supports learning in larger classes (Heaslip et al., 2014).

Possible examples of how constructivism can be aligned to an online learning environment are face-to-face and online group discussion activities. As students engage with the learning content, they may construct their own understanding and this in turn leads to a more independent student. In addition to the specific teaching philosophies that may be employed, this will also determine the

types of assessment practices that may be used to assess cognitive and behavioural abilities. Hence, assessment practices are important factors which identify what type of learning has occurred (James, 2006). The validity and reliability of assessment practices are topics that are debated in higher education. Through the course of this study the learning theories which lecturers use to align with their teaching will become explicit. As lecturers prepare for their classes and student engagement, their practice should be informed by various learning theories.

If teaching practices are informed by learning theories, they will also direct lecturers to the appropriate methods to assess learning progress (James, 2006). It should be noted, though, that learning theories provide models of how students learn, but do not dictate specific teaching activities or how lecturers should deliver their complex content. This is where Biggs (2003) uses the term 'constructive alignment' which, in his view, indicates that the guiding assumptions about learning should be based on constructivist theory. The point Biggs (2003) makes is that the alignment process cannot proceed before the assumptions about learning are examined and teaching methods that align with those assumptions are adopted. For good pedagogical design, there is no escaping the need to adopt a theory of learning to direct the teaching and learning practices that lecturers seek to include in their teaching. In other words, learning theories inform the pedagogical approaches lecturers adopt (Mayes & de Freitas, 2004).

It is important to note that all learning theories emphasise the importance of a favourable learning environment. A lecturer needs to create an environment that is conducive to encouraging students to think while they are engaging in specific tasks that are beyond their level of expertise. The gap between what is known and what must be learned is what Vygotsky calls the 'Zone of Proximal Development' (James, 2006). In addition, students need the assistance of knowledgeable others to complete the tasks, and bridge the gap.

However, depending on the discipline, students might be able to memorise and list certain key components that could indicate that learning has taken place. Such seemingly behaviourist learning activities can be useful, especially when knowledge of key descriptions or definitions are important to a particular concept/topic being taught.

In the 21st century, it is imperative for students to be able to apply their knowledge and engage effectively with specific content technologies to show that learning has taken place. Technology can be used effectively to stimulate learning in certain disciplines. The purpose of this study was to gauge whether the use of technology could encourage learning more effectively than other teaching

methods. The process of monitoring student learning can be measured through the effective implementation of varied assessment activities.

2.2.5 Comparison between Cognitive Constructivism and Social Constructivism

Two theoretical perspectives namely, cognitive constructivism and social constructivism, as well as its relevance to this study are discussed in this section. Firstly, it is important for these two theories to be defined so that their relevance for learning can be contextualised.

Cognitive constructivism focuses on the mental process that takes place when an individual is introduced to new information. It focuses on how the individual constructs knowledge. Piaget suggested that when children learn new things, their thinking is constructed through a process of assimilation and accommodation (Piaget, 1953). Children assimilate new information with what they already know. Once assimilation has taken place, new knowledge is accommodated by the learning process whereafter adaptation takes place. This leads to changes that can be identified in the knowledge base and behaviour as well.

Social Constructivism is a theory proposed by Lev Vygotsky (1962). It focuses on the importance of social interactions amongst students when they learn. The theory of social constructivism deems social interaction, language and culture as important concepts for learning. The theory also includes the notion of the Zone of Proximal Development (ZPD). The ZPD can be defined as the distance between what students can solve independently and with what they might need assistance from a more knowledgeable peer or significant other (Vygotsky, 1962).

It is important for lecturers to focus on what students are not able to do on their own and focus on supporting them in this part of the learning process. In order to address the ZPD, lecturers can set up continuous assessment tasks to identify the gaps in the learning process. Lecturers are then able to better support and assist students in bridging the gap between what they know and where they need further assistance. It is also important for lecturers to create a learning environment which enables students to interact effectively and discuss the specific topics to enable their learning (Vygotsky, 1962). Furthermore, this learning space provides the lecturer with an opportunity to identify what the students know and where they still need assistance.

According to Powell and Kalina (2009), both theories follow the inquiry learning method of questions and answers. Inquiry learning takes place when a teacher presents a problem for a student to solve, for example when students discuss a problem and draw from each other's past experience to try to solve the problem. Such interaction is an example of social constructivism. Cognitive constructivism is practised when students work individually and rely on their own ability to interpret and construct their understanding of a concept. An example of this is a student working on an assignment. Both theories focus on the importance of guidance from a teacher or facilitator as students construct their own concepts and understanding of their learning (Powell & Kalina, 2009).

A difference between the two constructivist theories is that Piaget's theory focuses on the individual and how individuals interpret knowledge (or understand and construct meaning), while Vygotsky's theory focuses on social interaction that forms an important part of learning. This theory further specifies the importance of culture and language, as it forms part of social interaction. Cognitive constructivism focuses more on facts and constructing in one's own schemata (Powell & Kalina, 2009). According to Piaget, the thinking process precedes language, and it involves inner activity as information is processed. However, according to social constructivism, language precedes knowledge and the process of social interaction using language helps learning to take place (Powell & Kalina, 2009). Learning and development is a social and collaborative activity that cannot be taught. Instead, students should be guided to engage their thinking on a specific matter in a critical way. This leads us to an important question with regard to what learning is and how it takes place.

2.3 What is Learning?

There is the contention that

> humans are viewed as goal-directed agents who actively seek information. They come to formal education with a range of prior knowledge, skills, beliefs, and concepts that significantly influence what they notice about the environment and how they organise and interpret it. This, in turn, affects their abilities to remember, reason, solve problems, and acquire new knowledge (Bransford, Brown & Cocking,1999 p. 10).

According to scholarly literature, learning can be classified as a process that leads to change. This change normally takes place in the student or individual who is engaged in the learning process or activity (Alexander, Schallert & Reynolds, 2009; Knowles, 1972; Mayer, 2002: adapted in Ambrose, Bridges, Lovett, DiPietro & Norman, 2010). Such a change can be brought about through a process of activities, either physical movements or the more complex learning of abstract principles. According to Ambrose et al. (2010) learning is a process and not necessarily a product.

This notion is in direct contrast with that of Alexander et al. (2009), who state that learning is both a process and a product. However, according to Ambrose et al. (2010), learning is a process and happens in the mind of the student, the inference can be made that learning has taken place through the product or performance of the student.

Alexander et al. (2009) identify nine principles of learning, namely:

- Learning is change,
- Learning is inevitable,
- Learning can be resisted,
- Learning can be disadvantageous,
- Learning can be seen as tacit and incidental as well as conscious and intentional;
- Learning is framed by our humanness,
- Learning is both a process and a product,
- Learning can be different at different points in time and lastly,
- Learning is classified as interactional.

The last statement, learning is interactional, reflects the social constructivist aspect of learning theory. The nine principles are used to establish a framework that indicates four dimensions of learning, classified as the 'what', 'where', 'who' and 'when'.

In order to ensure that learning has taken place, it is an interactive process that brings about change through student engagement. This change can signify a behavioural and/or cognitive change based on the information attained by a student or any individual. This may ultimately lead to a student or individual making different choices as a direct result of the information shared and the learning that has taken place. According to Alexander et al. (2009), there are no concepts of learning that do not include change. As learning takes shape, it might take effect immediately or gradually over a period of time. However, change is an inevitable characteristic that shapes learning (Alexander et al., 2009). The latter statement leads us to the second principle identified and discussed by Alexander et al. (2009), namely that humans learning is an inevitable process. They state that 'to be alive means to be a learner' and that, in order to survive in this world, learning is essential and necessary. People learn to adapt to situations and circumstances in informal ways. Furthermore, the process of remembering certain things is an inevitable process and students do not need to be taught how to

remember events, facts or specific information, it is a process that happens inevitably through repetition and reinforcement (Alexander et al., 2009).

As inevitable as the process of learning seems to be, it can also be a process that is resisted for various reasons. Although people might be resistant to learning, learning can still take place. As stated by Alexander et al. (2009) learning can be resisted when the effort that is required to reach the end goal is too vast and the reward is perceived to be too small. In other words, individuals might deem the acceptance of change as too high a price to pay. An example of this was seen when eLearning was adopted at University X. Lecturers were resistant to change their teaching practices to include various modes of delivery and the effective use of technology (Stoltenkamp et al., 2007). During the initial stages of eLearning at the institution, the UIECT team was met with resistance and reluctance to adopt blended learning as a mode of teaching and delivery (Stoltenkamp, et al., 2007). However, this was circumvented by offering a support structure that provided reliable advice and built relationships of trust between members of the UIECT and lecturers who embarked on their eLearning journey (Stoltenkamp et al., 2007, p. 150).

Learning is not always a positive experience and one can adopt bad habits, which could be disadvantageous for various reasons (Alexander et al., 2009). The notion of learning being disadvantageous brings to mind a student who has learned to disrupt a class, learned to smoke, or use his knowledge and acquired skills to engage in 'creative' accounting or criminal activity. Although learning is more often than not linked to positive change and behaviour, it could also be used to negatively affect students' attitudes, actions and applications of a learning construct. Hence, learning can be used for good and bad, although in HEI's and any formal learning process, it is regarded as a process and product to be used for the improvement of a situation or activity. How an individual applies their learning achieved in various circumstances is what makes learning advantageous or labels it as a challenge. As an example, lecturers who have learned how to infuse or embed technology in their teaching practice effectively and thus improve learning, are at an advantage. However, if technology is used without proper thought and implemented just for the sake of using it, it will not have any benefit on learning.

Alexander et al. (2009) further state that learning in many cases is tacit and incidental. Students may not always be able to pinpoint the exact moment when learning took place. Bargh and Chartand (1999) note that many students are not always conscious of when learning takes place, especially during the academic development process. The authors, Alexander et al. (2009), use an example of the conscious effort a student applies when learning to solve an *unknown* in an algebraic equation.

In addition, through this intentional task students also learn the algebraic language along with various symbolic representations and constructions. The same can be said of a home language learner who might consciously try to learn the language. As the learning process continues, the way in which the language is used to convey what the learner wants to express, becomes an incidental process. Hence, a lecturer may design a task for students to reveal the skills they have attained during a course. If a lecturer were to design a in a way that it consciously focuses on writing an essay about a certain topic, the student may unconsciously make use of various eSkills to further format and edit the essay. Thus, the conscious and tacit learning processes are reflected in the completed essay written by the student. Tacit knowledge could be identified as the processes of editing and formatting the text in the paper, also typing and submitting the assignment online. These are processes that a student will not be graded on but they require the skill in order to complete the assignment.

Alexander et al. (2009) list as the sixth learning principle that learning is shaped by our humanness. In essence it could mean that how and what we learn is a direct correlation of who we are as humans. We all have different abilities and how we process information varies across individuals. Hence our propensity to acquire new skills and abilities is linked to our human development and reflects how easy or difficult it is for us to learn new things (ibid).

The seventh learning principle describes learning as both a process and as a product. Classifying learning as a process refers to a set of activities that takes place in a specific time-frame and through specific steps (Alexander et al., 2009). These steps result in an end-product which could be the acquisition of a set of skills.

It can be seen from the above explanation that this principle is in line with the behaviourist learning theory, which sees the learning process as behaviour that is conditioned through external stimuli. Furthermore, the product of learning can also be seen as the outcome that is achieved through the learning process. The learning outcome could be a tangible product that is designed and developed through various processes over time. For example, while such a tangible product could be the designing of an effective lesson plan through the use of a specific eTool, learning also occurs in the processes used to deliver the final product. It should be noted that the design and development process happens over a period of time and is further a reflection of the process of internalisation and understanding in a student's mind. The internalisation process reflects the cognitivist approach

and stems from the mental processes that are applied. Hence, the product is the lesson plan and the multiple steps it took to complete the product are the processes.

The eighth learning principle, according to Alexander et al. (2009), is that learning is different at different points in time. Through various life experiences, individuals (by implication students) learn; this affects how learning takes place and how events in our lives further affect how individuals understand things at different phases. This relates to the way age plays a role in how individuals interpret learning (Bjorklund & Pellegrini, 2002). The eighth principle is an example of Piaget's cognitive constructivism, as it can refer to individuals who construct their own knowledge, based on their personal and life experiences (Powell & Kalina, 2009). This construction of knowledge is unique to each individual, as their life experiences and interpretations are indeed unique.

The ninth learning principle classifies learning as an interactional activity. Interactive engagements enable students and learners to interact with content, their peers and with lecturers and teachers. Learning, as defined according to Ambrose, Bridges, Lovett, DiPietro and Norman (2010) is the process that students engage in and how they interpret their experiences through past and present actions. This relates to Vygotsky's theory of social constructivism, where learning is seen as a social activity, and includes the critical thinking process of the student or individual. Learning is a process that takes shape in an individual's mind and affects the application of acquired knowledge to a specific context. This is further supported through the ideas stated by Bransford, Brown and Cocking (1999, p. 10), as follows:

> humans are viewed as goal-directed agents who actively seek information. They come to formal education with a range of prior knowledge, skills, beliefs, and concepts that significantly influence what they notice about the environment and how they organise and interpret it. This, in turn, affects their abilities to remember, reason, solve problems, and acquire new knowledge.

Students' learning and their interpretation of events and ideas are formed based on the prior knowledge and skills with which they enter a formal learning programme or institution.

In their book 'How learning works', Ambrose et al. (2010) discuss seven principles for smart teaching. Their work is research-based and presents a developmental and holistic approach to learning and teaching. The outcomes the authors share focus on activities that educators could use to ensure that learning takes place or has taken place. In their exploration of learning and how it works, the authors state that learning is a developmental process that overlaps with other processes for students. They suggest that students who enter any programme do so with prior skills and knowledge, including social and emotional experiences (Ambrose et al., 2010). These experiences

and knowledge affect how open students are to learning new information. Bransford, Brown and Cocking (1999, p. 10) corroborate this notion by stating "students come into the formal education system with prior knowledge, skills, beliefs, and concepts which, affects their abilities to remember, reason, solve problems, and acquire new knowledge".

From a teaching perspective, the important principles discussed in the work of Ambrose et al. (2010), can be listed as follows:

- Prior knowledge, (how students organise knowledge which influences their learning. It can also refer to the knowledge that students bring to the classroom)
- Students' internal motivation to learn;
- Students acquire specific mastery skills;
- The skills of feedback & practice to enhance learning;
- How student development is closely linked to the learning environment that is shaped in class;
- The development of the student into a self-directed learner.

Ambrose et al. (2010) make use of classroom scenarios to explain how learning and teaching takes place. These seven principles constitute key practices and activities lecturers should consider when they design learning outcomes, assessment activities or learning content as part of their teaching strategies. These notions agree with Biggs (2003) who describes the process of good pedagogical design as one that ensures no inconsistencies exist between the curriculum taught, the teaching methods used, the learning environment and the assessment procedures adopted. It is further important to note that in order to achieve complete consistency, assumptions need to be examined and the processes at each stage need to be aligned.

According to a study by Davidson (2012), approximately 60% of children in the USA would be employed in positions that are currently not yet invented. The type of skills required will be more than just the memorisation of facts (which is what Bloom,1956 would refer to as the lower-order thinking skills) passed on from a teacher to a student. Hence, the method we use to teach should change so that our students can develop into self-directed learners. This is a phenomenon that is true for me as an Instructional Designer. At the time of my employment, a degree programme to become an Instructional Designer did not exist in South Africa, or anywhere abroad as an online programme. My skillset aligned with postgraduate research in political studies and economics, and my enthusiasm is what gave way to my employment. In the years following much direction,

independent research, and support from my most knowledgeable peer and manager, is what enabled me to thrive in my position and to further develop as a self-directed learner. My formal studies prepared me for a specific position. However, I was mentored well and the transfer of skills and on-the-job training enabled me to develop as an active and engaged employee. This builds a case for the teaching and learning process to include more active participation, which is advocated through the social constructivist learning theory. This is the task of prospective teachers currently studying at institutions of higher learning. Hence, the Academic Programmes at Higher Education Institutions (HEI's) which focus on teaching the prospective teachers should encourage the active participation of students within learning and teaching activities. Teaching-and-Learning (T&L) strategies should be designed in such a way that they lead to encouraging prospective teachers to take responsibility for their learning. These T&L strategies should enable students who have the ability to use their acquired skills to effectively implement different teaching strategies in their own learning environments. Reflecting on their own teaching philosophy, engaging in the process of design and delivery of related learning activities to ensure interactive participation in the class, will prepare them for their own profession. Applying these methods in their teaching practice, would showcase the level of self-directedness the prospective teachers have already acquired. Once prospective teachers have achieved the autonomy of directing and developing their own learning needs, they will use their new skills to inform their teaching philosophies to create learning activities that would teach their learners to develop as independent learners as well.

Using learning theories, and what learning is, as the basis for the decision to include a specific approach, the next section focuses on blended learning as a teaching and learning approach to develop learning.

2.4 Defining Blended Learning

Blended learning is a term that has evolved over decades (Olivier, 2011). In the higher education sphere and landscape, blended learning, has its origins in terms such as computer-assisted instruction (CAI), Computer-based Education (CBE) and eLearning, up until recently. The term eLearning is still widely used and is still popularly used to describe online learning and blended learning as we now refer to it.

It is important to define blended learning and what it entails in the context of this study. The survey of available literature related to blended learning demonstrated that this term can mean different things to different people and in different contexts (Oliver & Triggwell, 2005). In 2003, the United Kingdom's Department for Education and Skills provided a definition of Blended Learning which states that if someone learns in a way which makes use of information and communication tools, they are making use of e-learning. According to Thorne (2003), blended learning has boundless potential because it "represents a naturally evolving process from traditional forms of teaching to a personalized and focused development path" (p.5). This could include anyone who is, for example, engaging in an interactive game, which could be a toddler; a group of learners collaborating on a specific project connecting with peers in a different setting via the Internet.

Below is an example of the possibilities of what blended learning can entail as specified by the Griffith Institute. Figure 2.1 depicts the various traditional face-to-face experiences that can be combined with online activities to create an effective blended learning environment in which students and lecturers can engage.

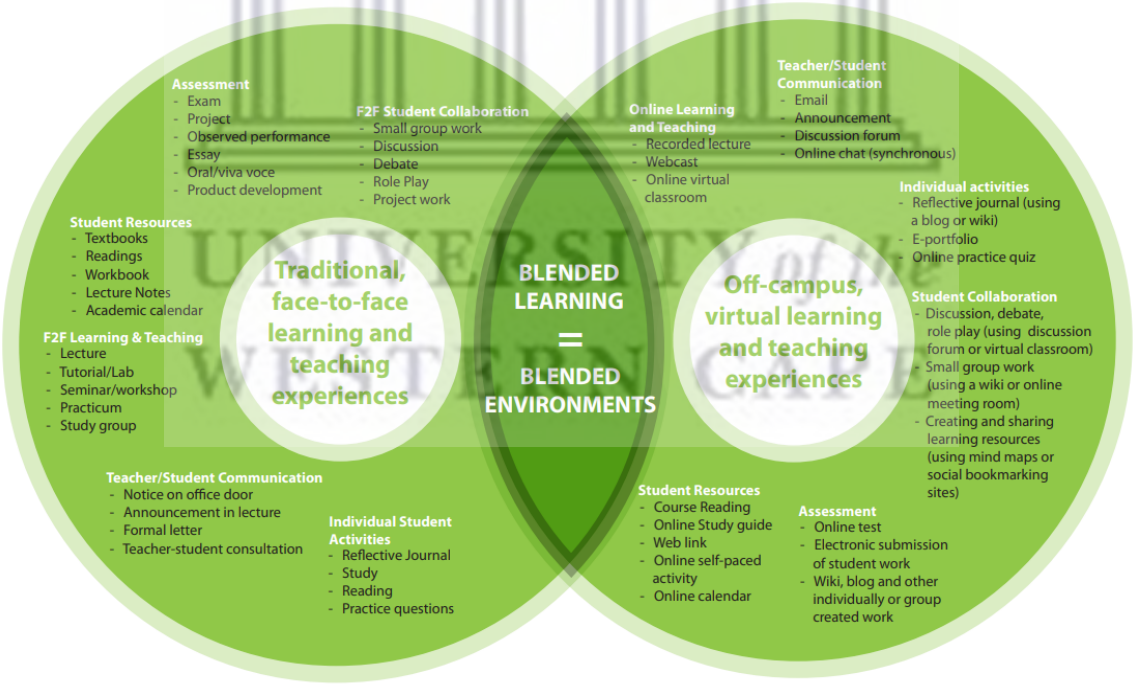

Fig 2. 1 Possibilities for blended learning as highlighted by the Griffith Institute

Blended learning can be described from different perspectives. It should be noted that the focus of this study was on learning in general, blended learning, and the link that may exist to develop students as self-directed learners. The focus of the learning outcomes and what learners should be able to achieve also directed the design of the blended activities included in three specific modules.

According to Valiathan (2002), the skills, competencies and behaviours that students should attain will also drive the specific learning design in a blended teaching module. Hence, the definition indicates that the focus of learning is important, and this will determine the type of blended learning environment that will be designed.

Kerres and De Wit (2003) define blended learning as a space that includes a mix of different didactic methods and ways in which they can be delivered. These authors suggest that the two methods are independent of each other. Whitelock and Jelfs (2003) discuss three different definitions of blended learning, which can be described as: a mix of traditional face-to-face methods combined with web-based technology, the use of media in an elearning environment; and the combination of different pedagogical approaches regardless of the infusion or use of technology. According to Valiathan (2002), specific content is divided into self-paced chunks of learning which are supported by a facilitator to assist students to develop certain skills. The author identifies competency-driven learning, which includes performance support tools so that employees can gain certain competencies in their profession. Valiathan (2002) further describes a third type of learning which focuses on cultivating a specific behaviour or attitude that should be developed by the learners. These different learning focus areas, as described by Valiathan (2002), highlight that the purpose of the learning to be achieved determines how the blended learning environment is designed to facilitate a specific learning outcome. The learning outcomes students need to achieve can be designed to develop a specific skill or behaviour.

In contrast, the author, Hoffman (2001) sees blended learning as a method where instructional designers review a learning programme, then identify specific chunks of materials to be organised in a structure and select the 'best' medium to deliver this content. It is also important to note that Driscoll (2002) describes blended learning as an exercise where web-based technology is used to produce a specific educational goal; a combination of instructional technology to achieve a specific task in the workplace, combining face-to-face instruction with technology and lastly, the combination of a pedagogical approach in terms of learning theories to produce a learning outcome with or without the instructional technology. Based on the definition produced by Driscoll (2002), the researcher regards blended learning as different things for different people in different contexts. Although blended learning is defined according to the context in which it is applied, the common purpose is to achieve a specific learning outcome. Driscoll (2002), further notes that the learning theories used by an educator, for example, behaviourism, cognitivism or constructivism, can be the basis from which the teaching material, learning activities and assessments are designed.

In contrast, Oliver and Triggwell (2005) posit that mixing learning theories is not a feasible approach, as one teaching strategy cannot contain a mix of theories. According to Mayes and de Freitas (2004), cited in Oliver and Triggwell (2005), it is inconsistent for an educator to mix theories. This is because core differences in these theories, cannot be reconciled and used in one teaching strategy.

In South Africa, the Department of Higher Education and Training (DHET, 2017, p. 362) defines blended learning as the "provision of structured learning opportunities using a combination of contact, distance, and/or ICT-supported opportunities to suit different purposes, audiences and contexts". It can also refer to the use of various teaching models and styles of learning. This definition refutes the claim made by Oliver and Triggwell (2005) that one cannot switch between theories. Although lecturers may adopt one specific theory to inform their teaching, a combination of theories can be used in different areas or disciplines.

Similarly, Krause (2007) defines blended learning as a process that includes the 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. According to Jackson (2014), cited in Ruzmetova (2018), blended learning is a mixture of in-person and virtual learning which cannot replace good teaching, but it demands good teaching. Boelens et al. (2015, p. 2) describe it as, "learning that happens in an instructional context which is characterised by a deliberate combination of online and classroom-based interventions to instigate and support learning".

At University X, blended learning is typically defined as the infusion of technology in order to supplement the traditional face-to-face practices (Stoltenkamp et al., 2007). This includes the pedagogical approach the lecturer uses to teach a specific discipline. This pedagogical approach is shaped around the learning outcomes, which influences the design of the assessment tasks, the design and inclusion of the learning content and lastly the careful selection of the specific eTool to deliver an interactive blended environment (van der Merwe et al., 2015). This interactive environment reflects a blended design which encourages student learning. The subject matter expert's critical thinking around design and delivery of a blended environment is pertinent to the effectiveness of the teaching and learning process. According to Van der Merwe et al. (2015, p. 11) *"*blended learning may be defined as the thoughtful integration of classroom face-to-face experiences with technology-enhanced learning experiences*."* According to Rajaratnam and

Shivananda (2022) blended learning can also be defined as a 'planned and systematic approach' to combining the modes of learning where both online resources and face-to-face activities are combined.

Although blended learning is a term widely used and which has gained increased importance in recent decades, the precise definition of blended learning is still contested. According to Alammary et al. 2014; Catalano 2014, less consensus has been reached on the definition of blended learning, which is often also referred to as hybrid, mixed, or combined learning.

Based on the literature surveyed there is no clear distinction between blended learning, blended learning approaches and blended learning activities.

The term "Flipped Classroom" can also be seen as a method or approach that is integrated in the process of blended learning. The 'Flipped' Classroom can refer to practices that are the complete opposite of teaching practices used in traditional classrooms, where the course is designed to introduce a face-to-face session at the start of the course, followed by a series of online interactions and concludes with a second face-to-face session (Boelens, De Wever & Voet, 2017). The 'Flipped' classroom, can also mean that some lectures are conducted in a physical venue, while students are required to engage with readings and activities online in preparation for the class. Thus, the engagement in the class is an interactive process in which lectures become discussion spaces where students share their contributions and are able to critique peers constructively. This is an example of how social constructivism is at play, as dialogue between peers and lecturers takes place and they actively construct their knowledge and understanding of a specific concept or task. For the purpose of this study, blended learning is defined as the infusion of various emerging technologies in the teaching process used to enhance the learning process for students. It is about blending the learning and teaching activities through a combination of both face-to-face and online activities hosted in the Learning Management System to expose students to different forms of content, communication and assessment activities.

In the next section blended learning is discussed in the context of this study.

2.4.1 Blended Learning: Some Contextual issues

There is a debate in the literature that argues for the term blended learning to be replaced with blended teaching, as the design and delivery of a blended module is designed from a teaching perspective and does not necessarily focus on the learning perspective. However, the focus of this study is on blended learning and can refer to mixing different contexts of learning and teaching to produce an effective teaching and learning strategy. According to Oliver and Triggwell (2005), blending in different contexts could refer to the physical space where learning takes place, a classroom setting, and where they apply what they have learned to their profession in the workplace or at home. Oliver and Triggwell (2005) further argue that learning and teaching and the application of what has been learnt will almost always take place in different contexts. However, media can also be inclusive of videos, webinars, recorded lectures linked to a face-to-face class and a specific instructional technology such as the LMS. The different types of media combined with a selection of eTools used within a module can also be defined as blended learning.

Another form of blended learning to be considered is the combination of mixed pedagogies as stated by Oliver and Triggwell (2005). The authors argue that any course, regardless of its length, would inevitably include blended pedagogical methods. The authors further draw on the works of Peters (1998), as he differentiates between the physical distance and the pedagogical distance of a course. According to Peters (1998), the geographical distance between the tutor and student does adequately reflect a distance learning course. However, Peters (1998) refers to the pedagogical distance between the lecturer and student which can be classified according to the frequency of interactions between the two roles. Hence, a face-to-face lecture once a week can be classified as a distant course regardless of students physically attending classes or not. An important defining characteristic would be the number of interactions that would classify the course as a distance course or not. The authors further discuss the motive for different modes of interactions for a course to be described as blended. Furthermore, the time space between interactions could be purposefully designed for students to have time to reflect on specific activities. According to Triggwell and Oliver (2005) the time lapse between interactions is not always linked with learning or that it is a cheaper method to deliver the teaching, but that it should rather be called blended teaching as it focuses on the lapse in time for teaching to take place. Especially, if the space between lectures is not used effectively for students to engage in debate and discussion about the topics taught.

In this study, blended learning is defined as the infusion of various emerging technologies within the teaching process used to enhance the learning process for students. It is about blending the learning and teaching activities through a combination of both face-to-face and online activities

hosted within the LMS to expose students to different forms of content, communication and assessment activities.

Cronje (2020, p. 120) defines blended learning as "the appropriate use of a mix of theories, methods and technologies to optimise learning in a given context". This definition focuses on a blended learning approach and how students learn in a learner-centred environment with an emphasis on learning through active experiences in the different scenarios. Addressing specific problems and developing problem-solving strategies at University X (see diSessa et al., 1995) is an important part of the learning and teaching process. The inclusion of selected eTools to enhance teaching and learning in a blended online environment is what has been promoted vigorously through the UIECT since 2005. Blended learning, if used in a balanced manner, can deliver a higher level of learning interactivity and collaboration among students, peers and lecturers; and more importantly this increased student engagement can lead to a higher level of institutional success.

In the next section the discussion focusses on whether blended learning can impact the learning and teaching practices.

2.5 Does Blended Learning Impact Learning and Teaching Practices?

According to Yang (2012), a study conducted among college students who struggle with English reading sought to investigate how these students were able to integrate their own conception of and approaches to blended learning to enhance their reading proficiency. The results of the study revealed that blended learning was effective in developing the students' reading proficiency. This was evident and reflected in the post-testing initiative and the specific reading logs students kept as part of the study (Yang, 2012). A sample of 108 students formed part of the students recruited for this study. Half the sample group of students were assigned to the experimental group with blended learning and the other half formed part of the control group with on-site instruction only. The results of this study revealed that blended learning was effective in enhancing students' reading ability. This was evident in the semi-structured interview for students' conceptions of blended learning, log files for their approaches to blended learning, and the post-test for the improvement of their reading outcomes. Similar studies have been conducted at various institutions which corroborate the findings that the inclusion of blended learning assessments increased the student learning compared

to students who did not engage in blended learning activities (Heba & Nouby, 2008; Sejdiu 2014; Zygadlo, 2007; Gimeno-Sanz, 2010).

First, the online reading activities enabled students to practise extensively what they had learnt in the on-site instruction without the limitations of time and location. Second, the process data (log files) for students to observe and reflect on their own online reading process in strategy usage engaged students in metacognition since they were not allowed to compare their reading processes with those of their peers in the on-site instruction. Finally, social interaction was facilitated in blended learning, as students had more opportunities to discuss their reading difficulties during group discussions and obtain individual feedback from different peers.

Another study, conducted to investigate whether blended learning creates greater flexibility, has also yielded positive results. Boelens et al. (2017) found that in one study specifically conducted within a higher education institution, the students had some control over the flexibility which was provided in terms of the delivery of both face-to-face and online classes. As class numbers were large, students could request for additional online or face-to-face meetings. This level of flexibility was provided by the lecturer and students had control as they could request additional classes and extra teaching assistance. However, it was found that only a small number of students exercised the option to regulate their activity and seek further assistance. The reason that comes to mind, and which is corroborated by research (Van Laer & Elen, 2016), is that the level of self-direction amongst students is not as developed. Students may either not have the know how or they lack the confidence to set their own learning needs and regulate their level of independence with regard to their own learning. It refers to the notion that you do not know what you do not know, hence you are not able to comprehend what it is that you need assistance with, what to request assistance with and how to control it in order to improve your learning.

Another impact study conducted tried to understand how student engagement has been measured in technology-mediated learning experiences and to evaluate the potential of these measures. The authors Henrie, Halverson & Graham (2015) are of the opinion that the best method of measurement would depend on the context, the number of learners engaged in the study and the resources available. Each measurement tool has its own merit and there is not one tool that fits all the boxes. Rather, different measurement tools can be applied and used in different situational learning contexts. These measurement tools as evaluated by Henrie et al. (2015) include electronic surveys (which are scalable across large classes) which can be shared with students easily. Another method

of student engagement measurement is the observational technique. Observing students as they engage in the learning and teaching activities is another key method. The observer does not interfere with the process of engagement and the learning but only observes and uses different senses to document and evaluate the engagement in blended-learning (technology-mediated) courses. Another method that can be used, and which has been indicated by the authors Henrie et al. (2015) is a data log system which can monitor and track student engagement.

For the purposes of this study, the researcher engaged in three methods (amongst others) as mentioned by Henrie, Halverson & Graham (2015). The online student questionnaire was used to gain student feedback. Face-to-face classroom and online observations were conducted and the student engagement was tracked via the *Statistics* eTool within the LMS. Students were observed during a series of face-to-face classroom sessions without interference from the researcher. These physical observations were documented and focused on the student engagements during the learning process. During these classroom sessions, students were engaged in different learning, teaching and assessment activities, which included amongst others, engaging in tutorial group discussions, creating learning objects for lesson preparation, engaging in discussions, brainstorming ideas around the use of specific technologies; and the actual use of specific technologies. The observations also extended to online observations, which allowed the researcher to track and monitor student activity during online learning and assessment activities.

The institutional LMS X, is a sophisticated platform which can track student activities during timed assessments and other forms of activity in the system. The system can provide a summary of the activities or event logs for the entire class through the *Statistics* eTool. This eTool was enabled in each online module within the LMS X Platform. Aside from providing an overall overview of class engagement, the system can also track individual student activity during the learning and teaching process. This is particularly important to track the engagement by individual students who may be seen as 'at risk' or students whom lecturers have identified as not actively engaging. Based on the literature reviewed, blended learning can impact the learning and teaching practices and influence student learning. How blended learning approaches are arranged in a module can impact the interactivity that occurs and the outcomes of assessment activities.

The next section focusses specifically on blended learning within the BEd (FPT) programme.

2.5.1 Blended Learning in BEd (FPT) Programme

Blended learning at University X has been advocated as a method of teaching since the establishment of the Unit for Innovative Education and Communication Technologies (UIECT) in 2005. Implementing blended learning practices has been a voluntary process, which lecturers could either choose to adopt or not. Lecturers were resistant to change their teaching practices to include various modes of delivery and the effective use of technology (Stoltenkamp et al., 2007). Since, the implementation and marketing of eLearning, and more precisely blended learning, various interventions were marketed to the campus community. Hands-on eTools interventions have been offered on a weekly basis and were further sustained through one-on-one office consultations, email and walk-in support. Since 2005 to date, the inclusion of blended learning practices has grown exponentially with an adoption percentage rate of more than 90%. The implementation of blended learning practices in the BEd (FPT) programme has been adopted in a manner which was driven by the need. Lecturers have adopted the use of eTools based on their specific learning outcomes and needs.

The Language and Mathematics modules are the specific focus and context of this study. Hence, the present research specifically related to the Language and Mathematics modules in the Education Faculty at University X. A particular study related to the application of 'real-life' matters that teachers can identify in teaching Mathematics Literacy, is one case that can be used to prepare prospective teachers for their professional development (Julie, Holtman & Mbekwa, 2011, p. 11). However, this was not the focus of this present study, instead the focus was on how lecturers and support staff are able to prepare prospective teachers adequately for the world of work. Furthermore, this study reflected on and investigated the types of pedagogical approaches that were practised in the BEd (FPT) programme. Through the investigation, the researcher could reflect on language teaching and its impact on the teaching of mathematics. It has become evident through research that a strong case for mother tongue instruction can be made (Desai, 2004; Mbekwa, 2008; Weddikkarage, 2009; Nomlomo, 2008). This study does not focus on home language instruction but will use the case presented to promote and highlight how blended learning techniques can be implemented to assist with this specific issue. Furthermore, the impact blended learning had on student learning was a priority. Preparing student teachers effectively is an important factor that will lead to the success of the next generation of students that will enter institutions of higher learning and the workforce at large.

It is important to note that the focus of this study, connected to the current BEd (FPT) programme, is on how the implementation and use of pedagogical approaches, specifically the use of technology, can be employed to meet our vision of an engaged institution in the digital age. However, more importantly, we need to ensure that student teachers are adequately equipped to implement the educational approaches they are taught. Implementing the use of blended learning in the teaching of mathematics and language can lead to other learning opportunities. Making sure that students become stakeholders in their learning process as they learn a new language or teach students who are not first language English speakers in this way benefits them when they are exposed to the work of Dam (2014). Her theory is to ensure that students become stakeholders in their own learning. This could lead to students becoming more engaged in the learning process.

Making use of blended learning can provide an opportunity for students to engage in problem solving, individually as well as collaboratively. This further enables lecturers to move from being lecturers and pushing information onto passive learners, to become facilitators who guide the learning process of students. Through the effective use of emerging technologies, the opportunity is created for students to become actively engaged in their learning through solving problems. These are activities that might be more limited in traditional face-to-face lectures (Underwood, 1999). According to scholarly literature consulted, the use of technology opens the opportunity for students to become peer-teachers who teach and assist each other and further develop as self-directed learners (Kozma & Anderson, 2002; Paavola, & Hakkarainen, 2005). This relationship and development of students is especially useful in the preparation of prospective mathematics and language teachers.

According to Brock-Utne (2013), there is a notion amongst some Tanzanian students that English is the only language of instruction for science and technology. Brock-Utne (2013) indicates in her study, that whilst observing mother tongue Kiswahili-speaking students, these students, although they struggled to understand the English language, were of the belief that English is the language of instruction for science and technology subjects. Upon further investigation, students elaborated that to find a 'good' job, they needed to understand and learn English. This is a concern as these students struggled to understand the subject matter due to the language barrier and as a result, the lack of understanding will reflect in their assessment scores and ultimate learning. Weddikkarage (2009) has indicated that teaching in the student's mother tongue has proven advantageous for both the teacher and the student. His research has shown that Sri Lankan teachers are of the opinion that teaching students in their mother tongue has aided their development and learning. The country has

a hundred percent participation rate amongst primary school students and further, boasts a ninety-one percent literacy rate, which is one of the highest in South East Asia (Brock-Utne, 2013). Dam (2014) follows an approach to create a classroom environment that fosters learner self-direction; it ensures that the development of the learners' capacity to manage their own learning is fully integrated with the development of their understanding of the new language and to become spontaneous learners and teachers. It further shows that students need to use their own creativity and authenticity based on their needs and experiences in order to respond to their teaching practice. Dam (2014) follows an approach that includes a theory of language acquisition and her work differs from that of other scholars in that it requires students who learn a new language to actively speak it within the classroom. She does not ignore the role the students' mother tongue plays in acquiring the new language. According to Dam (2014) the awareness and importance around the student's mother tongue is quite important as it provides the scaffold on which they will increasingly gather and organise their own understanding of the new language. Dam (2014) is of the belief that the only way to develop a student's linguistic and communicative proficiency, is to involve the student's ability to reflect and engage around their own experiences and understanding of the language.

The National Curriculum Statement (DoE 2005, p. 13) states that teachers in the Foundation Phase elect to a "straight for-English" approach due to the lack of textbooks in African languages (Dicker, 2015). The 1997 White Paper 3 emphasises as an important goal to ensure that universities play an active role in developing and "advancing the use of all South African languages including the official languages, the Khoi, Nama and San languages, Sign Language and African Languages". The role universities are to play is to prepare language teachers and practitioners to serve the needs of a multilingual society. However, many African Language Departments were closed down, because of a lack of funds, resulting in the National Development Plan (NDP) goals not being achieved. The shortage of African languages in the academic sphere is a threat to the development of the linguistic diversity in South Africa (RSA White Paper for Post School Education and Training, 2013; 2020). It is important that blended learning approaches could be adequately implemented to ensure that these African languages are supported within the academic sphere.

A reality in many South African schools is that teachers may find themselves in a classroom where different home languages are often spoken by the diverse student groups which make up the classroom (Olivier, 2011). Hence, English is chosen as the language of instruction in an attempt to provide an equal chance to all in the classroom (Dicker, 2015; Oliver, 2011). However, this may not be the first or home language for those learners in classrooms. The same situation is found within Higher Education settings. Dicker (2015) further highlights that as multilingualism is a

reality in most public and higher educational institutions, teachers and lecturers have the added challenge of ensuring that they are accommodating the diverse needs in terms of language. In addition, teaching a subject like mathematics highlights the problem as it has a specific 'mathematical register' which has a set of meanings that belong to the language of mathematics (Dicker, 2015).

Another factor that affects learning is the language of instruction and whether learners are proficient in the language of instruction (Desai, 2004). Although home language is not the focus of this thesis, it is worth mentioning that this can affect the level of understanding and cognition for students who are not home language English speakers. The role that language plays in teaching is of utmost importance as we use language to communicate with each other. For the teaching and learning experience to be effective, it is important that students have more than a working understanding of the language of instruction (Owen-Smith, 2010). Hence, the language literacy of students is of critical importance. In addition, teaching mathematics, which can be a rather complex subject, students need to master the language of mathematics in order for learning to be efficient (Mbekwa, 2008; Dicker, 2015). Teaching mathematics becomes more of a challenge when the language of instruction is not the home language of the students who are being taught. This becomes a double challenge, as the teaching process is further challenged and could negatively impact the student's learning experience (Mbekwa, 2008). Thus, teachers are faced with the challenge of teaching students who struggle to understand phrases and concepts due to the language barrier. However, as blended learning is an approach that promotes flexibility, there are different methods and tools that lecturers can introduce to make understanding the language easier for students. Some of these would include Google translate to translate phrases into different languages, making it easier for students to understand.

According to scholarly literature, many argue that students should learn Mathematics in their mother tongue (Mbekwa, 2008; Nomlomo, 2008; & Setati and Adler, 2001). Mbekwa (2008) observes that in a South African classroom there can be different home languages of learners, which makes teaching mathematics challenging. However, it can be made easier if the teachers' language skills are more diverse or widespread with an understanding of the home language of those learners whom they teach. Teachers should be able to translate certain concepts and key phrases in the learner's home language (Mbekwa, 2008; Dicker, 2015) and this could be done using blended techniques. This would certainly make the learning experience much easier for them. Various technologies exist

which can be used to translate content for those learners who need extra assistance with their understanding.

Mathematics has a specialised vocabulary and register that is a set of meanings unique to the language of mathematics (Dicker, 2015). While this could be problematic, if teachers were multilingual, they would be able to explain certain phrases in the different languages. However, self-directed teachers would be able to address the language problem by developing blended instructional materials to bridge the gap for struggling students. In order to assist students further, it is important to design and provide learning material translated into their home languages. So (Dicker, 2015) designed and applied a specific blended learning approach in an English course and found that it had positively impacted the fluency and writing of English as a second language. This will further assist the learning experience and was corroborated by a study conducted by Prifti (2020), which found that the students' critical thinking was further developed as a result of implementing blended learning approaches. Teachers are facilitators of learning and should ensure that students understand in order to engage their various cognitive senses. The level of blended learning introduced in the BEd (FPT) programme can create an awareness amongst prospective students to introduce learning and teaching activities by using different types of emerging technologies to address learning. This can also be done to overcome and compensate for the difficulty in understanding specific catch phrases.

According to a study conducted by Nomlomo (2008), students taught in their home language were more motivated and enthusiastic about the subject than those who were not. As students become more familiar and feel more comfortable in their learning space, the level of student-teacher interaction increases which enables students to engage in problem solving. Once students feel at ease in their learning experience, they are able to engage more effectively with the learning environment. The active engagement and discussions related to the subject matter, lends itself to the constructivist approach where students are able to engage with their peers and engage in collaborative problem-solving activities. It has been found through various research studies and corroborated by Desai (2004) that a positive connection exists between students' cognitive abilities and their academic performance if they are taught in their home language (Nomlomo, 2008; Desai, 2004; Mwinsheikhe, 2007). However, according to the study conducted by Nomlomo (2008), although students were taught in their home language and their understanding of the concepts was clear, the teaching approach was mostly teacher-centred and engaged lower-order thinking on the

part of the students. Hence, students were passive receivers of information and knowledge without real engagement as the teacher dominated the classroom (Nomlomo, 2008).

It is important that teachers are prepared adequately while enrolled as students in their respective degree programmes, especially in the Foundation Phase, as in this specific study. According to Sheard and Lynch (2003) students' and lecturers' cultural background can influence their interaction and engagement in the learning environment, hence impacting what they gain from such an environment. It is important that lecturers are aware of how students will interpret different contexts based on cultural diversity. The cultural diversity can benefit higher education institutions in many ways (Taras & Rowney, 2007). The typical South African classroom is quite diverse which allows for institutions to attract and retain the best and the brightest students and the benefit that diversity brings to higher education is the experience of preparing students for a global work environment. Hence, lecturers should capitalise on the potential benefits diversity blended learning can offer to the classroom and identify techniques to enhance and take full advantage of these benefits.

The prospective teachers need to become fully conversant and familiar with their subject matter, as well as the different methods of instruction to address student learning needs (Islam et al., 2022). Moreover, they need to be able to make use of effective teaching methods, to ensure that learning takes place (Nomlomo, 2008; Parker & Heywood, 2000). When prospective teachers are well versed and prepared in the subject-matter content, they will be able to teach and assist their students more confidently (Nomlomo, 2008). Once they are confident they will be able to embrace the inclusion of blended learning techniques. As students are prepared to become self-directed learners, it will be easier for them to become more spontaneous and to implement innovation and take initiative when preparing their learning and teaching content (Karatas & Arpaci, 2021). This is extremely important as it will make the teaching process so much more impactful. Once teachers are confident about their subjects, they will be able to think critically about how they should be taught (Nomlomo, 2008). Teachers are reflective practitioners, and once they are able to apply this critical process, they will be of greater value to the students they teach. In addition, they will be able engage with their students more intensely. For these reasons, the level of use and impact of blended learning in the BEd (FPT) programme is important because interactive teaching and assessment increases student learning. An objective of the present study was to explore whether the use of blended learning can impact student learning and assist them in developing as self-directed learners.

The next section discusses the concept of self-directed learning.

2.6 Towards Self-Directed Learning (SDL)

Enabling students to become responsible for creating, formulating and directing their own learning beyond their formal studies is an important skill that students should be taught. As we find ourselves within the 4th Industrial Revolution, the onus is on educators, especially within the Higher Education landscape to prepare graduates as self-directed learners and instil a culture of becoming lifelong learners. "Self-Directed Learning (SDL) has been one of the fastest-growing and most-researched areas of education for the past 40 years, and the realisation is spreading more rapidly that SDL is an essential skill" (Gugliemino, 2013, p. 2). This is especially true for graduates to actively engage with in the 21st century. In 2010, Google CEO Eric Schmidt made an announcement that "Every two days we create as much information as we did from the dawn of civilization until 2003: five exabytes of data" (Kirkpatrick, 2010). Hence, stating that we live in an information age is an understatement, which implores the educational institutions to develop students as independent learners who can initiate their own learning needs.

Self-directed Learning (SDL) is the process in which learners are prepared to acquire and develop skills such as goal setting, time management, learning strategies, self-evaluation, self-attributions, seeking help or information, and important self-motivational beliefs, such as self-efficacy and the intrinsic motivation to complete tasks. Lecturers who actively support this notion and method of teaching, create and design learning activities that would develop students toward self-directedness. Self-directed learning is not a new phenomenon and lecturers and teachers have worked on this specific skillset for over 40 years. For the purposes of this study, the definition as described by Guglielmino (1978, p.73) is used as the best description of self-directed learning. Merriman et al. (2007) agree that the most cited definition of a self-directed learner is the definition by Guglielmino (1978, p. 73)

> A highly self-directed learner, based on the Delphi survey results is one who exhibits initiative, independence, and persistence in learning; one who accepts responsibility for his or her own learning and views problems as challenges, not obstacles; one who is capable of self-discipline and has a high degree of curiosity; one who has a strong desire to learn or change and is self-confident; one who is able to use basic study skills, organize his or her time and set an appropriate pace for learning, and to develop a plan for completing work; one who enjoys learning and has a tendency to be goal-oriented.

An important aspect of self-direction in learning is to gradually help undergraduates develop these skills, especially the prospective teacher enrolled in BEd (FPT), as they will be required to initiate and take responsibility for their own learning and teaching. The challenge for educators is to encourage them to instil this same skillset of self-directed learning within the classroom (Karatas &Arpaci, 2021). In this way they will be able to prepare the younger generation to actively engage and stay relevant within the job market, especially within the 4th Industrial Revolution (Guglielmino, 2013; Karatas & Arpaci, 2021). If the preparation for self-directed learning (SDL) is not regarded as an essential skill by educational institutions, we are preparing young people to fail. Due to the exponential and unprecedented increase of information and the rapid change and transformation of technologies, students need to be adequately prepared to direct their own learning (Karatas & Arpaci, 2021).

Prospective teachers need to be prepared with this essential skill of self-directedness to effectively engage in the world which now has increased with the rapid development and speed of communication and technological advancements (Karatas a Arpaci, 2021). Research indicates that initial training undergone in a degree programme is no longer adequate preparation for maintaining work-based competence in the 21st century (Casner-Lotto & Barrington 2006; Guglielmino, 2013). Although the training and acquisition of adequate knowledge accrued through a high-school education during the late 1940s was sufficient to keep a person employed until retirement, this is no longer the case (Steinhoff, 2012). Hence, it would be short sighted if educational institutions do not prepare graduates as lifelong self-directed learners.

There is a distinct move in today's age by educational institutions to prepare students as intrinsically- motivated lifelong -learners, who have the autonomy and competence to contribute to and direct their own lives. According to Raidal and Violet (2009) the process of learning, seeking new knowledge and creating new ideas should continue long after the student has graduated. This produces a lifelong learner and, more specifically, a self-directed learner (SDL) - a student who is able to identify their own learning needs and goals is self-directed and does not look to others, be it lecturers or peers, to ascribe to them what to learn (Silen & Uhlin, 2008; Uys &Citanda, 2020). They are not just consumers of information and knowledge, but they are creators and designers of their own learning which further promotes a "deeper engagement with course material and provides cognitive gains" (Natsis et al., 2018, p. 357). These are precisely the skills that prospective teachers should develop within their undergraduate and postgraduate studies (Jagals, 2020). Developing these skills in prospective teachers is what will ensure that the university graduate is able to reflect

and instil them within their teaching strategies at schools. Guglielmino (2013) encourages the inclusion of SDL into a curriculum and suggests several guidelines for lecturers and facilitators to create a classroom that is receptive and welcoming of this approach.

A classroom environment should be created that makes students feel comfortable in their learning space and allows them to participate freely in various learning activities. These activities should allow students to reflect on and build awareness around SDL (Guglielmino, 2013). The author further suggests that assessment strategies should be designed in such a way that students are able to develop their SDL skillset. Once students become aware of what they have learned and take ownership of their learning, the process of building their SDL skill set becomes more pertinent. Lecturers need to design learning and assessment tasks that are related to real-world problems. Students need to be able to engage in problem solving through investing and applying their mental capacities as well as softer skills (Guglielmino, 2013) and through the effective guidance of their lecturers (knowledgeable others). This process further enables students to develop their mental capability, as well as work with others to solve problems.

These authentic real-world problems, stimulate the student's inner motivation to accomplish the tasks and assist them to develop and practise their SDL skills (Parsons & Ward, 2011). During this process the lecturer's role transforms into that of a facilitator who guides the learning process for students to develop their skills and techniques. This latter process is linked to cognitivist learning theory, which proposes the 'scaffolded' approach. Students explore and develop new skills and competencies with the careful guidance of the lecturer or facilitator. Once they have reached a level of competence, the scaffold is removed and students are able to move toward the next level of understanding and competence (Powell & Kalina, 2009). The acquisition of SDL is a process that should be infused in the curriculum of pre-service teachers, especially, but most importantly should be included in the BEd (FPT) programme. Exposing students (prospective teachers) to this technique and developing these skills, is much needed to develop more confident students that are able to apply these techniques in their curriculum at schools. The process is not easy to undertake and building these techniques into the curriculum should be a well-thought through process.

Furthermore, lecturers should be encouraged to design their learning activities to elicit effective engagement from students. Designing learning and assessment activities that allow students to think critically about concepts, engage in discussion with their peers regarding these concepts and accept the guidance of their lecturers, will in effect develop a graduate that will engage in lifelong learning.

It is necessary to develop prospective teachers who are able to think beyond the theory they are taught and are able to confidently expand their ideas in the real-world (class situations). Mentz and van Zyl (2016) stress the importance of developing pre-service teachers who are lifelong and self-directed learners. The authors further note that well-prepared teachers are in the perfect position to help students develop as critical thinkers, self-directed and lifelong learners. As teachers have a critical role to play in ensuring that children are able to adapt and survive in an ever-changing dynamic environment, they need to be well prepared through the academic programme at the institution. Prospective teachers should be prepared and assisted to develop their SDL skills through the curriculum as well as the learning activities and assessments that are introduced to them. They should take responsibility for their own learning, identify their own learning goals and develop professionally in order to stay current in their profession (Mentz & van Zyl, 2016). Once this critical step has been met, students (pre-service teachers) should be able to apply it in their own teaching in schools they find themselves in.

Mentz and van Zyl (2016) explored the use of cooperative learning as a method to develop a positive learning attitude at a South African university. The process also influenced the development of SDL in first-year students enrolled for a Computer Application Technology (CAT) programme. This study found that students enjoyed the cooperative learning exercises and attributed this to their development as self-directed learners. Mentz and van Zyl (2016) implemented cooperative learning tasks which required students to engage in group work. During these tasks, students needed to work together in order to get the task done. More importantly, they needed to be responsible for their own learning in the group as well as ensure that this is reflected in the completion of the tasks at hand. The results of the study demonstrated that students who had a deeper understanding of content needed to explain their knowledge to learners that did not understand it as well. This led to peer-to-peer learning and learners felt motivated as they were able to assist each other in their learning process. This had a positive spin-off for other learners as they were able to understand through a process of peer learning. This positively influenced their attitudes towards the cooperative learning tasks. In addition, students attributed their positivity to their eagerness to learn more, and in effect their development of SDL (Mentz & van Zyl, 2016).

Based on the research conducted by Mentz and van Zyl (2016), the present study sought to assess whether the implementation of blended learning in the BEd (FPT) programme assisted students to develop as self-directed learners. As the literature consulted indicates, SDL is an attribute of a lifelong learner and an important attribute of University X's graduate. SDL is a skill, or rather an

attribute, that needs to be developed and pre-service teachers are important role-players as they, in turn, need to model this behaviour to future learners in their classrooms.

As students are prepared to become self-directed learners through the structure and design of different instructional activities, it is through the process of assessment that lecturers are able to evaluate whether learning has taken place. To establish where students are on the continuum of self-directed learning there is a process of learning and assessment that needs to take place. The success students achieve is partly based on how the learning activities are structured and partly includes the motivation of the student to achieve a specific level of success.
The next section focuses on the process of learning and assessment and how they pertain to the preparation of specific prospective teachers.

2.7 Learning and Assessment

In a study that focused on the relationship between assessment practices and how learning is achieved, James (2006) found that assessment and learning are two concepts that are interlinked in teaching practice. These results suggest that learning cannot be measured without accurate assessments. The results of learning are seen in the process of assessment and results students achieve. It is important that assessments should be valid in terms of the concepts which are assessed and deemed reliable to produce the same outcome each time they are taken.

Various assessments can be designed to monitor and track student development and the achievement of certain learning outcomes. Assessment *for* and assessment *of* learning are key components in certain time frames of the learning process. Assessment for learning highlights the design of formative assessments which focus on incremental, diagnostic and planning processes. This process focuses on a build-up of knowledge over a period of time. Once lecturers are aware of the learning students have achieved, they can use the information to improve their teaching practices and subsequent lectures. Thus, if students have not achieved the level of learning that is required, the lecturers can still create interventions which can assist students with their progress. According to Hattie (2009), this type of assessment has revolutionised the way students learn, as they are made aware of their progress through constructive feedback provided by the lecturers. Once students are aware of their progress and where they need to improve, the learning process can become a motivating experience, that can lead to encouraging students to continue learning and feel a sense of achievement.

However, it is also important to note that while assessment for learning has seen growing benefit, there is the danger that lecturers could tend to over-assess, which could have an adverse effect. This point is put forward by Race (2010) who contends that when the number of students accessing higher education institutions was still relatively small, university lecturers tended to over-assess their students. In recent years, large numbers of students have entered the higher education institutions because education has become more accessible. Hence, the way lecturers assess and the frequency of assessment should also change. If there is a level of over-assessment it leads to students focusing only on those facts, they need to know in order to 'pass' and they focus on accumulating marks. This is a common phenomenon which lecturers at University X have often pointed out. This process of over assessment takes away from the level of fun and intrinsic motivation students need to want to learn more. It will require lecturers to almost have a specific perfect recipe to ensure learning stays fun and students are able to retain this information for longer and apply it effectively in their learning and beyond their formal learning process. This blend however, is not an easy task as students come from diverse backgrounds and other factors such as the context, the learning environment, specific learning styles should be considered when including the frequency and level of assessment (Brown & Race, 2013). The variables that need to be considered can become overwhelming for lecturers. Thus, the level of assessment and the intervals at which assessment is conducted are important factors to bear in mind when assessment is used for learning.

Assessment of learning in contrast to assessment for learning, focuses on the traditional approach which seeks to assess the learning the student has acquired as the result of engaging in a particular module or workshop. This type of assessment normally referred to a summative process which seeks to evaluate the knowledge students have acquired and which is assessed in a specific time-frame, for example end of semester and/or end of year examinations. This method highlights what the students have achieved and their level of competence. Assessment of learning is a practice that has been used extensively for centuries and the value of summative assessment is not lost, although it seems that current research (James, 2006; Zimmerman, 2002; Williams, 2002) promotes assessment for learning so rigorously that it questions the value of assessment of learning as a valid method of assessment. However, although it leads one to question the value of Assessment for Learning (**AfL**) compared to Assessment of Learning (**AoL**), both have value and merit in the evaluation process.

Based on research - one is left with the idea that AfL almost reduces and takes away the value of summative assessment- AoL. However, it is important to recognise the value and positive

contribution that summative assessment offers. The design and formulation of specific question types in assessment of learning (AoL) sessions is what is key. For this type of question design, it is important to focus on how questions are phrased so that both lower and higher order thinking skills (HOTS) are tested. Students are used to preparing for final assessments which tend to assess their acquisition of knowledge, understanding and application of certain disciplines or learning content. It is also a process by which students are able to showcase and use the different learning strategies they have developed to achieve their goals. During this process the lecturers are able to make certain assumptions and judgements about the students' understanding regarding a specific topic. Depending on the discipline, lecturers are also able to examine students' literacy and fluency in writing.

According to Zimmerman (2002), learning is an activity that students do for themselves in a proactive way rather than as a covert event that happens to them in reaction to teaching. If this statement and definition is true for all students, the process of learning would make it easy to develop students as self-directed learners. However, all learners are different and the level of intrinsic motivation they may have, will vary across the spectrum.

In addition, assessment and meaningful feedback are crucial aspects for helping students to learn. Constructive feedback at critical stages in the learning continuum will make learning more effective for the students and the teaching process more effective for the lecturer. Providing feedback to students is based on a relationship of trust as it includes the students in the process of learning and makes them feel they own the process as well. This transparent process creates a space which allows students to question to gain a deeper understanding as they communicate with the lecturer. This is an important process for all students but more so for prospective teachers who will have to engage learners in the same process in the school classroom. The work of Bloom (1956), promotes the idea that one-to-one tutoring is effective because the lecturer can identify errors in the student's work immediately, and provide clarification, and further follow-up if necessary. Hence, the importance of feedback is crucial to promote learning during the process of assessment, as well as develop students as reflective learners.

This process of feedback is of little value in the summative assessment of learning (AoL) process, as students only receive a mark or grade at the end of the assessment. The traditional process provides little to no further feedback, other than the grade, regarding the student's achievement. This does little for the student who fail, other than indicate that they did not understand the topic or

how to address the problem. Although the pass mark is a sign that learning has been achieved for the student, it still leaves the student with no further information as to what they did correctly. Providing students with a rubric to guide them as they develop their final assessments could help this process. However, if the summative assessment is a 'sit down' test there is no process of engagement and feedback once they have passed or failed.

The process of assessment should reflect good instruction, and continuous assessment and feedback should be integrated into instructional practices (Hattie & Brown, 2008). This process of AfL enables students to be kept updated regarding their progress and instructors are aware of their students' understanding. For students to gain insight into their learning and their understanding, frequent feedback is critical, students need to monitor their learning and actively evaluate their strategies and their current levels of understanding (Bransford, Brown & Cocking, 1999). This is a reflective process which links to cognitive theory. One of the most important roles of assessment is the provision of timely and informative feedback to students during instruction and learning so that their practice of a skill and its subsequent acquisition will be effective and efficient (Pellegrino, Chudowsky & Glaser, 2001). Individuals acquire a skill much more rapidly if they receive feedback about the correctness of what they have done. Consistent and immediate feedback after a task has been completed is pivotal to keep the students motivated and interested (Pellegrino, Chudowsky & Glaser, 2001). Positive feedback from the lecturer is what is most essential in the beginning stages, according to Jenkins et al. (2005). When feedback is provided by the lecturer it promotes the critical process of reflection and inner motivation on the part of the student.

According to Bain (2014) quality learning environments include key concepts such as student-centred knowledge, community and assessment-centred learning. Student-centred learning pays careful attention to the knowledge, skills, attitudes and beliefs that a student brings to the educational setting. Student-centred teaching focuses more on the active engagement of students where the lecturers fulfil the role of a facilitator and coach, instead of lecturing (Deboer, 2002). It should be stressed that lecturers have a thorough understanding of the concepts and expertise required of students and thus they are able to facilitate the student learning processes. In order for students to develop and thrive in the learning environments, they need to feel safe in their learning environment (Jenkins et al., 2005). This amplifies Maslow's hierarchy of needs, which works from the premise that a person's basic needs should be met before higher levels of development can be achieved (Mcleod, 2007). The basic needs in this situation refer to the students feeling safe in the learning environment. Hence, it is important that when the blended learning approach is

implemented, it includes students and makes them feel comfortable and familiar with the eTools and technology with which they are required to engage. Online learning environments should be designed to include and develop student learning from the start. The success of the process depends on setting clear outcomes and structures to orientate learners in the process.

It is important to discuss how blended learning relates to assessment and learning in the BEd (FPT) programme.

2.7.1 Learning and Assessment in Blended Learning Approaches

As noted by James (2006), assessment and learning can be seen as interlinked in teaching practice; for it is through assessments that one knows what has been learnt. The results of learning are evident from students' performance on assessment activities. It is important that assessments should be valid in terms of the concepts which are assessed and reliable to produce more or less the same outcome each time they are taken.

When initiating blended learning approaches within a teacher education programme, the design is important, especially considering the implementation of integrated, structured and flexible "blocks" (content), where the overall teaching components are interlinked and complement each other (Calderon et al., 2021) A blended learning approach should start with the "curriculum outcomes, and constructive alignment should be created with activities, content and assessment to ensure internal coherence, consistency and transparency" (van der Merwe et al., 2015, p. 11). Courses must be designed in alignment with assessment activities to ensure "the best results" (Sun et al., 2008, p.1196). Crawford and Jenkins (2018, p. 139), suggest the adoption of a blended learning approach, focusing on a constructivist paradigm in order to "make pedagogy tangible" (not a mere abstract concept); and make relevant curriculum and assessment choices. Innovative practice enables cognitive development and learning that can be applied in daily, real-life scenarios (Crawford, 2016). Hence, the blended learning approach encourages pre-service teachers to see their role as both a learner and a teacher and make the links between the content and practice. These practical applications of the "knowledge constructs and skills" are essential for the development of "pedagogical understanding"; and to prepare pre-service teacher education students for the dynamic teaching profession (Crawford et al., 2018, p. 139). The role of the lecturer in both the face-to-face and blended learning modes is very important (Barrios et al., 2014). The researchers found that even

though students stated that face-to-face interaction was more important, it was noted that these were poorly attended.

Formative assessment tools are favoured in blended learning to enhance student knowledge and the quality of their learning (Febriani & Abdullah, 2018). Online assessment also enables timeous feedback and allows students to engage in constant self-assessment. In addition, flexibility of time and location enable self-paced and independent student learning (Padayachee et al., 2018). Khine and Lourdusamy (2003), found in their study of a blended learning approach for trainee teachers, that online discussions during practice teaching sessions enabled students to share ideas, opinions and challenges. Peer feedback assisted students to find solutions. Gleason (2013) acknowledges that blended and fully online formats are multiplying, and that there are concerns regarding the "instruction, teacher and student roles and overall quality of the learning experience". Gleason (2013) found in a study that involved three language formative assessment tasks, that if various modes of delivery were coupled sufficiently, students would be provided with the same learning opportunities and prepare them equally well for assessment and communicative purposes.

Lecturers are able to assess students' learning and progress by setting up online tests in an online module which can be marked automatically and increases the value for students and lecturers (van der Merwe et al., 2015). Furthermore, the automated marking, tracking and reporting of scores reduces the complexities involved in managing large class sizes. Care has to be taken, though, that questions asked are testing higher-order thinking skills. It is also a strategy that requires an institution to have an LMS with a quiz tool or a specialised computer-based testing programme. Gonzalez (2012), explored and identified approaches to teaching and e-teaching as well as the perceptions of and links to e-learning. The study revealed that teachers' decisions regarding the use of e-learning, depended on factors such as, "control over teaching, strategy, proper technical and pedagogical support, time pressures, digital technology and appropriate skills" (Gonzalez, 2012, p. 997).

Dickfos et al. (2014) found that blended learning approaches have had a positive impact on assessment practices in relation to flexibility, self-reflection, and fairness. Especially the use of video, and its related rubric, enabled students to reflect on their learning and skills attained. Furthermore, the approach did not negatively impact the time-frame and resources that were assigned to teaching and assessing the technical components of the course. In addition, instructional resources available on the LMS, reduced time spent by the lecturer in class, explaining the

assessment task. Furthermore, the assessments (video presentations created by the students) reduced the lecturers' burden with regard to excessive on campus planning and logistics. The combination of the electronic rubric and video presentation format enabled the lecturer to review assessments timeously and fairly. This blended approach works well to minimise assessment challenges (Dickfos et al., 2014).

2.7.2 Learning and Assessment in Blended Learning Education Programmes

In their study, Bicen et al. (2014), compared online learning and blended approaches and found, that a blended learning approach was more effective than the fully online learning approach for pre-service teachers. The study further indicated that the grades pre-service teachers obtained in the design of multi-media assessment activities through a blended learning approach, achieved a higher success rate than those studying using the online learning approach. This was ascribed to the fact that pre-service teachers could still engage with their lecturers in a face-to-face setting as well as through other mediums regardless of space and time. Bicen et al., (2014) claimed that a blended learning approach is better suited for the successful implementation of multimedia-based assessment projects. The study also revealed that pre-service teachers who had engaged in a blended approach within their studies, had more positive perceptions. This same claim was also made by a study conducted by Lopez-Perez et al. (2011). It could also be argued that these Pre-service teachers would be more open to including blended approaches in their own teaching. The above study indicated that a blended learning approach was more favourable and yielded better results than a purely online learning approach implemented in the Education programme. According to a study conducted by Sejdiu, (2014, p. 67) blended learning techniques were "accepted more positively"; in comparison to face-to-face classroom teaching, the "student performed better by scoring higher" in assessments offered through a blended learning approach. A similar study conducted by Gimeno-Sanz (2010, as cited in Sedjiu, 2014) at a Spanish University, revealed that the blended learning assessments which included the use of audio, video, graphics, and text also improved when blended learning approaches were used. Various studies conducted by Sejdiu, (2014); Zygadlo, (2007); Gimeno-Sanz, (2010) all reveal that the inclusion of blended learning assessments increased student learning. Sejdiu (2014) recommends that teacher training programmes should include blended learning approaches, as it improves the instruction and assessment of students better than the traditional face-to-face practices only. The results of this study focussed specifically on teaching English, however the study shows that this method can be applied in different disciplines.

Both studies demonstrated that a blended learning approach yields positive results and that the approach can be implemented across different disciplines to ensure that learning can be achieved.

Gudmunsdottir and Vasbo (2017) conducted a study to identify how student teachers used the digital component of the modules in their learning process and how they assessed the teacher education programme as contributing to the development of their professional digital competence (PDC). The main finding was that student teachers who actively engaged in the online component reported a link between their acquisition of professional digital competence and the blended learning approach implemented. It found that the blended approach did not assist in the development of the professional digital competence of students who were less active. The study also found that teacher education programmes should be designed to prepare prospective teachers with 21st century skills. This would enable them to engage in online environments as well as build the competence to design online environments for their own teaching practice (Newby et al., 2000). The study proposes that the blended learning design should be part of an integrated educator programme. The assessments should be mandatory and should increase the online interaction and participation of students. They further advise that the face-to-face and online activities be carefully connected in such a way that it would require a flipped-classroom approach.

A study by Lim & Morris (2009) examined the influence of instructional and learner factors on learning outcomes for a blended instruction course offered to undergraduate students within an international university (Lim & Morris, 2009). The purpose of the study was to investigate how students' learning in a blended environment were influenced by "learners' demographics, learning styles, instructional design and learning motivation and involvement" (Lim & Morris, 2009, p. 285). A meaningful finding emanating from the study was that the students' mean scores of perceived learning and perceived application of learning correlated significantly with the mean scores in "instructor quality, learning activity, learning support, learning motivation, and learning involvement" (Lim & Morris, 2009, p. 289). From these findings it seems that students' learning and learning application are linked to instructional effectiveness, which includes the relevance of assessment activities, online learning content and review of the useful learning activities.

A study conducted on the effectiveness of blended learning approaches for pre-service teachers in a Science Teacher Education programme in Egypt, found that the group who was introduced to blended learning techniques, achieved better results than those who were exposed to the traditional face-to-face methods of teaching (Heba & Nouby, 2008). This study also found that student attitudes

towards blended learning approaches were increasingly positive. The study found that students who were familiar with each other, also achieved better results in the blended learning approaches. Hence, student familiarity also assisted with the success rate of the blended assessment implemented. This familiarisation links with Salmon's (2002) Five-Stage model which highlights the importance of socialisation to build connections among students and teachers.

Another factor that may have influenced the good results was that during the blended approach of assessment, students received immediate feedback from tutors via email. This may have further contributed to the higher rate of achievement, by students engaged in the blended assessment approach.

The next section focuses on the inclusion of blended learning within the Foundation Phase programme

2.7.3 Learning and Assessment in the BEd (FPT) programme

A limited number of studies have been conducted around the inclusion of blended learning within the Foundation Phase programme at higher education institutions. Based on the literature reviewed, the inclusion of blended learning has had a positive impact on both teachers and students.

Rajaratnam and Shivananda's (2022) study aimed to explore the impact of blended learning in the Early Years Foundation Stage (EYFS). The study was designed and developed to investigate the effectiveness of blended learning in the holistic development of EYFS students and to discover the level of competence of the Early Years students (from Grade R, Foundation Stage 1 and 2) in adapting and coping with the online platform. Hence the parents and teachers' perceptions of the impact of blended learning were elicited through this study. Findings of the study revealed that the students' ICT skills were enhanced through self-discovery of innovative tools to help them complete learning activities. Parents' ICT skills improved by way of the instructions provided to them by teachers. Children were developed as independent learners through the wealth of information provided to them in the online learning environments. Students could work at their own pace through flexible opportunities. Teachers were happy to see children's vocabulary develop during classroom sessions and children's confidence assist them to explore through play. Even their critical thinking developed. Attendance of parents has increased during the online parent meetings in comparison to face-to-face meetings. A deeper interest from parents in their children's daily

activities was visible as the teacher- parent communication increased. According to Rajaratnam & Shivananda (2022), teachers and students were able to use a variety of resources in the blended learning environment. According to the study, the teacher performance increased through the blended teaching mode. Students and parents could access the asynchronous lessons which assisted students with their development. This study conducted in Bangladesh, indicated mostly the affordance of blended learning in a school setting.

In a South African context, a study conducted by Venketsamy et al. (2022) examined the adoption of technology at school level as a result of Covid-19 pandemic. The focus was specifically on the Foundation Phase teachers and their experiences, while adopting technology into their teaching practices in a South African school using Technological Pedagogical Content Knowledge (TPCK) as a framework to view the experiences and challenges by foundation phase teachers. The study uncovered that most teachers struggled as they were unfamiliar with the technology and its effective use for teaching and learning. Teachers also complained that they did not get the support from management to assist them with adopting and diversifying their teaching practices. The outdated and unsuitable software further barred them from successfully implementing technology in their teaching practice. Teachers requested that training and support should be offered to all teachers in preparation for their teaching practice to be adapted. They also indicated that the Department of Education should ensure that the necessary equipment, software, technology and tools are in place, prior to enforcing the use of these technologies at schools in the foundation phase teaching processes.

Teachers were stressing the need for effective training and updated software to use ICT effectively. Kannan and Narayanan (2015, p. 5) found that technologies used for blended approaches have to be user-friendly, joined with applicable and relevant "teaching-learning material" used in training workshops. Furthermore, they call for the provision of incentives to encourage the adoption of blended learning approaches and training; and peer group interactions in order to influence perceptions and approval. Although the teachers did not call for provision of incentives, it may be used or offered to get buy-in from the teachers and to implement the effective use of technology.
Another study conducted by Venketsamy et al. (2021) the Invitational Learning Theory was used as a theoretical framework. The experiences and responses of Foundation Phase teachers and school management were elicited regarding the design and development of a conducive learner-centred learning environment within a culturally diverse Foundation Phase classroom in South Africa. The study found that leaders took the responsibility of creating a safe learning space for their teachers

and learners. Through the school leader's support and encouragement, teachers created a safe and conducive environment that acknowledged and recognised all learners within a diverse classroom. The school leaders allowed teachers to introduce a variety of learning strategies (for example, indigenous games; African stories) and posters displaying different cultural practices in their classrooms. This showed that their leadership style was flexible and they believed in the potential of their staff. Classroom rules were implemented to ensure that discipline and mutual respect and tolerance is upheld at all times. Leaders are responsible to create an educational environment that is welcoming and accepting of diversity. All participants agreed that they managed to create an invitational teaching and learning environment (Venketsamy et al., 2021).

Furthermore, a study conducted by Kok and van Schoor (2014) investigating the challenges which university lecturers face in preparing Foundation Phase student teachers in teaching science modules. The national curriculum in science and technology aims to strengthen learner awareness of social relationships, technological processes and elementary science (DBE 2011). This particular study sought to test the student teachers' concept knowledge of science approach in teaching. An integrated numeracy, science and technology module was developed for Foundation Phase student teachers, based on the science-technology-society (STS). The student teacher's knowledge was tested in relation to this module and their views were recorded. The method for assessing the application of science concepts and its relevance in social contexts was found suitable. The views of student teachers indicated that the science and technology concepts should be taught separately. The finding of the study further established that student teachers should be taught specific teaching strategies that facilitate conceptual change should be included in the teaching training. Students should also be taught how to develop their own constructivist understanding of science concepts

The above two studies discussed the inclusion of blended learning in a Foundation Phase programme at South African schools which discussed various aspects linked to the design of blended learning approaches in their classrooms.

The next section will focus on various models that can be discussed within blended learning.

2.8 Blended Learning Models

A model is a "plan, representation, or description that describes an object, system, or concept" that can be used to describe or depict an idea (Dakhi et al., 2020, p. 51). Various models of learning exist that aim to describe how learning takes place and what should be considered when students

are prepared as prospective teachers. In addition, various eLearning models exist as well, and these have been used for the implementation and adoption of blended learning and fully online approaches. According to Rusman (2011, pp. 271-275), blended learning models of teaching allow students to learn without limitation of space and time, "as access is available anytime, anywhere in the world"; supports the development of personalised learning activities; and learning materials can be updated faster. Blended learning models are also suitable for higher education in order to address 21st century competencies in relation to "technology, pedagogy, and learning of learnt content (TPACK)" (Dakhi et al., 2020, p. 63).

Blended learning models are important when reviewing the blended learning and assessment practices lecturers have developed in order to prepare prospective teachers. Taking cognisance of blended learning models, it provides a backdrop against which teaching activities can be compared. As the prospective teacher educators are prepared to teach within a classroom, the manner in which they are able to plan and develop their teaching strategy, is reliant on what they have been taught. In this process of preparation, lecturers are able to share the specific theories they employ to teach and develop their learning activities. The learning, teaching and assessment activities implemented in various modules should be considered and re-considered to ensure that prospective student teachers are able to apply their learning skills in their profession. The models specify what should be considered in blended teaching and learning practices (Benfield et al., 2006; Lungu, 2013; Serrano et al., 2019; Ibrahim et al., 2019; Antwi-Boampong et al., 2020; Saboowala et al., 2021; Wei et al., 2022)

The researcher, looked at various blended learning models (2.8.1-2.8.5), to explore the blended learning approaches used in the BEd (FPT) programme and the impact on first-year students. The first to be looked at is Shewhart's cycle for blended learning.

2.8.1 Shewhart's Cycle for Blended Learning Model

Blended learning approaches require extensive, systematic and flexible planning in order to integrate the various levels of impact (low, medium and high) of approaches used and their teaching elements. Elements considered include (i) content that is difficult to teach in a traditional face-to-face manner, (ii) selecting appropriate blended activities, and (iii) the actual creation and implementation of the blended learning activities. Furthermore, the critical evaluation of the

effectiveness of the blended learning approach informs possible improvements for both the students and the lecturers.

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Fig 2.2 Shewhart's Cycle for Blended Learning (cited in Serrano et.al., 2019)

A blended approach includes face-to-face learning with accompanying synchronous and asynchronous online activities. Asynchronous activities that expect students to complete flexible, self-paced tasks, can include tasks like "journals, videos, and discussion forums such as Wikis and blog" (Serrano et al., 2019, p. 275). These provide positive learning results in many courses, enabling the refinement of student contributions, and in turn improve the overall quality of their contributions (Hrastinski, 2008). Synchronous approaches can include online webinars and video conferencing, face-to-face lectures and live online chats. Krause (2007) describes blended learning as an online environment that incorporates various modes of delivery, models of teaching, and learning styles to use the technology with the best elements of face-to-face activities. A planned and organised approach to the use of technology combined with the best features of face-to-face interaction can be achieved.

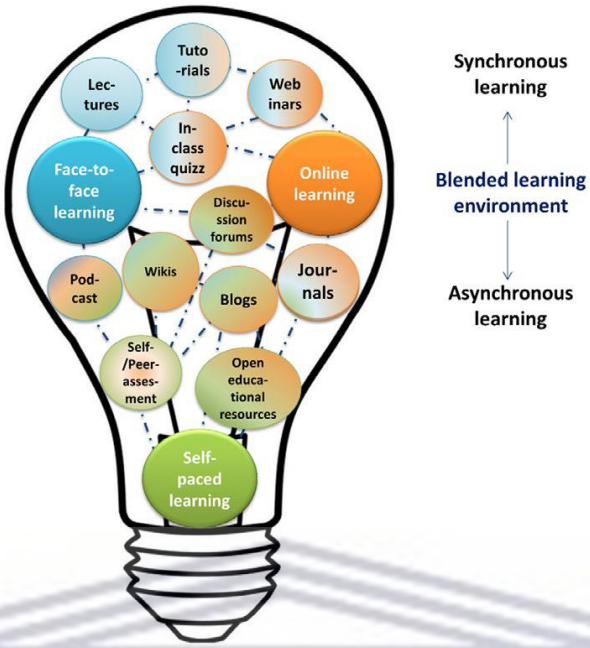

Fig 2.3 Blended learning environment (cited in Serrano et al., 2019)

The implementation of a blended learning course is challenging, as it requires the correct blending of "time, people, place and resources"; consideration of lecturers' workload; and incorporating more in-class and online activities (Serrano et al., 2019, p. 276). There is a proposal for blended learning approaches that can be implemented at different teaching levels: (i) high impact to students: the use of "audience response systems" (classroom technologies) to promote student engagement, and incorporating self- and peer-assessment, (ii) medium impact to students: incorporating flipped classroom strategies, and (iii) low impact to students: sharing and uploading lecture recordings as additional material to support the students' self-paced learning (Serrano et al., 2019). Blended learning environments, should promote time management, planning and problem-solving (Bosch & Pool, 2019; Hammarlund et al., 2015). According to Bath and Bourke (2010), blended courses can contain learning approaches that are designed based on time (when a face-to-face session is replaced by narrated or recorded lectures), to people (where a lecturer is replaced by an online environment), to place (when physical student groups are substituted by small online groups), and to resources (when traditional textbooks are replaced by online articles and readings in an online environment).

The evaluation of blended learning courses enables students to provide feedback and lecturers are able to view the overall academic student performance. Serrano et al. (2019, p. 283) go on to propose a five-point action plan in order to evaluate blended learning courses.

"1. Consultation with staff based on student feedback and their experiences and the involvement of student representatives prior to the development of a school/institute blended teaching strategy.

2. Co-ordinate which blended approaches are more appropriate and feasible and develop a blended learning platform.
3. Support and facilitate blended learning needs in terms of finances and staff time whilst consideration can be given to appointing a blended learning co-ordinator.
4. Ensure policy is clear in copyright, contact hours and use of OER.
5. Educate staff in blended learning, offer demonstrations on how it can be applied and how these digital technologies can be used in a time-efficient and cost-effective manner whilst ensuring that their uptake is justified/ explained to both staff and students".

The use of the ICT tools improves student engagement, supports the monitoring and tracking of students, and facilitates formative and summative assessments. Furthermore, ICT tools allow lecturers to assess student satisfaction, and address student needs at various stages of the delivery of the blended course. According to Kayalar (2016 cited in Venketsamy et al., 2022), the effective use of ICT offers teachers the opportunity to redesign and modernise teaching resources to suit various learning situations and environments. It further offers an opportunity for developing a holistic and interactive learning environment that captures the attention of all learners.

Shewart's cycle emphasises the importance of deep reflection and extensive planning prior to transforming any course into a blended learning approach. The cycle does not merely focus on the teaching intervention, but also on the importance of the evaluation of the actions and future reviews. Hence highlighting the process of "PLAN-DO-CHECK-ACT" (Serrano, 2019, p. 282).

Shewart's framework is aligned to the present study, as the researcher explored the impact of blended learning approaches on first year student learning, especially in relation to self-directed learning and assessment. Furthermore, the lecturers' planning and extensive consideration of their teaching elements is important. The present study corroborates the work of Garrison and Kanuka, (2004), and Osguthorpe and Graham (2003) as it investigated whether the BEd Foundation Phase lecturers thought carefully about integration; the effective use of tools to improve the overall quality in their teaching and coordination of their blended courses, and inevitably achieved the harmonious balance of the blend of face-to-face and online components.

The second model is the Six Dimensions of Blended Learning by Saboowala and Mishra (2021).

2.8.2 Six Dimensions of Blended Learning Model

The Covid-19 pandemic required that higher education systems undergo considerable change; and blended learning provided great learning experiences for students. In the previous section, the researcher focused on the importance of effective planning, design and application in alignment with continuous evaluation and improvements for learning blended learning approaches. Saboowala and Mishra (2021) also address the importance of planning, and specifically of the readiness of in-service teachers, and reflects on the six dimensions of blended learning to consider.

They identified six factors that impact the readiness of in-service teachers to adopt blended learning, namely: "learning flexibility, online learning, study management, technology, classroom learning, and online interaction" (Saboowala & Mishra, 2021, p. 19). Furthermore, if there are any changes in these factors, it would impact the attitude of the pre-service teachers toward blended learning. Pre-service teachers, in this post pandemic environment, need to be introduced to blended learning approaches as it can have a major impact on their professional careers, and exposes them to diverse global educational communities and technological advancements (Saboowala & Mishra, 2021, p. 19). Studies conducted by Wach et al. (2011) found that professional development programmes must be made available, to support and assist with the pedagogical and technological skills. Having a well-developed strategy to ensure the effective implementation of blended learning is equally important. Rienties et al. (2013) stress that training programmes can assist educators to reduce their anxiety related to the use of technology and further support successful implementation

Saboowala & Mishra's dimensions are aligned to the present study, as the researcher investigated the BEd (FPT) programme and the readiness of the lecturers and students (prospective teachers) to engage in the blended learning environment that included the use of classroom and online technologies, online engagement and participation, and student time management and self-directed learning.

Saboowala & Mishra's Six dimensions of blended learning can be employed across various academic disciplines in order for institutions to focus on the readiness of staff and students for the blended learning approach.

The researcher proceeds to discuss the third model Salmon's Five Stage Model.

2.8.3 Gilly Salmon's Five- Stage Model

In the previous section, the researcher continued with the discussion on the importance of planning, focussing on the readiness of staff to adopt blended learning approaches. In this section she moves from the level of planning and readiness to the implementation of a blended learning course.
Gilly Salmon's Five Stage Model focuses on the actual design of a course for teaching and learning through blended learning.

The main focus of the model is to enable lecturers to design blended learning courses that ensure students are able to actively participate in the blended learning activities to support their learning and development. This Five-Stage Model provides a design scaffold wherein lecturers use a step-by-step guide to enable student development.

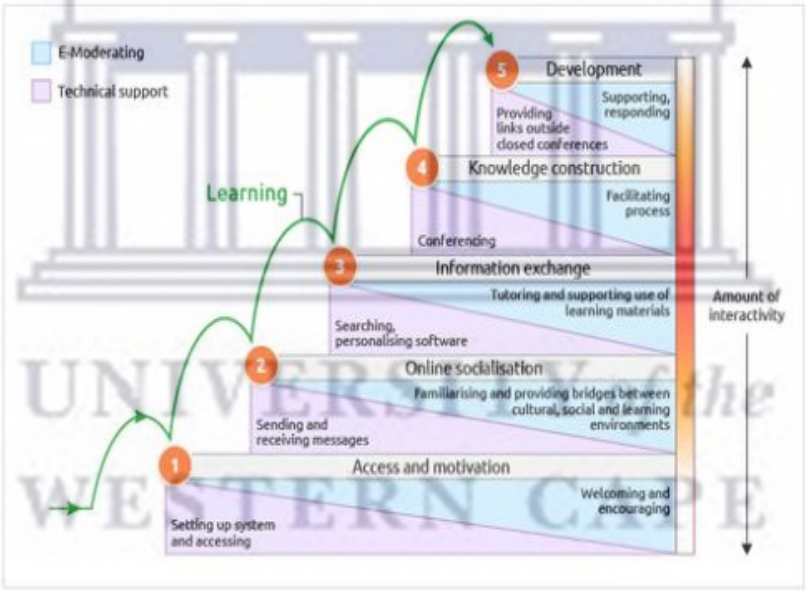

Fig 2.4 The Five Stage Model for teaching and learning through blended learning (Salmon, 2002, p. 1)

This framework guides lecturers in the stages of designing their interactive and structured online environments and to further guide their students' learning and development. Salmon (2002) also discusses the various e-tivities that lecturers can develop throughout the five stages of the model. The five-stage model provides a framework or scaffold for a structured and paced programme of e-tivities. This model supports the process and the five stages, including: (i) Access and motivation, (ii) Online socialisation, (iii) Information exchange, (iv) Knowledge structure, (v) Development.

Stage 1: Access and motivation

During Stage One the lecturer creates an interactive and inviting environment for students to engage with the technology as a supportive learning structure. The design of the environment should promote easy access and instil a motivation to engage in the online spaces eagerly (Salmon, 2002). Sufficient skills training should be provided to build students' confidence regarding the use of the technologies. In addition, it is important to ensure that the LMS is adequately supported to ensure effective implementation. Furthermore, the technical support staff can assist students to gain competence with the technology and in turn tackle technical problems on their own (Khechine et al., 2014). It is important that the design of the blended learning approaches considers easy access through different modes of delivery. Suartama et al. (2019, p. 17) state that an effective blended design includes, "various methods of delivery, models of teaching and learning styles", the selection of multimedia and the utilisation of mobile applications [for the institutional LMS].

Stage 2: Online socialisation

The online socialisation phase should enable lecturers, students and tutors to create a shared understanding and expectations of the course. Lecturers use this stage to create opportunities for students to engage in activities in which they can create their own identities. This creates a space for students to connect with peers with whom they have a shared knowledge to enable them to collaborate in the learning enterprise (Salmon, 2002). Social isolation and loneliness within an online environment are considered to be grave challenges (Walther & Parks, 2002). The provision of support by the instructor may create positive relationships between teachers and students; and assists with the development of social interaction and the reduction of student loneliness Bedeck, (2015).

Stage 3: Information exchange

During the third phase, it is likely that students have already forged a shared connection with their peers and further information exchange can take place more easily. As students are focussed on their individual goals, they have now established a community in which they can learn with their peers. This may mean that they are freely sharing their knowledge with others to further develop their learning community (Salmon, 2002). Wei et al., (2022) state that online learning resources should be current, relevant and all-inclusive. Furthermore, the researchers claim that students have

to be confident that the learning resources will yield positive learning outcomes so that they will work harder to complete their learning tasks.

Stage 4: Knowledge structure

During the knowledge structure phase, lecturers can design activities to enable learners to better manage their time together and make good contributions to learning outcomes. Students can truly encourage and demonstrate the great value of diverse multiple perspectives and working together. The lecturer's role shifts to that of a facilitator of learning and feedback is provided based on work students have completed (Salmon, 2002). Students should receive sufficient pedagogical assistance within an online environment, including timeous feedback and communication (Lee et al., 2011). This support provided by the lecturers, especially in times of difficulty, will enable the students to complete tasks and achieve their goals (Oriol et al., 2017).

Stage 5: Development

During the development stage, students are encouraged to reflect on their learning, what they have learned and highlight how they have engaged in the learning process. This allows the lecturers to encourage students to develop as independent and self-directed learners. Students are able to identify particular learning goals they want to achieve and develop their learning more accurately (Salmon, 2002). Teaching activities should entice students to learn, become more curious, and innately bring about a sense of satisfaction and excitement to further motivate them intrinsically. Hence increasing students' academic self-efficacy (ASA) as discussed by Wei et al., (2022).

Salmon's framework is aligned to the present study, as the researcher investigated the BEd (FPT) lecturers' online courses, and specifically the eTools they selected to enhance the design of their online courses. Furthermore, the present study investigated whether the design of the blended learning approach informed student access to resources and computer literacy, familiarisation with the institutional LMS, the sharing of learning content, peer learning, reflective practices, and self-directed learning.

The present study corroborates the work of Salmon (2002, p. 179) as the researcher investigated whether the BEd (FPT) lecturers carefully planned relevant online teaching activities; and tried to create "positive progression in the quality and intensity of interaction between students and students

and their teachers". Salmon's Five-Stage Model can be used across various academic disciplines by lecturers to gauge at which stage they are in relation to the design scaffold.

The researcher proceeds to discuss the fourth model, Rotation Model offered by Staker & Horn (2011).

2.8.4 Rotation Model

In the previous section, the researcher focused on the design of the online course in order to reach a level of self-directed learning, so that the student does not merely access the environment, but reflects on their learning. Staker & Horn's framework (2011), namely, the Rotation Model focuses on the actual design of learning activities within a blended learning environment and their impact on student engagement. The rotation model integrates both the online and face-to-face classroom and promotes an "orderly schedule" in order to achieve student engagement within learning activities (Powell et al., 2015, p. 6). The Rotation Model includes four sub-models, namely:

Sub-Model: Station-Rotation Model

Students rotate between stations within a classroom setting. One of the stations that students rotate to includes an online learning component. Students rotate around each station according to the schedule set by the teacher (Dakhi et al., 2020). According to Casey (2016) students' creativity and engagement can be developed through this model due to the use of technology which exposed them to different applications and objects at a particular station within the rotation model. Teachers can also design a variety of activities which require students to complete both individual and collaborative tasks. Various benefits aligned to the station-rotation model enable students to learn individually, enables peer- interaction and create opportunity for building communication skills and problem solving (McKnight, 2016).

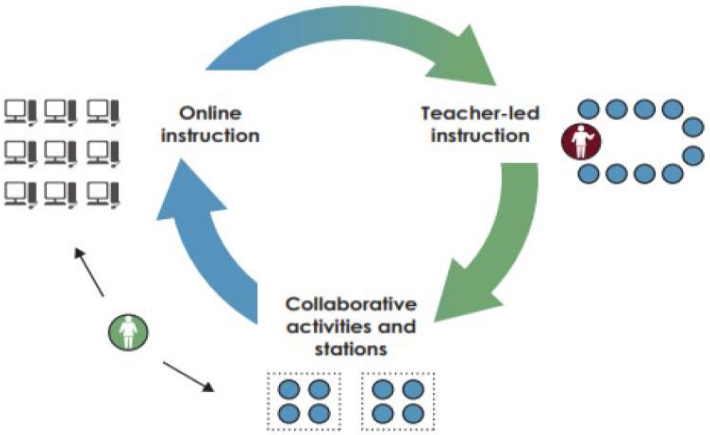

Fig 2.5 Sub-Model: Station-Rotation Model (Staker & Horn, 2011)

Sub-Model: Lab-Rotation Model

During this lab-rotation model the online learning component takes place in a learning laboratory specifically designed for the online learning process (Dakhi et al., 2020). The lab rotation model starts in the face-to-face classroom (maths, literacy, social studies) and specific learning activities are done in computer lab (Christensen, Horn and Staker, 2013). Once students move to the lab, they engage in activities which drive personalised learning and enable students to engage in self-directed online learning. These activities are supervised by the teacher or individual specialists. This process supplements the face-to-face classroom with online activities in order to sustain innovation and meet the needs of students better (Christensen, Horn and Staker, 2013).

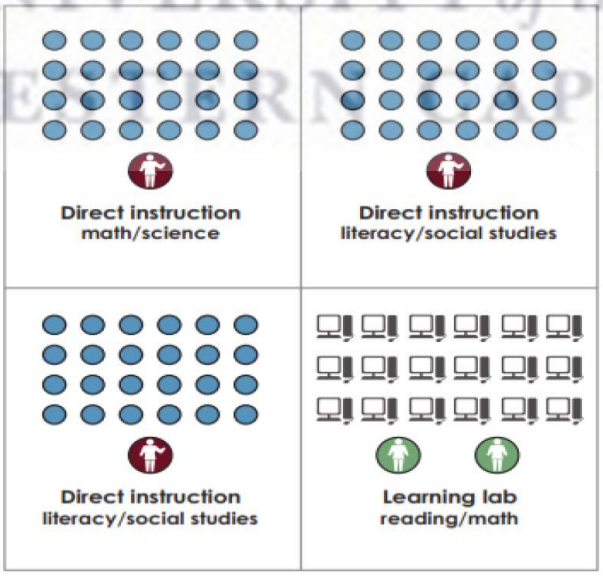

Fig 2.6 Sub-Model: Lab-Rotation Model (Staker & Horn, 2011)

Sub-Model: Flipped-Classroom Model

The Flipped-Classroom model is in line with the idea that blended learning includes some student control elements such as time, space, paths, and places because this allows students to choose the location where they receive content and instruction online (Dakhi et al., 2020). This approach enables students to prepare and plan outside of the classroom in order to actively engage in the classroom, which develops the student's confidence and motivation (Halili & Zainuddin, 2015). According to Milman (2012) the flipped classroom also promotes student engagement and the classroom activities are focussed on a more student-centred approach and the teacher becomes a facilitator to guide students through their learning. The flipped-classroom can be applied to any educational discipline. However, the level of success achieved through this approach, hinges on the student's motivation, resources and available time (Milman, 2012).

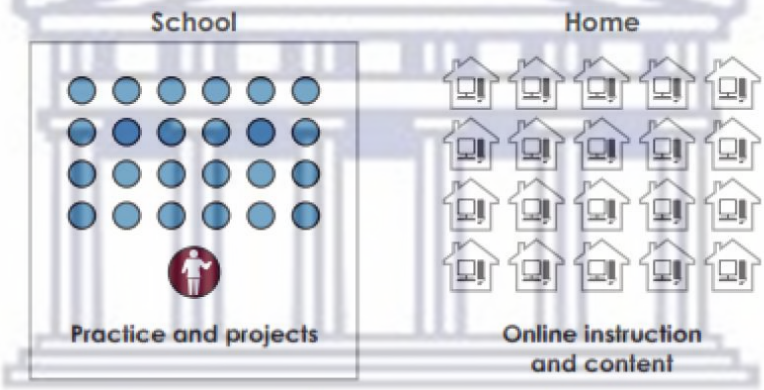

Fig 2.7 Sub-Model: Flipped Classroom Model (Staker & Horn, 2011)

Sub-Model: Individual-Rotation Model

This model is rotated based on the way students take individual turns between learning in the classroom setting and online. In this model students do not have to rotate stations, they rather, rotate according to their individual needs. One student with high needs can be placed in a small group, while others can be kept in larger groups. For example, students studying elementary computer might need extensive rotation in their intensive online reading programmes (Jessica, Brittan & Lucas, 2014). In this model, the traditional classroom is replaced by an open learning space, and students' schedules are set by the teacher. This allows students to move freely between learning activities and they set their own pace for learning. Such a process assists students to become self-directed learners (Staker & Horn, 2012).

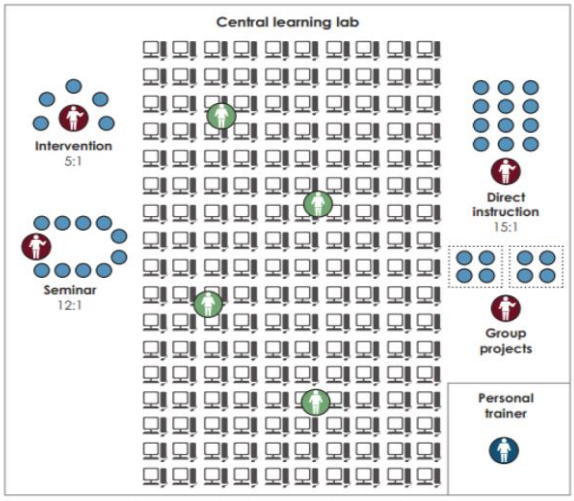

Fig 2.8 Sub-Model: Flipped Classroom Model (Staker & Horn, 2011)

Staker & Horn's framework (2011) is aligned to the present study, as the researcher observed the BEd (Foundation Phase) lecturers' face-to-face classroom and online learning activities in her investigation. Furthermore, the researcher investigated both individual- and group-type learning activities, blended methodologies such as the flipped classroom (pre-during-and-post classroom student engagement), access to computer laboratories for ICT training, engagement in group-work assessment activities in face-to-face lectures, to refining and submitting assignments via the online environment, and online tutorial discussion topics.

The present study corroborates the work of Staker and Horn (2011), because the researcher investigated whether the BEd Foundation Phase lecturers carefully planned learning activities to allow students to rotate between online and classroom activities. Furthermore, a blended learning model "is perfect for facing challenges in the 21st century and for preparing the learning environment to achieve 21st century competencies" (Dakhi et al., 2020, p. 63). This framework can be used across various academic disciplines to assist lecturers to carefully plan and rotate their blended learning activities.

The role teachers play in effective blended learning implementation together with the model of Minhas et al. (2021) is discussed in the following section.

2.8.5 Teachers play a Central Role in Effective BL implementation Model

In the previous section, the researcher focused on Staker & Horn's Rotation Model (2011), that focuses on the design of learning activities in a blended learning environment and its impact on student engagement. In this section, the researcher focuses on the major role teachers play in the

implementation of effective blended learning, and the impact this role has on student motivation, engagement and inevitable student success.

There are many variations and applications of blended learning models, because the contexts of institutions differ, and the potential benefit or disadvantage of certain elements to students. Thus, it is important for institutions to make use of pilots, adopt an evidence-based approach and implement a model that best fits their contexts. Minhas et al. (2021) propose an effective model for blended learning in higher education institutions, where teachers play a central role. In particular, the influence teachers' perceptions have on the adoption and efficacy of the programmes, and student success. According to Islam et al. (2022) the role of teachers in a blended learning approach is vital, even though planning face-to-face and online activities to encourage student participation increases their workload. The central role of teachers in the blended learning environment was found to improve interactivity and motivation of students to complete their activities. It also positively influenced students' academic performance (Schechter et al., 2017).

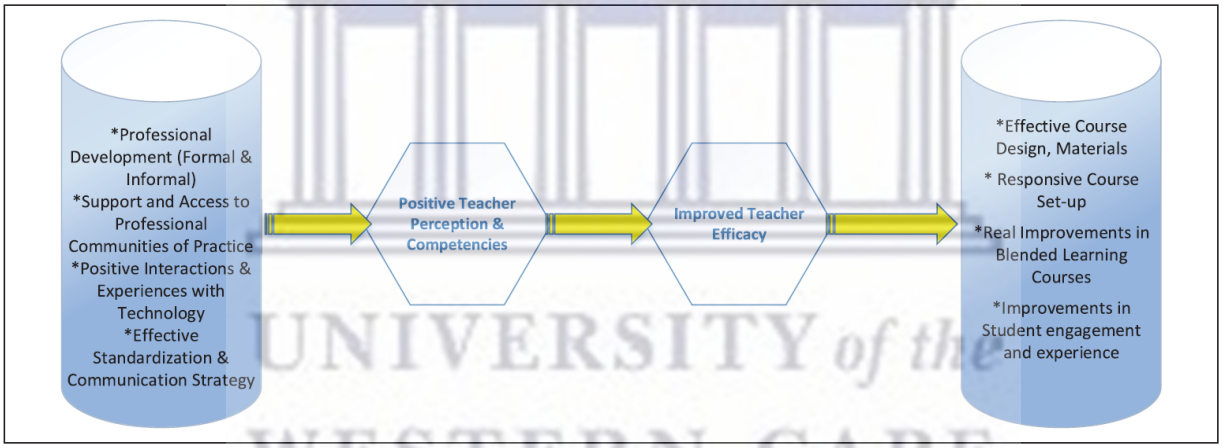

Fig 2.9 Teachers play a central role in effective BL implementation

Minhas et al. (2021) found that there are significant factors that guarantee the adoption of blended learning by teachers and ensure that they actively contribute to the implementation. "Professional development, opportunities for self-learning, access to informal communities of practice, positive experiences, and successes" (Minhas et al., 2021, p. 9) can influence teachers' perceptions positively. Institutional support is also essential to ensure that lecturers and teachers receive training and are adequately prepared to use applicable technologies (Porter et al., 2014). Authors such as Bessette (2013) and Fetters and Duby (2011) stress the importance of building the capacity of teachers to support them.

When teachers have positive perceptions of blended learning, they are more efficient and produce successful blended learning activities and raise student confidence. Minhas et al. (2021) suggest

that more research on self-directed learning and informal communities focusing on blended learning is needed. These components contribute to improving students' ability to solve problems, teacher support, and organisational learning in certain contexts. Thus, it is important to consider them when blended learning is implemented. Evans et al. (2020) emphasise that teachers are able to support their students more extensively and made effective use of various tools in the LMS once they have received professional development training.

Minhas et al. (2021) emphasises a challenge of blended learning, where "weaker students" could be disadvantaged if they do not fully understand the design and set-up of a course. These researchers also focus on the importance of student access, orientation and training. Another challenge is communication that becomes an obstacle for students. The researchers propose that institutions re-think their formal communication strategies, and include WhatsApp, Instagram, and an LMS that simultaneously serves as a social media and learning platform (Minhas et al., 2021, p. 10). Islam et al. (2022) suggest that using Facebook might be a good way to foster students working together and encourage peer-to-peer interactions whereas an LMS is a more useful tool for motivating students to develop clear arguments and apply the relevance of course content in other contexts.

Real transformation to blended learning adoption "must include course materials that are fit for purpose", and "F2F and independent study materials must reflect learning goals and students' ability to meet those goals" (Minhas et al., 2021, p. 10). These components are key when students need to be motivated and engaged and succeed as a result. Higher education institutions face challenges when distinguishing between these components (Minhas et al., 2021). In addition, it is important to develop course material that is applicable to blended learning, and implement standardised course design and set-up. It has been found that student success is increased when teachers create learning materials and activities that are aligned with their real-life experiences (Shu and Gu, 2018). This approach provides an opportunity for teachers to gain insight into the students' circumstance, and will enhance students' effective engagement in learning (Islam et al., 2022).

The framework by Minhas et al. (2021) is aligned to the present study, as the researcher investigated the BEd (FPT) programme and focused on the lecturers' preparation and perceptions of blended learning, professional development and competence to use classroom and online technologies.
The central role of the teacher has been visible in the discussions on all the models above. This framework can also be used across various academic disciplines so that institutions can transform

lecturers' perceptions toward the adoption of blended learning that inevitably impacts the entire blended learning initiative and influences student experiences.

Based on the above discussion it is important to note that various blended learning models exist and higher education institutions need to engage in careful evaluation steps in order to select a model that would best fit their context. Hence, the researcher has sought to discuss the five blended learning models and indicated which models or elements of the models best fit with the aim of the study, which is to explore the impact of blended learning approaches on first-year students in the BEd (FPT) programme.

2.8.6 Blended Learning Models: Comparing Similarities and Differences

Each of the five models emphasises the importance of careful and extensive planning and preparation, prior to the implementation of blended learning approaches in any teaching programme. Another similarity between the five models highlight the significance of the interactive student engagement in the blended learning activities to support learning and development. Furthermore, the teacher plays a central role to ensure effective online course design and student motivation.

The primary focus is different for each of the five blended learning models which is discussed within this study. Shewhart's Cycle stresses the importance of extensive planning and deep reflection before implementing a blended learning approach. The Six Dimensions of Blended Learning Model focuses on the readiness of prospective teachers and discusses the six dimensions that should be considered. Gilly Salmon's Five-Stage Model focuses on the stages to consider when implementating a well-designed blended learning course. The Rotation Model focuses on the effective design of the learning activities within the blended learning course, whilst the Teacher Plays a Central Role in Effective Blended Learning Implementation Model reflects on the role of teachers and their impact on student motivation and engagement. These models also differ in terms of the stages and processes that they outline. The Shewhart's Cycle Model focuses on extensive planning, deep reflection, evaluation, and future reviews. Whereas Gilly Salmon's Model focuses on the five stages in order to direct the implementation of a well-designed blended course. The Rotation Model highlights the inclusion of both face-to-face and online learning activities in order to ensure student participation.

The models share commonalities which focus on planning, interactive student engagement and the central role of the teacher within the blended learning approaches. These models also differ in their

specific focus, stages and sources. Each of the five models presents lecturers with valuable information to implement blended learning approaches effectively.

2.9 Summary

Through the literature study the researcher has revealed her understanding of blended learning and her theoretical framework. In this chapter, academic literature on the topic of blended learning is reviewed (Ambrose et al., 2010), but with a focus on blended learning as a manifestation of learning. The importance of learning theories and their value to this study are discussed. This was done to illustrate how the different learning theories influence teaching philosophies and approaches lecturers can employ in their teaching. The chapter included a discussion on how blended learning, as a teaching approach, can influence learning and the development of students as self-directed learners. Literature relating to blended learning was also explored. The study focusses on the impact of blended learning as an approach to develop students as self-directed learners. The researcher also reflected on learning and assessment in blended learning approaches, with a focus on BEd (FPT) programmes. This study further deliberates on the use of various blended learning models (2.8.1-2.8.5) in higher education institutions, and aligned to my study in relation to the central role of the teacher; the design of learning activities for student engagement impact; effective design for self-directed learning and the importance of planning and readiness.

It is important to note that various blended learning models exist and higher education institutions need to engage in careful evaluations in order to select a model that would best fit their context. The researcher also discussed five blended learning models to decide which model or element of the model best illustrates the aim of this study.

CHAPTER 3: THE POSITIONALITY OF THE RESEARCHER AND OTHER CONTEXTUAL FACTORS

This chapter discusses the positionality of the researcher within the study as my role as Instructional Designer and as researcher within this study is multi-faceted. In the ever-changing dynamic elearning environment experienced within Higher Education, the role of an Instructional Designer has emerged as a pivotal one. Instructional Designers are instrumental in designing and developing interactive learning activities in collaboration with the subject-matter experts to ensure students' learning needs are met. This process requires the use and application of pedagogical principles, learning theories and the use of best practices in emerging technologies to ensure that students emerge as competent graduates.

It is important for Instructional Designers to stay abreast of emerging technologies, pedagogical trends and best practices in instructional design. Continuous professional development enables one to bring innovative and effective strategies into one's work, ensuring that the courses designed remain current, engaging, and relevant in the dynamic and rapidly changing higher educational context. Moreover, as an Instructional Designer, I have to collaborate with a diverse range of participants across different disciplines, which include lecturers, administrators, and technology experts. An Instructional designer's ability to communicate, listen to the needs and perspectives of lecturers, and build collaborative relationships of trust is vital in building a supportive and productive working environment.

Within the context of this study, the key aim was to explore the blended learning approaches in the BEd (FPT) programme and its impact on first-year students. The study sought to explore the extent of the focus on assessment and the role of self-directed learning within blended learning approaches implemented in the BEd (FPT) programme. Hence, it is important to contextualise my own position towards the use of blended learning and its use within Higher Education at University X, more specifically within the BEd (FPT) programme.

As stated earlier in Chapter Two, Davidson (2012) highlighted that 60% of students in the USA will be employed in positions that have not yet been invented. This is a phenomenon that is true for me as an Instructional Designer. At the time of my employment (April 2005), a degree programme to become an Instructional Designer did not exist within any higher education system in South Africa. Locating a particular programme at an international institution only allowed full-time and in-person studies. My skillset aligned with postgraduate research in Political Studies, History and Economics

- my enthusiasm and interest in this discipline is what gave way to my employment. In the years following much direction, independent research, and support from my most knowledgeable peer, elearning scholarly expert and director, is what enabled me to thrive in my position and to further develop as a self-directed learner in the area of Instructional design and more broadly eLearning. My formal studies prepared me with specific research and analytical skills and may have prepared me for a specific position. However, professional on-the-job mentoring, the transfer of skills and train-the-trainer sessions enabled me to develop as an active and engaged Instructional Designer. Furthermore, various short courses offered through the partnership established with the InWEnt[7] - Capacity Building International and the Unit for Innovative Education and Communication Technologies unit under the leadership of Unit Director and a representative of InWEnt during 2006, created opportunities for further development and qualifications for myself and team members within the unit. This partnership, enabled me to obtain the certified qualification of eLearning Development and Implementation (eLDI) through the Hochschule Furtwangen University (HFU) in 2007. This qualification, coupled with on-the-job mentoring whilst implementation and establishing the UIECT during 2005 was underway, provided invaluable experience to myself as the researcher and Instructional Designer with this research study. This experience, I have used over the past 18 years to further strengthen my knowledge base and to further assist lecturers across disciplines to adopt blended learning approaches fit for purpose particularly at University X.

This builds on the aim of this research which focuses on blended learning approaches in the BEd (FPT) programme. The teaching and learning process has to include more active participation, which is advocated through the social constructivist learning theory. This is the task of prospective teachers currently studying at institutions of higher learning. Hence, the Academic Programmes at Higher Education Institutions (HEI's) which focus on teaching the prospective teachers should encourage the active participation of students within learning and teaching activities. Teaching-and-Learning (T&L) strategies should be designed in such a way that they lead to encouraging prospective teachers to take responsibility for their learning. These T&L strategies should enable students with the ability to use their acquired skills to effectively implement different teaching strategies in their own learning environments. Reflecting on their own teaching philosophy,

[7] ***InWEnt - Capacity Building International*** (Internationale Weiterbildung und Entwicklung gGmbH) was a German institution with worldwide operations in the field of bilateral development cooperation and international cooperation, with a focus on capacity building.

engaging in the process of design and delivery of related learning activities to ensure interactive participation in the class, will prepare them for their own profession. Applying these methods in their teaching practice, would showcase the level of self-directedness the prospective teachers have already acquired. Once prospective teachers have achieved the autonomy of directing and developing their own learning needs, they will use their new skills to inform their teaching philosophies to create learning activities that would teach their learners to develop as independent learners as well.

In South Africa, the Department of Higher Education and Training (DHET, 2017, p. 362) defines blended learning as the "provision of structured learning opportunities using a combination of contact, distance, and/or ICT-supported opportunities to suit different purposes, audiences and contexts". It can also refer to the use of various teaching models and styles of learning. This definition refutes the claim made by Oliver and Triggwell (2005) that one cannot switch between theories. Although lecturers may adopt one specific theory to inform their teaching, a combination of theories can be used in different areas or disciplines.

At University X, blended learning is typically defined as the infusion of technology to supplement the traditional face-to-face practices (Stoltenkamp et al., 2007). This includes the pedagogical approach the lecturer uses to teach a specific discipline. This pedagogical approach is shaped around the learning outcomes, which influence the design of the assessment tasks, the design and inclusion of the learning content and lastly the careful selection of the specific eTool to deliver an interactive blended environment (van der Merwe et al., 2015). This interactive environment reflects a blended design which encourages student learning. The subject matter expert's critical thinking around design and delivery of a blended environment is pertinent to the effectiveness of the teaching and learning process. According to Van der Merwe et al. (2015, p. 11) *"*blended learning may be defined as the thoughtful integration of classroom face-to-face experiences with technology-enhanced learning experiences*."* The inclusion of selected eTools to enhance teaching and learning in a blended online environment is what has been promoted vigorously through the UIECT at University X since 2005. Blended learning, if used in a balanced manner, can deliver a higher level of learning interactivity and collaboration among students, peers and lecturers; and more importantly this increased student engagement can lead to a higher level of institutional success.
For the purpose of this study, the researcher also the Instructional Designer in this research case, has engaged in three methods as mentioned by Henrie, Halverson and Graham (2015). The student

online questionnaire was used to collate student feedback, while face-to-face classroom and online observations were conducted to triangulate the student feedback obtained and compared to what the researcher observed in the physical and online classroom. Furthermore, student engagement was tracked via the *Statistics* eTool within the institutional LMS during online activities, which was used to further corroborate findings obtained through a series of face-to-face classroom observations. The student engagements during the physical classroom settings, as well as the online tutorial and assessment activities proved useful for the Instructional Designer during the observations. Although, the Instructional Designer observed during the classroom and no interference on the side of the Instructional Designer was done. It is important to note that this is an ethical concern, as lecturers may have adapted their original teaching strategy as a result of the researcher being present in the classroom. The researcher, positioned herself in the back of the classroom, which made her presence almost unknown to many of the students in the class. During the physical face-to-face classroom observations, the researcher was seated right at the back of the classroom, which made the interference with student engagement non-existent. As the researcher I was able to take pictures during certain demonstrations and group classroom activities. Images taken during these observations are inserted in the text which appears in Chapter Five. It should also be noted, that though I wore a dual hat as both researcher and Instructional Designer, I did not advise the lecturers on the design and delivery, neither the effective use of the eTools within their particular classrooms. My role within the physical and online classroom, was merely that of a researcher, observing for the purpose of the study.

The position of the researcher and Instructional Designer within this case study is important to note, as the researcher may be labelled as biased towards the use of blended learning in any environment, especially as the researcher is employed as an Instructional Designer within the UIET at University X. It should be noted that while the researcher also conducted interviews with the lecturers responsible for teaching the three modules, the findings obtained through this process were triangulated with the content observed during the face-to-face classroom sessions. This was further verified with the online student events during the online and face-to-face course activities. Hence, this enabled the researcher to track and monitor the students' activity during the learning and assessment activities in both settings (physical classroom and online activities) and confirm and corroborate it with the feedback provided by the lecturers. The independent research by the researcher, who is also an Instructional Designer, allowed for critical analysis of the research data obtained through observations, interviews and student responses.

As the researcher, also employed as an Instructional Designer, with intimate knowledge and access to the institutional LMS, I could navigate the online environments and compare the various learning and assessment activities setup in the three Language and Mathematics online environments. As an Instructional Designer, I could also compare the design of the learning and assessment activities using the various blended learning models as discussed in Chapter Two. I could view the learning and assessment activities, and evaluate how it was aligned to an Instructional Strategy. Furthermore, I was able to compare and analyse the various activities within the three respective online modules and highlight in which areas, the lecturers could improve and include a more discerning use and inclusion of blended learning activities to promote student engagement. This increased student engagement could ensure students are able to gain optimal learning and exposure to the various eTools, to develop different skillsets including, communication, deepened understanding and application of specific knowledge. As mentioned in Chapter Two, the arrangement of blended learning approaches can impact the level of engagement that occurs by students in the course, as well as the learning that students may accrue due to the teaching methods. This further leads to the development of students as self-directed learners.

An important aspect of self-direction in learning is to gradually help undergraduates develop these skills, especially prospective teachers enrolled in the BEd (FPT) programme, as they will be required to initiate and take responsibility for their own learning and teaching. The challenge for educators is to encourage them to instil this same skillset of self-directed learning within the classroom (Karatas &Arpaci, 2021). In this way they will be able to prepare the younger generation to actively engage and stay relevant within the job market, especially within the 4th Industrial Revolution (Guglielmino, 2013; Karatas & Arpaci, 2021). If the preparation for self-directed learning (SDL) is not consistently regards an essential skill by educational institutions, we are preparing young people to fail. Due to the exponential and unprecedented increase of information and the rapid change and transformation of technologies, students need to be adequately prepared to direct their own learning (Karatas & Arpaci, 2021).

Prospective teachers need to be prepared with this essential skill of self-directedness to effectively engage in the world which now has increased with the rapid development and speed of communication and technological advancements (Karatas & Arpaci, 2021). Research indicates that initial training undergone in a degree programme is no longer adequate preparation for maintaining work-based competence in the 21st century (Casner-Lotto & Barrington 2006; Guglielmino, 2013). Although the training and acquisition of adequate knowledge accrued through a high-school education during the late 1940s was sufficient to keep a person employed until retirement, this is

no longer the case (Steinhoff, 2012). Hence, it would be short sighted if educational institutions do not prepare graduates as lifelong self-directed learners. The importance of learning and assessment activities developed specifically within the BEd (FPT) programme is an important aspect to be discussed in alignment with the aim and main question of the study

3.1 Learning and Assessment in the BEd (FPT) programme in the South African context

A limited number of studies have been conducted around the inclusion of blended learning within the Foundation Phase programme at higher education institutions. Based on the literature reviewed, the inclusion of blended learning within the Foundation Phase has had both a positive and challenging impact on both teachers and students.

In the South African context, a study conducted by Venketsamy et al. (2022) examined the adoption of technology at school level during the Covid-19 pandemic. The focus was specifically on Foundation Phase teachers and their experiences, while adopting technology in their teaching practices in a South African school using Technological Pedagogical Content Knowledge (TPCK) as a framework to view the experiences and challenges by foundation phase teachers. The study uncovered that most teachers struggled as they were unfamiliar with the technology and its effective use for teaching and learning. Teachers also complained that they did not get the support from management to assist them with adopting and diversifying their teaching practices. The outdated and unsuitable software further barred them from successfully implementing technology in their teaching practices. Teachers requested that training and support should be offered to all teachers in preparation for their teaching practices to be adapted.

It is important to note that most public schools in South Africa, do not have access to different educational technologies to assist with the teaching and learning practice for learners. Teachers are often struggling to obtain the basic equipment for effective teaching to their Foundation Phase learners. Hence the inclusion of and use of emerging technologies to enable blended learning approaches in the Foundation Phase in the public schooling system is challenging (Jansen & Spaul, 2018). Access to and use of educational technologies, is not readily available in the general school setting. Although learners may have access to smart phones at home, the use of these technological devices are not standard operating practice within the Foundation Phase classroom. Hence, the use of a Learning Management System, access to a computer, WIFI connection and data projector is

not accessible in Foundation Phase classrooms. Although, the prospective student teachers are exposed to the various eTools and blended learning approaches during their undergraduate degree programmes within the university, these resources are not readily available within the school classrooms. Hence, the implementation and use by graduating Foundation Phase teachers is minimal and restricted.

Teachers were stressing the need for effective training and updated software to use ICT effectively. Kannan and Narayanan (2015, p. 5) found that technologies used for blended approaches have to be user-friendly, joined with applicable and relevant "teaching-learning material" used in training workshops. Furthermore, they call for the provision of incentives to encourage the adoption of blended learning approaches and training; and peer group interactions to influence perceptions and approval. Although the teachers did not call for provision of incentives, it may be used or offered to get buy-in from the teachers and to implement the effective use of technology. Another study conducted by Venketsamy et al. (2021) used the Invitational Learning Theory as a theoretical framework. The experiences and responses of Foundation Phase teachers and school management were elicited regarding the design and development of a conducive learner-centred learning environment within a culturally diverse Foundation Phase classroom in South Africa. The study found that leaders took the responsibility of creating a safe learning space for their teachers and learners. Through the school leader's support and encouragement, teachers created a safe and conducive environment that acknowledged and recognised all learners within a diverse classroom. The school leaders allowed teachers to introduce a variety of learning strategies (for example, indigenous games; African stories) and posters displaying different cultural practices in their classrooms. This showed that their leadership style was flexible and they believed in the potential of their staff. Classroom rules were implemented to ensure that discipline and mutual respect and tolerance is upheld at all times. Leaders are responsible to create an educational environment that is welcoming and accepting of diversity. All participants agreed that they managed to create an invitational teaching and learning environment (Venketsamy et al., 2021).

Furthermore, a study conducted by Kok and van Schoor (2014) investigated the challenges which university lecturers face in preparing foundation phase student teachers in teaching science modules. The national curriculum for science and technology aims to strengthen learner awareness of social relationships, technological processes and elementary science (DBE 2011). This particular study sought to test student teachers' concept knowledge of a 'science approach' to teaching. An integrated numeracy, science and technology module was developed for foundation phase student teachers, based on the science-technology-society (STS). The student teachers' knowledge was

tested in relation to this module and their views were recorded. The method for assessing the application of science concepts and its relevance in social contexts was found suitable. The views of student teachers indicated that the science and technology concepts should be taught separately. The finding of the study further established that student teachers should be taught specific teaching strategies that facilitate conceptual change should be included in teaching training. Students should also be taught how to develop their own constructivist understanding of concepts in science.

The above two studies discussed the inclusion of blended learning in a Foundation Phase Teaching programme at South African schools which discussed various aspects linked to the design of blended learning approaches in their classrooms which could be highlighted as the exception to what usually occurs in the Public Schooling system in South Africa. They also indicated that the Department of Education should ensure that the necessary equipment, software, technology and tools are in place, prior to enforcing the use of these technologies at schools in the foundation phase teaching processes. However, it is important to note that these two studies could be seen as the exception and not the normal operating procedure at most public schools within the South African system.

3.2 Summary

In conclusion, the positionality of the researcher as both an Instructional Design practitioner and researcher has to be noted. This dual role has allowed me to bridge the gap between theory and practice, infusing the research insights with practical application in the design and development of interactive learning experiences going forward. As an Instructional Designer, working closely with subject-matter experts, I am able to guide the design of learning activities to ensure that the students' diverse learning needs are adequately addressed. Furthermore, the appropriate design allows students to gain various skills that will aid them in their respective fields of study given the importance of integrating both learning theories, pedagogical principles and the emerging technologies, the Instructional Designer can contribute significantly to the design of engaged and interactive online environments. In an everchanging dynamic educational landscape, the role of the Instructional Designer and researcher within this study, has contributed to the exploration and understanding of the blended learning approaches in the BEd (FPT) programme.

The next chapter explores the research design of this study.

CHAPTER 4: RESEARCH DESIGN

4.1 Introduction

Conducting research can be defined as a coordinated activity to gain more knowledge and to contribute to the existing body of knowledge (Fellows & Liu, 2008). In order to gain more knowledge, one has to engage in a specific research method or methods. Thus, the research methodology is an important aspect of any study. A research method can be described as the manner in which research is designed to collect and analyse data in order to address a main research question (Bryman & Bell, 2007; Saunders 2019). A concerted effort was made to ensure that the data collected were sourced ethically and in a credible manner. The main research question driving this study was: What is the impact of blended learning on first-year students in the BEd (Foundation Phase Teaching) programme? The population sample of the study included the first-year students engaged in the BEd (FPT) programme along with the relevant lecturers responsible for teaching the modules.

The research design of the study is described using the 'Research Onion' framework as developed by Saunders et al. (2019). The Research Onion framework describes the different decisions a researcher should make when designing a research methodology. It consists of various layers which include research philosophy, approaches, strategies, choices, timelines, techniques and procedures. In addition, this framework focusses on the research methods employed to collect, process, prepare, present and analyse the data in order to respond to the main research question mentioned above. The different layers of the framework assisted the researcher to analyse the methods used to conduct this research.

4.2 Research Design

A research design, as defined by Babbie and Mouton (2001, p. 74) is "a plan of how a researcher intends conducting the research". The research design can also be described as a series of events which can link the process of collecting data to the actual research question and the analysis of the data after the processes have been completed (Creswell, 1994). This research plan outlines the procedures of how data will be collected in order to answer the main research question. The data collection process is further linked to the analysis discussed in Chapter Five, as well as the findings and conclusions presented in Chapter Six.

The research onion framework of Saunders et al. (2019) was selected for this study as it is a flexible model that can be adapted to almost any type of research methodology (Saunders et al., 2019; Raithatha, 2017). The framework provides a step-by-step guide to build and collate the theoretical framework that outlines how the research processes are conducted. Saunders et al. (2019) recommend that the 'Research Onion' should be used from the outer most layer working inwards and that correct steps should be selected for the type of research conducted.

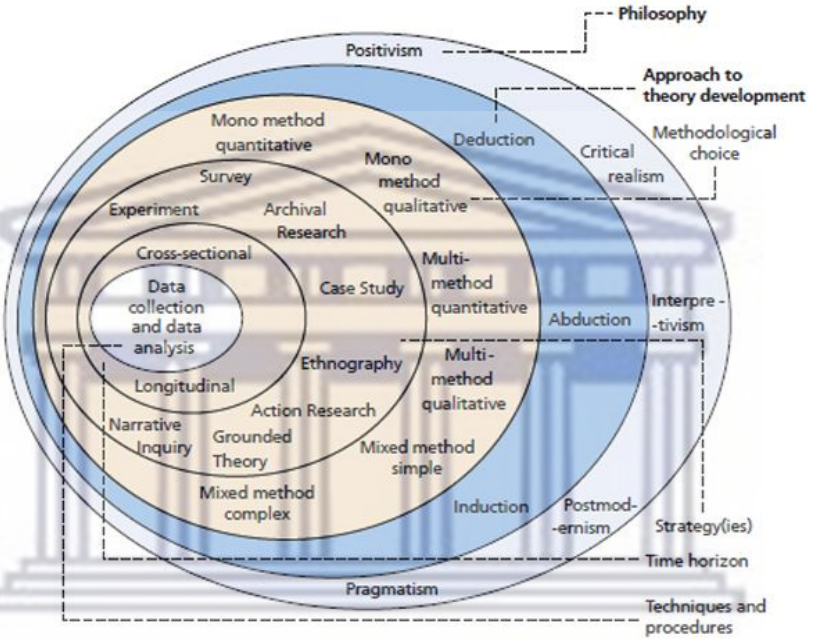

Fig 4.1 Research onion (Saunders et al., 2019)

4.2.1 Research Philosophy

The first layer of the 'Research Onion' specifies the different research philosophies that can be used in the research process. A philosophy is the belief or idea that the researcher holds about the collection, interpretation, and analysis of data collected. The different research philosophies as explained by Saunders et al. (2019) highlight the interpretivist, positivist, realist and pragmatist philosophies. The research philosophies used can be divided into positivist and interpretivist paradigms in which positivism assumes that knowledge is independent of the subject being studied, while interpretivism claims that individual observers have their own perception and understanding of the context in which they find themselves (Saunders et al., 2019)

For the purpose of this study, the interpretivist paradigm was selected as the best suited philosophy in the context of this study. The interpretivist approach emphasises and focuses on the participants' thoughts and ideas (Cresswell et al., 2006; Babbie & Mouton, 2001). The researcher further needs to identify with the participants' point of view, as well as their actions and ideas in order to highlight a thematic approach selected. The researcher needs to understand the perspectives and attitudes of lecturers and students regarding the impact of blended learning approaches implemented in the BEd (FPT) programme.

4.2.2 Research Approach

The second layer of the Research Onion focuses on the research approaches that one can use to further unpack the research. Saunders et al. (2019) differentiate between inductive and deductive approaches. According to Saunders et al. (2019) a deductive approach refers to a research study that starts with a theory that has been developed by reading available literature. The research strategy is then designed to test the theory through the research conducted. On the other hand, an inductive approach refers to data collected through studies which is used to explore a specific phenomenon in order to generate a theory such as a conceptual framework. This also means that very little is already known about a specific community, hence the research is conducted to gain more information on the community or target population of a particular study. The inductive approach is usually used in qualitative research which helps one to understand people's perceptions and experiences (Saunders et al., 2019; Thomas, 2006).

The present study makes use of the inductive approach which generates theories from data collected through research. The target population consisted of first-year students and lecturers of the BEd (FPT) programme at University X**.**

4.2.3 Research Method

The third layer of the research onion framework focuses on the research method or methods that can be employed within a research study. Several methods can be selected which include, mono method quantitative, mono method qualitative, multi-method quantitative, multi-method qualitative, mixed method simple, and mixed method complex (Saunders et al., 2019). If a single mono-method is selected it can be qualitative or quantitative in nature, whereas multi-methods can

be qualitative, quantitative or a combination of both. The multi-method approach can have multiple combinations of both qualitative and quantitative methods (Sahay, 2016).
According to Tashakkori & Teddlie (2008) the mixed-method design allows for a comprehensive understanding and insight of a specific phenomenon or study and complements the weakness of a quantitative approach. A simple mixed-method design uses both qualitative and quantitative methods in a particular study to collect and analyse data (DiCicco-Bloom & Crabtree, 2006; Creswell, 2003).

Qualitative research focuses on collecting data related to the interactions, opinions, ideas and themes of the selected participants or subject of a study. Qualitative research can be defined as an inquiry method which is conducted in familiar contexts with selected participants through face-to-face engagements (McMillan & Schumacher, 2006, p. 315). According to Berg (2001), a qualitative study emphasises the experiences and interpretations of those who participate to form part of the study. A qualitative research design often has a small sample size, since each respondent provides rich and insightful information.

For the purpose of this study, a mixed-method approach was adopted using a primarily qualitative research methodology (face-to-face classroom observations, lecturer interviews, student focus group discussion, and an online student questionnaire), with some supportive quantitative data such as student performance (student overall pass-rate) and statistics of student online access to the institutional LMS. The types of data varied in each of the phases of the study. According to Herrington, McKenney, Reeves & Oliver (2007, p. 8) it is important to note that data contributing to contextual understanding are more likely to be emphasised in earlier stages of the study; whereas data on prototype characteristics or user reactions are more likely to be collected later.

4.2.4 Research Strategy

The fourth layer of the research onion (Figure 3.1) looks at the research strategies that one can employ in a study. Saunders et al. (2019) maintain that experiment, survey, archival research, case study, ethnography, action research, grounded theory and narrative inquiry are the main strategies for qualitative research. The selection of a strategy, or strategies, depends on the research objective and the philosophy adopted by the researcher (Sahay, 2016; Saunders et al., 2019).

There have been many debates about both the advantages and disadvantages of a case-study design. It is an investigation which focuses on an example or issue and might not be reliable and does not produce generalisable data across a larger spectrum of similar studies. However, the case study method is still relevant as it can give an account of real-life activities under specific conditions in a certain context (Yin, 2004). According to Hua and David (2008), case study design has a number of advantages. A key strength is that it allows multiple sources and techniques in the data collection process. The authors further state that the data can be both qualitative and quantitative and can come from primary research as well as secondary sources such as government publications, novels and other sources. The authors, Hua and David (2008), are of the opinion that a case study is able to provide rich and in-depth data on the behaviour of a specific case or group of individuals. In the present study the group was the first-year students enrolled in the BEd (FPT) Programme.

A single-case study was selected for the purpose of this research in order to probe a particular phenomenon deeply, not necessarily to generalise on the basis of the analysis, but to understand the impact of blended learning on the BEd (FPT) programme, particularly in the approaches implemented in the modules Foundation Phase Mathematics (FPM 111), English Home Language (ELT 111), and isiXhosa Second Additional Language (SXL101). The case relates to the blended learning approaches implemented in the three modules selected within the BEd (FPT) programme at a public higher education institution in the Western Cape. This programme was delivered as a degree programme during the 2016 academic year for the first time. It is also important to note that University X was a previously disadvantaged institution with a unique history to develop and focussed on a special 'racial' group. It is also known for its impact and contribution to the liberation struggle in the early nineteen eighties (1980's). According to Gerring (2004, p. 341) and Babbie and Mouton (2001), a case study is best defined as an in-depth study of a single unit which carefully examines a subject of study in detail and according to a specific context. This context can refer to the researcher's workplace, or an institution that the researcher has a connection with, or a specific community.

Case studies are valuable as they enable the use of different sources and techniques in the data collection process (Hua & David, 2008). Data can be collected with the use of various instruments such as surveys, interviews, observations and focus groups. These methods are all tools that can be used to further demonstrate the effectiveness, strengths and weaknesses of a programme or subject.

The case study method was deemed best suited for this study as it enabled the researcher to investigate whether blended learning methods had been employed in the teaching of first-year

students enrolled in the BEd (FPT) programme at University X. Furthermore, this method was selected to guide the collection and analysis of data linked to the research problem. The unit of analysis used for this case study focuses on the first-year students enrolled in the BEd (FPT) programme. The researcher sought to carry out an in-depth investigation on the impact blended learning approaches had on the students, and whether they had contributed to helping students become self-directed learners. Moreover, this method was chosen to identify the challenges and strengths associated with the implementation of blended learning in the Language and Mathematics subject areas in the BEd programme.

4.2.5 The Research Time Horizon

The time horizon is the fifth layer of the research onion (Saunders et al., 2019) and focuses on the time-space within which this research took place. It is important for a researcher to establish the objective of a research project. If a problem is to be investigated at a particular time, cross-sectional research is undertaken to find answers (Saunders et al., 2019; Sahay, 2016). This data were collected over a period of one academic year, in 2019.

The data were collected in two phases during semesters one (Feb-May) and two (Aug-Oct). The Foundation Phase Mathematics (FPM 111) data were collected during semester one, while the English Home Language (ELT 111) data were collected during semester two. The isiXhosa Second Additional Language (SXL 101) data were collected during semesters one and two. Eight (8) face-to-face classroom sessions were observed per module; a total of 24 sessions were observed during the academic year. The English and Mathematics modules were semester modules and the isiXhosa module were a year long module.

4.2.6 Population and Sample

The last layer of the research onion framework focuses on the methods of data collection, the population and sample, and data analysis (Saunders et al., 2019). The sampling method should fit in with the previous layers of the framework (Melnikovas, 2018).

The main aim of this study was to explore the impact of blended learning approaches on first-year students in the BEd (FPT) Programme. The study focused on the subject areas of Language and Mathematics in the BEd (FPT) programme.

A purposeful sampling method was used to gather data for this research study. According to Bryman (2012), and Lodico, Spaulding and Voegtle (2010) the aim of purposeful sampling is to use a small group that is a representative sample of a larger group to assist the researcher gain the best and most comprehensive information to help answer the research questions. This method assists the researcher to select the best candidates who will answer question/s in the best possible way. According to Silverman (2013), purposeful sampling makes the selection of the subjects easier as they align with the interests of the researcher.

Purposeful Sample: Students

As mentioned before, the study focussed on the BEd (FPT) programme offered to first-year students enrolled in the modules particularly identified for the purpose of this study. The modules under investigation were English Home Language (ELT 111), isiXhosa Second Additional Language (SXL 101) and Foundation Phase Mathematics (FPM 111). The site of the research was a Public Higher Education Institution in the Western Cape Province. The table below reflects the module names and number of students engaged in these modules in the year 2019 at University X.

Module Name (2019)	**Number of Students enrolled**
English Home Language (ELT 111)	82
isiXhosa Second Additional Language (SXL 101)	123
Foundation Phase Mathematics (FPM 111)	155

Table 4.1 Module and number of students registered per module

Purposeful Sample: Student focus group discussion

Every fifth student enrolled within each module was selected and requested to join the focus group discussion (See Appendix 8: Focus Group Discussion). It should be noted that the list was in alphabetical order. Once students were selected, they were contacted by the researcher via email communication. Once again students were requested to engage in the research study on a voluntary basis. The students who were contacted and those who joined the focus group discussion were over the age of eighteen. A group of 10 students joined the focus group discussion.

Purposeful Sample: Lecturers and Heads of Departments (HODs)

Lecturers responsible for teaching the three respective modules during the 2019 academic year. There were selected and interviewed. Two Heads of Department (HODs) from the Department of Language Education and, the School of Science and Mathematics Education also participated in the study.

In order to ensure that the confidentiality and the privacy of the lecturers and HODs would be protected, pseudonyms were assigned to each participant. Table 4.2 reflects the list of pseudonyms for the lecturers and HODs.

Module Name	**Pseudonym of lecturer/HOD**
English Home Language (ELT 111)	Dr X
isiXhosa Second Additional Language (SXL 101)	Ms A and Ms B
Foundation Phase Mathematics (FPM 111)	Dr Y
Heads of Department for Language Education	Dr A
Heads of Department for School of Science and Mathematics Education	Prof B

Table 4.2 List of lecturers and HODs participants

4.3 Data Collection Methods

Included in the last layer of the research onion framework, is the focus on the methods of data collection, the sampling population and how the data are analysed (Saunders et al., 2019). As the research project made use of a qualitative case study design, the data were collected in a controlled environment in order to reflect on the interpretations of first-year students and their lecturers regarding the impact of blended learning on the BEd (FPT) programme. The process of triangulating multiple data sources, such as interviews, observations, and online questionnaires, enhances the reliability and validity of a study.

The researcher used different instruments to ensure a detailed investigation was conducted to explore the impact of blended learning approaches on first-year students engaged in the BEd (FPT) programme, and its related strengths and weaknesses. For this purpose, a combination of methods was employed in this research. Firstly, students were requested to complete an online questionnaire,

providing valuable insights into their experiences of blended learning. Secondly, the researcher used the purposive sampling method, to identify a select group of first-year students to engage in a focus group discussion. The feedback retrieved from the larger questionnaire was compared with the perspectives gathered from the focus group. The data collected via both methods aligned, which confirms the reliability of the conclusions drawn. The data collected were used to review and analyse the impact of blended learning on the students' learning experiences, their development as self-directed learners and the teaching approaches of lecturers. The data included the views, interpretations and understanding of the students engaged in the programme; the teaching philosophies of the lecturers teaching the programme and the final student results. The results were used as an indication of the impact of blended learning and the teaching and assessment methods used in the programme. Participating students and lecturers in the study were required to:

- Complete a consent form (all participants);
- Answer an online questionnaire (students);
- Participate in interviews (lecturers and HODs); and
- Engage in a focus group discussion (students).

The qualitative data were collected through observations of the face-to-face classroom and the online environment. Data were also collected through an online questionnaire (completed by participating students) and a student-led focus group discussion. The researcher conducted interviews with lecturers and Heads of the two Departments to gain their understanding regarding blended learning approaches in the BEd (FPT) programme.

The researcher gained a fuller picture of the blended learning approaches in the three modules by viewing the overall student pass-rate and the *Statistics* eTool for each module. The quantitative data were collected through the use of the *Statistics* eTool within the LMS, in order to view the activity of students within the online environment. In addition, quantitative data also included students' overall results per module, retrieved from the Marks Administration System within the Education Faculty.

The next section will focus on the data collection processes.

4.3.1 Data Collection Process

As part of the two-phased strategy for data collection, the first phase (semester one) of the data collection constituted the face-to-face classroom observations; online environment observations, lecturer and HOD interviews, student online questionnaire and a student-led focus group discussion. This data collection strategy was repeated during the second phase (semester two). The qualitative component was integrated with the quantitative component of the study, constituting the retrieval of student activity statistics within the LMS, and the overall pass-rate for each module.

It should be noted that the data collection processes were conducted prior to the Covid-19 world pandemic. Hence, all the classroom observations could still take place in person during the February- November 2019 academic year. During the national lockdown which was implemented in South Africa from March 2020 the researcher could complete the data analysis of the collected data.

The researcher observed eight (8) face-to-face classroom sessions per module for the three modules which formed part of this study. A total of 24 sessions were observed during the 2019 academic year.

The next section focusses on the data collection instruments selected for the purpose of this study.

4.3.2 Data Collection Instruments

As mentioned above, a mixed-method approach that was primarily qualitative in nature with some supportive quantitative data was used in the study. For the purpose of this study, a mixed-method approach was adopted using, a primarily qualitative research methodology (face-to-face classroom observations, lecturer and HOD interviews, online student questionnaire and student-led focus group discussion), with some supportive quantitative data such as student performance (student overall pass-rate) and the online student access statistics in the respective modules (LMS) were used.

4.3.2.1 Observations

Preparing future teachers to be effective within their classrooms is an important task and the responsibility of lecturers. Hence, the design of this research study sought to view the level of

engagement between both students and lecturers in the natural learning environment. This learning environment included classroom lectures and online engagements via the institution's LMS. Observations during these engagements included a focus on the teaching techniques that lecturers employed during both contact and online teaching sessions. During the face-to-face classroom observations, the different teaching and assessment approaches that lecturers used were observed and listed using the observation checklist (see Appendix 9: Classroom observation checklist). The design of the study further lent itself to investigate students' preparedness and development as self-directed learners within the 21st century learning environment. During the observations it was also the researcher's aim to record whether blended learning approaches led to student engagement, and whether this process facilitated deeper learning. In addition, the exploration of blended learning approaches was further investigated through formal interviews conducted with lecturers and HODs, outlining their teaching philosophies and practices. The exploration was done in an attempt to gain an understanding of the related strengths and challenges encountered by both lecturers and students.

Observations, as defined by Mouton (2001), are a systematic process conducted in a controlled environment. In this study the participant students and lecturers were observed during the face-to-face class sessions. This provided the researcher with the opportunity to gain insights into the real-world context of the participants. "By only observing, especially in an unobtrusive manner, the researcher will achieve the most objective experience of the community" (De Vos et al., 2002, p. 86). An observation checklist was designed which was used to observe the teaching practices of lecturers and student engagement during the classes (See Appendix 9: Classroom observation checklist). The checklist included specific key categories observed in the classroom. These included technologies used in the classroom, teaching philosophy and student engagement during lectures. The researcher did not interact with the students and lecturers during the face-to-face classes. Lectures were not disrupted by the research observations, as the idea was mainly to gauge the teaching approach, the types of assessments used during the lesson and how learning took place through interactions. It is important to state, although the researcher did not interact with the lecturers and students during the classroom observations, her presence may have impacted the lecturers' teaching and students' interactivity during lectures. The researcher remained seated in the back of the classroom and students were not always aware that the researcher was present in the classroom.

"There is little doubt that classroom observation can be a valuable tool in giving us a more comprehensive picture of what actually happens in class, and help attain a higher standard of

teaching and more effective teaching methods" (Lasagabaster & Sierra, 2011, p. 461). The online and face-to-face classroom observations conducted by the researcher strengthened the responses gathered during the interviews. The researcher could verify the interview responses with what was observed during the observations. Hancock et al., (2007) note that observations can help the researcher to expose whether the information shared with the researcher during interviews was truthful or not. While the face-to-face observation sessions provided the lecturers with an opportunity to showcase their teaching approaches and methodologies, it also enabled the researcher to gain more information about the research setting. The online observations gave the researcher an indication of the planning that lecturers undertook prior to engaging in their face-to-face and online lectures. The observations of both the face-to-face and online environments were used to observe the students' engagement and the level of interest in both contexts.

4.3.2.2 Interviews

Interviews can either be structured, unstructured or semi-structured. Structured interviews are interviews in which questions are planned and selected in advance; they require direct replies and do not give interviewees the opportunity to expand on their answers (Myers and Newman, 2007; Gill et al., 2008, p. 91; Alshenqeeti, 2014). Unstructured interviews are more flexible and do not have any predetermined questions created by the researcher (Gill et al., 2008; Fox, 2006). In semi-structured interviews the researcher focuses on planned questions, but allows some flexibility that enables the researcher and the interviewees to branch out into other areas of interest but still related to the topic (De Vos et al., 2002; Gill et al., 2008; Alshenqeeti, 2014). For the purpose of this study the teaching and assessment practices of lecturers were investigated through semi-structured interviews (See Appendix 5a: Interview Questions for Lecturers).

The teaching philosophies of lecturers, and ways they aimed to develop student learning were investigated. The lecturers answered open-ended questions based on their experiences and individual teaching approaches. This enabled them to express their views on learning, specifically blended learning, and its impact on student learning. In addition, their understanding and interpretation of blended learning, their teaching styles, and assessment practices were investigated. They shared their perspectives and thoughts on the selection of eTools that were used in their online environments and the purpose for implementing blended learning in the modules they taught. The HODs of the Departments of Language Education and the School of Mathematics and Science Education were also interviewed (See Appendix 5b: Interview Questions for HODs) to gain a deeper

understanding of their views regarding blended learning and its potential impact. These interviews constituted the qualitative aspect of the study.

4.3.2.3 Student Online Questionnaire

"The term questionnaire can refer to documents that include a series of open and closed questions to which the respondent is invited to provide answers" (Rowley, 2014, p. 2). The student online questionnaire in the present study consisted of both closed and open-ended questions. The first part of the questionnaire consisted of close-ended questions, while the second part posed open-ended questions. This enabled students to share their own experiences and opinions related to the use of blended learning in the three modules. Close-ended questions might provide higher percentages of responses as more participants may find them easier to answer (Reja et al., 2003). One of the advantages of an online questionnaire is that it allows the researcher to reach a large group of respondents (Garton, Haythornthwaite, & Wellman, 1999; Wellman, 1997).

All first-year BEd (FPT) students enrolled in these modules were asked to complete and sign the consent forms (See Appendix 6: Student Consent Form). They were informed that all information shared by them would be kept confidential and that they were free to withdraw from the study at any time. The online questionnaire was designed and carefully prepared for all students enrolled for three modules (ELT 111, SXL 101 and FPM 111) in the first-year BEd (FPT) programme to complete. The questions focused on broad areas such as teaching methods, assessment, student engagement and the use of technology in teaching practice (See Appendix 7: Student Questionnaire).

4.3.2.3 Student Focus Group Discussion

A focus group can be seen as an interview that is carried out in a group. Edwards and Holland (2013), Gill et al. (2008) and Harrell and Bradley (2009) describe a focus group as a small group that holds a discussion on a specific research topic to enable the researcher to obtain total comprehension of a phenomenon occurring in a specific context. A small focus group discussion with a purposeful sample of 10 students was conducted. The open-ended questions posed allowed students to share their ideas and experiences of the respective modules. The purpose of the focus group discussion was also to identify which learning experiences the students saw as important and to compare their answers with the key concepts and themes that emerged from the online questionnaire that students had completed (See Appendix 8: Focus Group Discussion Questions).

The focus group discussion was also used to identify students' ideas of the use of blended learning in the modules. It provided an opportunity for students to share their opinions and views on student learning, blended learning approaches implemented in the courses and their level of computer literacy before they had engaged in the programme. It enabled the researcher to gain insight into their perceptions and attitudes towards blended learning approaches and to merge this with what was observed during the face-to-face class interactions. Authors Vos, Strydom, Fouche and Delport (2005, p. 299) corroborate that a researcher can use focus group discussions to understand a person's feeling and interpretation of a specific issue or event. In this study, it refers to the students' understanding of what blended learning is and how it has impacted their own learning and development. The benefits of selecting a focus group as a method of collecting data, are that participants are able to discuss the issues with each other. This technique allows participants to discuss and share different points of view and to learn from each other and perhaps solve important issues with which they might be confronted (Bless et al., 2004, p. 10). Details of the focus group discussion were recorded with the permission of the students engaged in the session. The researcher took notes which were analysed and grouped based on the themes that emerged.

4.3.2.5 Statistics eTool in the Online Environment

As mentioned above, there was a quantitative aspect to the research. The supporting quantitative data collection instrument used was the *Statistics* eTool of the LMS (X), that was enabled in the three modules under discussion. The *Statistics* eTool allowed the researcher and lecturers to view active students' participation in the online environments during a specific time period. This eTool was a method of collecting quantitative data to support the qualitative data. The quantitative data retrieved via the *Statistics* eTool included access to the modules, course materials, assessment and communication activities. This included the number of student engagements, such as viewing and downloading the course content, completing online assessments and engaging in communication events in the online environment. Thus, the researcher used it as a research instrument to investigate online teaching and learning by viewing student behaviour in the online environment (See Appendix 10: eTools and its pedagogical value). This tool was selected to explore the impact of blended learning on the BEd (FPT) programme.

4.3.2.6 Student Overall Pass-rate

According to Mogalakwe (2006, p. 221) the documentary analysis method, is the study of records that hold data related to the researched phenomenon. Furthermore, Bell (2005, p. 123) claims that researchers use documentary analysis to complement data from other data collection methods for the reliability and validity of research findings. The "utilisation of document study enables the qualitative researcher to investigate people, events and systems in depth, by analysing the authentic written material" (De Vos et al., 2002, p. 33).

In the present study, the students' final results obtained in the three modules were the authentic records obtained and analysed and used as a means to support the effective use of blended learning. The student results were obtained from the Marks Administrator System (MAS) within the Education Faculty. The MAS system records both the formative and summative assessment marks which constitute the final results.

The next section will focus on the data preparation processes.

4.4 Data Preparation

The researcher identified and prepared the qualitative and quantitative data components of the study. Qualitative and quantitative data were collected through face-to-face classroom observations, online environments (modules), lecturer and HOD interviews, student focus group discussion, student questionnaire, *Statistics* eTool and Marks Administration System (MAS).

4.4.1 Student Online Questionnaire

An online questionnaire was designed and carefully prepared for all students enrolled in the first-year BEd (FPT) programme. The questions consisted of both closed and open-ended questions. The first part of the questionnaire made use of close-ended questions, constituting the quantitative part of the study; whilst the second part posed open-ended questions constituting the qualitative part of the study. The questionnaire enabled the researcher to record student insights and perceptions of the impact of blended learning approaches on their learning.

The questionnaire was prepared using Google Forms which is a web-based application. A "form" is an interactive type of web page that allows Internet users to send and collate information across computer networks (Wright, 2005). The ease of use of Google Forms for the collection of data is

the main reason the researcher selected the use of this tool. Student respondents were able to access the questionnaire from any geographical location provided they have internet connectivity. In addition to the ease of use, the respondents were able to access the questionnaire via different devices such as a smartphone, computer, tablet or laptop. The use of Google Forms further allows data analysis and graphical presentation online in real-time. Once the online questionnaire is completed by a respondent, the data will automatically be recorded in a Google spreadsheet in a format that is easy to analyse and enables a graphical representation of data and in tabular format (Raju & Harinarayana, 2016).

4.4.2 Face-to-face Classroom Observations

In addition, qualitative data were also collected via face-to-face classroom observations. The researcher prepared an observation checklist focussing on categories including, teaching methods, technologies and student engagement (See Appendix 9: Classroom Observation Checklist). This form of data collection provided the researcher an opportunity to triangulate the lecturer's techniques in the class by comparing it to the interview responses recorded. According to Patton and Cochran (2002) data collected through observations allow researchers to gain an understanding of the difference that may exist between what the research participant affirms they do and what they do in reality. This may also assist the researcher to reveal aspects of the participants' behaviour that they themselves may not be aware of.

4.4.3 Online Environment Observations

In addition to attending face-to-face classroom observations, qualitative data were also collected through the online environments (modules). The researcher was able to make use of the same checklist prepared for the classroom observations. This form of data collection enabled the researcher to observe the use of specific eTools and its impact on student learning.

4.4.4 Lecturer and HOD Interviews

Qualitative data were also collected through semi-structured interviews with lecturers and HODs of the respective modules. Three interviews were conducted in person during the pre-Covid-19 period. In addition, the researcher had to prepare for one telephonic interview process. Furthermore, it should be noted that one participant preferred to conduct a paper-based process, refusing to meet

the researcher face-to-face or telephonically. The researcher prepared open-ended questions which enabled the lecturers to share their perceptions, attitudes and understanding related to the use of blended learning approaches within their teaching practice. The benefit of using open-ended questions allows lecturers to freely share their own understanding and ideas without being influenced by the research (Foddy, 1993, p.127; Gonier, 1999) around blended learning approaches in the BEd (FPT) programme.

4.4.5 Student Focus Group Discussion

Qualitative data were also collected through a student focus group discussion that was conducted in person. The researcher prepared three open-ended questions that enabled the students to share their understanding and perceptions of the impact of blended learning approaches on their learning. This space enabled rich data to be shared amongst peers without influence from the researcher (Reja et al., 2003; Gonier, 1999). The three questions encapsulated the main ideas the researcher needed to cross-reference with data obtained through the questionnaire.

4.4.6 Statistics eTool and Marks Administration System (MAS)

Quantitative data were collected through the *Statistics* eTool via the institutional LMS and recorded the student engagement within the online environment. The *Statistics* eTool was embedded within each online environment hosted within the LMS. This enabled the researcher to prepare data in relation to the number of student engagements, such as viewing and downloading the course content, completing online assessments and engaging in communication events within an online environment.

In addition, quantitative data were also collected via the Marks Administration System (MAS) within the Education Faculty. The researcher was able to prepare the data in relation to the final student results that gave further insight into the impact of blended learning approaches. It should be noted that the MAS system, records both the formative and summative assessment marks which constitute the final results.

4.4.7 Data Triangulation for Validity

The use of multiple data sources used within this study confirms that triangulation was achieved within this research study. Semi-structured interviews were conducted with lecturers and Heads of Departments (HODs) to explore their teaching philosophies, approaches to blended learning, and assessment practices. The responses from the different interviewees were collated and compared. Furthermore, a student online questionnaire making use of both open and closed- ended questions was used to gain data from the large student group. In addition, a focus group discussion was conducted with a select group of students, to gain a deeper understanding of blended learning and its impact on learning experiences. The feedback gathered from the focus group discussion was compared with the responses from the larger online questionnaire, which added to the credibility of the qualitative data.

In addition, quantitative data were collected through the *Statistics* eTool in the online environment. This data provided further insight into the students' engagement with the course materials and activities. The student overall pass-rate served as another indicator to confirm the effectiveness of blended learning in the BEd (FPT) programme. Through implementing these multiple modes of data sources and methods, the study achieved triangulation.

The next section will focus on the process of data presentation.

4.5 Presentation of the Data

The researcher obtained raw data that had to be construed, investigated and displayed. This data can be presented in various formats including text, audio and images. In addition, different visual forms include word clouds, concept maps, graph databases, timelines and infographics. Conducting interviews or collecting materials can produce the display of field notes, transcripts from interviews, documents, videos and the like (Dey, 1993, pp. 11, 15 cited in Graue, 2015).

In this study the qualitative data obtained through face-to-face classroom observations, interviews conducted with lecturers and HODs as well as the focus group discussion with students were displayed in text (documents). The raw data were presented in text and quoted materials were presented in tables to showcase the rich information shared by participants of the study. The open-ended questions in the student questionnaire were displayed in a tabular format.

The quantitative data obtained through the close-ended questions within the student questionnaire were represented in pie charts.

Example: Display of a pie chart in student questionnaire

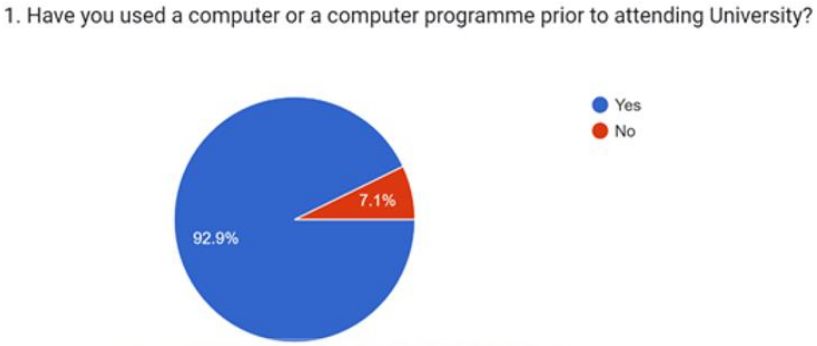

Fig 4.2 Computer usage prior to attending University

The quantitative data in relation to the student engagement within the LMS, was obtained via the *Statistics* eTool in the LMS and presented via pie charts.

Example: Display of a pie chart in the LMS

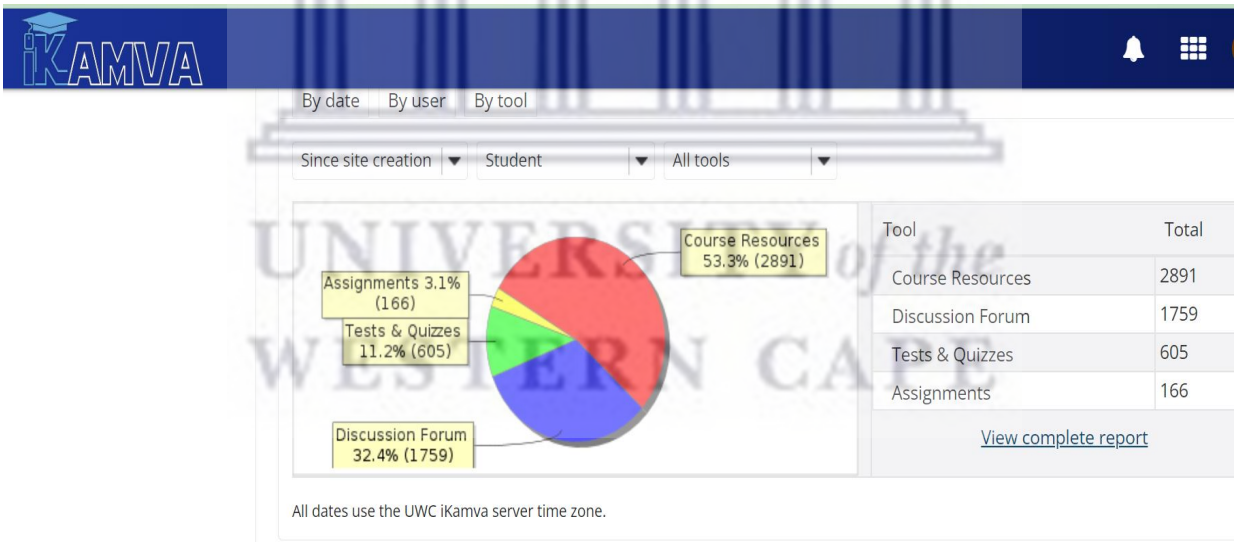

Fig 4.3 Number of student engagements within LMS

The quantitative data obtained through the Marks Administration System (MAS) was displayed in a tabular format.

The next section will focus on the process of data analysis.

4.6 Data Analysis

4.6.1 Thematic Analysis of Qualitative Data

The researcher embarked on a process of data analysis to organise, code and theme the raw data collected through the research instruments identified. During the data analysis phase the researcher embarked on a thematic analysis approach to interpret and deliberate upon the raw data obtained through the face-to-face classroom and online environment observations, interviews, online student questionnaire (second section constituted open-ended questions); and the student-led focus group discussion. Thematic analysis is a data analysis strategy that is commonly used across all qualitative designs. Thematic Analysis (TA) is a method of "identifying, analysing, and reporting patterns (themes) within data" (Braun & Clark, 2006). Text as data is often more difficult to reduce and identify patterns than numbers as data (Austin & Sutton, 2014). For the purpose of this study, Braun and Clarke's six phase steps to thematically analyse data were used.

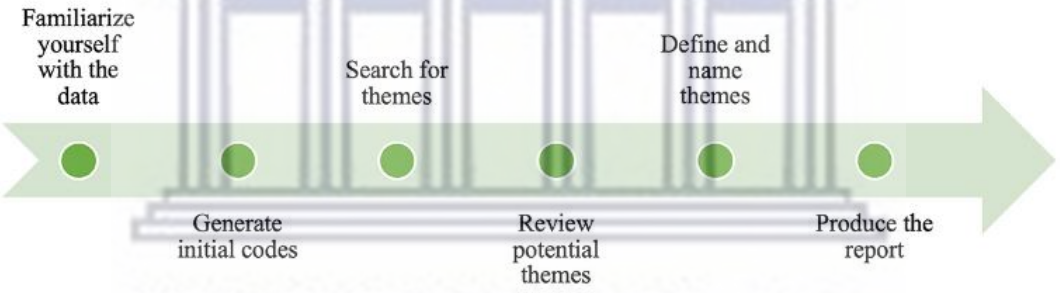

Fig 4.4 Six-phase Thematic Analytic process (adapted from Braun & Clarke, 2006, 2012)

4.6.1.1 Familiarisation of data

According to Braun and Clarke (2006/2012), the first step requires that researchers become intimately familiar with the data collected as part of the research study. The researcher examined the data obtained from each research instrument in order to make meaning of the responses. The data obtained through face-to-face classroom and online environment observations was revisited several times to gain familiarity with the environment. The interviews with lecturers, HODs, and student group were transcribed and reviewed. Lastly the open-ended online student questionnaire data was read and re-read a number of times to become intimately familiar with the responses.

4.6.1.2 Coding of Data

Codes are “the building blocks of analysis” according to Braun and Clarke (2012, p. 61) and assist a researcher to make sense of the data they collected aligned to the research question. The data were compared and grouped according to similar topics and categories and a code was assigned to the data. Coding within a qualitative study is defined as “the process by which raw data are gradually converted into usable data through the identification of themes, concepts, or ideas that have some connection with each other.” (Austin & Sutton, 2014, p. 439).

The feedback obtained through the various data instruments, face-to-face and online environment observations, lecturer, HOD and student focus group interviews; and the online student questionnaire was categorised according to similar topics and then coded. Through this coding process, the researcher was able to identify clear similarities and differences within the data. Depending on the purpose of the study, a researcher may apply any combination of the various coding strategies mentioned.

4.6.1.3 Theming Data

A theme “captures something important about the data in relation to the research question, and represent some level of patterned response of meaning within the data set” (Braun & Clarke, 2006, p. 82). Themes can be explained as the patterns that exist within the codes, and can take numerous pieces of related code to show a bigger picture of what is being portrayed. Once the coding strategies were exhausted the, researcher could identify various themes linked to the data sets that were obtained and which aligned to the research question. It was evident that the themes were in alignment with the data obtained through the data instruments of this study.

4.6.1.4 Refine Data Themes

The next phase of the analysis process is to refine the themes identified in the data. In this phase the coded data and themes are reviewed to see if similar patterns and themes make sense and create a logical flow. During this step some themes may merge with others and new themes may be identified (Braun & Clarke, 2006). During this stage the researcher was able to remove some themes and identify new themes and in some cases merge themes and create sub-themes. This was a slow process which required methodical review and clarification. It required the researcher to re-read several excerpts of data to ensure that the data were grouped and themed correctly. The steps further

include the process of editing and cleaning the data to ensure that any errors are removed (Cresswell, 2014; Castleberry & Nolen, 2018). Once any errors are removed, the data can be organised into categories, and coded according to specific themes and sub-themes for analysis.

4.6.1.5 Define Themes

This step is closely linked to the previous step as definite themes and sub-themes are identified. According to Braun and Clarke (2012), researchers should only define and select final themes so that there is no overlap and a singular focus can be achieved. During the process of re-assembling the data into themes the researcher must analyse and interpret the data. The final themes identified by the researcher were driven by the main research question: exploring the impact of blended learning approaches on the BEd (FPT) Programme. The feedback was categorised according to dominant themes and further discussed and deliberated.

4.6.1.6 Write up and report on data

The last step in the thematic analysis is when data are reassembled and the coded text are mapped to a specific category and the data is given meaning through the creation of themes (Austin & Sutton, 2014). For the purpose of this study, the researcher engaged in the write up focusing on the main themes and sub-themes which were identified. The data recorded through all the above steps, came together in the write up of the dissertation focusing on the impact of blended learning approaches on the BEd (FPT) programme.

4.6.2 Visual analysis of the student online questionnaire (quantitative data)

Furthermore, the first section of the student online questionnaire included close-ended questions that automatically generated into a visual format displaying pie charts and a bar graph. The participants were required to select various options. The researcher was able to analyse these survey responses that the Google Forms automatically generated as pie charts.

4.6.3 Visual analysis of Statistics eTool (quantitative data)

The quantitative data obtained through the *Statistics* eTool were presented in a visual format as pie charts. The frequency of the usage of the eTools was displayed and analysed.

4.6.4 Visual analysis of the overall student pass-rate (quantitative data)

In addition, the overall student results obtained from the Marks Administrator System (MAS) in the Education Faculty were presented in a tabular format. The researcher was able to analyse the overall pass-rate of each module in the BEd (FPT) programme. The MAS system records both the formative and summative assessment marks which constitute the final results

The next section will focus on the trustworthiness of the study.

4.7 Trustworthiness of Study

The main research question explored the impact of blended learning approaches on first-year students in the BEd (FPT) Programme. In discussing the trustworthiness of the study, the constructs of credibility, reliability, dependability and transferability are discussed.

The credibility of a study refers to the processes undertaken to ensure that data obtained through various data collection instruments were trustworthy and dependable. This is done by engaging in observations that the research was conducted in a credible manner, ensuring that the data were interpreted correctly, and that information was obtained in an honest manner (Mills et al., 2010).

Reliability

Reliability refers to the possibility of a research project to consistently replicate the same results under the exact same conditions. This is also referred to as 'dependability' (Lincoln & Guba, 1985, p. 300). Healy and Perry (2000) explain that obtaining valid results in the qualitative paradigm relies on the use of multiple perceptions about a case study focusing on a single topic. A process of triangulation of several data sources (for example, interviews, observations and online questionnaires) and their interpretations can be used to ensure that a study is reliable and valid. When the same results can be yielded using different instruments, it ensures that the study is reliable and credible.

For this purpose, the different instruments implemented in this research were used to investigate the concepts and to yield reliable results which relate to the impact of blended learning and its related challenges and benefits. In this study the students were requested to complete an online questionnaire. In addition, through a purposeful sampling method, a sample of students was

identified to join a focus group discussion. The perceptions of the focus group were compared with the responses of the larger class to the questionnaire. If these responses were similar, the study can be deemed reliable.

Dependability

According to Neuman (2000), reliability in a study under investigations refers to the dependability or consistency. It suggests that the same thing is repeated and re-occurs under identical or very similar conditions. Neuman (2000, p. 164) further states that the term validity suggests truthfulness and refers to the match between a construct, or the way a researcher conceptualised the idea in a conceptual definition, and a measure. During the process of gaining reliable data from both students and lecturers, the researcher asked open-ended questions which allowed students to voice their own opinions based on their own learning. Lecturers were interviewed individually and their own interpretation and use of blended learning was based on their own research and teaching practices.

Transferability refers to the process whereby the findings of the research can be replicated in similar contexts and studies (Cohen, Manion & Morrison, 2018).

The next section focusses on the ethical considerations that were considered during the study.

4.8 Research Ethics

Conducting research in an ethical manner is important to ensure the research is reliable and credible. Applying ethics in research also refers to the norms and standards that are adopted when gaining access to the research environment, engaging with research participants and obtaining data ethically (Cohen, Mannion and Morrison, 2018). Researchers must acknowledge the impact the research can have on participants; hence they need to take into consideration and preserve the anonymity, confidentiality and dignity of their participants (Cohen, Mannion & Morrison, 2018). It is important that the anonymity and confidentiality of research participants are protected in alignment with the Protection of Personal Information Act of South Africa.

This research study considered and implemented ethical considerations, aligned to the intitution's policies and procedures. The following processes were implemented:

- The research study was approved by the Ethics committee in 2018 and renewed in May 2020. (See Appendix 1: Ethical Clearance).
- Both students and lecturers at the university engaged in the BEd (FPT) programme were informed of the purpose of the study and nature of research before they decided to participate in the study (See Appendix 2: Information sheet).
- Permission was obtained from the Head of Department for the Language Education Department (HOD) (See Appendix 3: Letter of Permission) to observe in the two respective modules.
- The researcher also gained consent from both lecturers in the English Home Language (ELT 111) and isiXhosa Second Additional Language (SXL 101) respectively to engage in the study and for observations to take place in their classrooms. (See Appendix 4: Lecturer Consent Form).
- Permission was also obtained from the Head of Department (HOD) for the School of Science and Mathematics Education (SSME) to observe in the one module (See Appendix 3a: Letter of Permission)
- The researcher also gained consent from the lecturer teaching in the Foundation Phase Mathematics (FPM 111) module (See Appendix 4: Lecturer Consent Form).
- The researcher observed the face-to-face classes and supportive online interventions, as well as the interaction between students and lecturers in these environments without hindering teaching and learning processes.
- Prior to the researcher's classroom observations, the students were expected to sign consent forms (See Appendix 6: Student Consent Form), giving permission for the researcher to observe them in class. Their decision to participate in the study was completely voluntary. All student details and responses of those who participated in this study were anonymous and treated confidentially. Participants were allowed to disengage from the study at any given time without any adverse effects. A requirement of this study was that any student under the age of 18, should not sign the consent form or engage in the study. This was a requirement specified by the research council when the study was registered. Students under the age of 18 are regarded as minors and their parents' consent would be required.

In the next section the limitations of the study are discussed.

4.9 Limitations of the Study

This study analysed whether blended learning approaches had an effect on the teaching and learning processes of the BEd (FPT) programme. This is a significant study, since the role of prospective educators is important in encouraging the educational development of the Foundation Phase learners at school level. In turn, these educators have to be trained effectively in order to deliver via innovative practices.

The literature available on blended learning approaches within a BEd (FPT) programme within the South African context is limited, as this is a fairly new field, that needs to be further explored, both nationally and globally.

In addition, a limitation was that this study included a single case, conducted at a public higher education institution, referred to as University X. However, the case study design was relevant and significant, as a similar study had not been conducted at the institution before. This study focussed on a small sample, three first-year modules of the BEd (FPT) programme. The small number of students engaged in the study may affect the validity of the study. However, the student sample of 155 in this case study was sufficient in order for the researcher to answer the research question. Furthermore, another limitation could be linked to the focus group discussion where, more confident students dominated the engagement. The researcher tried to facilitate in order to get the quieter students more engaged. The focus group interview was conducted in order to supplement the data retrieved from the student online questionnaire.

As the researcher was the only one observing the classes, it might be construed as eliciting a subjective viewpoint. However, these perspectives were cross-referenced with lecturer insights and student experiences through the online student questionnaire and focus group interview. Moreover, this study cannot make generalisations about all courses within the Education Faculty.

4.10 Summary

This chapter outlined the research methodology used to collect, process, present and analyse the data gathered for the purpose of this study. The study adopted a mixed-methods approach which selected a single case study design. A primarily qualitative research methodology was employed with some supportive quantitative data such as student performance and the online student access

statistics in the respective modules. The population sample of the study included the first-year students engaged in the BEd (FPT) programme along with the relevant lecturers responsible for teaching the modules.

This chapter focussed on the research methods employed to collect, process, prepare, present and analyse the data in order to respond to the main research question. The data collection instruments were discussed to demonstrate how data were obtained. The qualitative approach included observations of the face-to-face classroom and online environments, interviews with lecturers and HODs, and the completion of an online student questionnaire. In addition, a student-led focus group discussion was also conducted with a purposeful sample group of students. These methods were used to establish the blended learning approaches and the impact of blended learning on the BEd (FPT) programme. Through these methods, the study also reflected on student development and learning experiences through their own perspectives. Hence, through the research methods applied, the level of engagement between lecturer and students was monitored and the level of preparedness from both the lecturers and students became evident. Ethical considerations were applied to ensure that the research was done in a credible manner. The chapter is concluded with a discussion of the limitations of the study.

The next chapter, explores the data presentation of this study.

Chapter 5: PRESENTATION OF DATA

5.1 Introduction

This chapter presents the data collected for this study. The main research question focussed on the impact of blended learning on the BEd (FPT) programme. Qualitative data were collected through observations of face-to-face classroom sessions and the online environments in the three modules; and interviews with the responsible lecturers of these modules and the respective Heads of Departments. In addition, first year BEd (FPT) programme students, the target research group, completed an online questionnaire and a selected sample of these students also engaged in a focus group discussion. The supporting quantitative data were collected through the *Statistics* eTool via the institutional LMS, X. This tool recorded the student engagement within the online environment. Additional quantitative data were also collected via the Marks Administration System (MAS) in the Education Faculty, which reflected the final student results.

The researcher engaged in these data collection activities to gauge the use and impact of blended learning techniques on student learning. The data collected also indicate the blended learning techniques and activities the lecturers employed in their respective modules.

5.2 Observations: Face-to-face Classroom Teaching and Online Environments

The data presented in this section apply to observations of face-to-face classroom teaching and online environments where the researcher was present in the classroom and observing actual lectures taking place. The lecturers and students were observed as they lectured in the classroom, and whilst the students' participation was observed. Throughout the academic year the researcher observed eight lectures in each of the following three modules: (i) English (ELT 111); (ii) isiXhosa (SXL 101) and (iii) Foundation Phase Mathematics (FPM 111).

5.2.1 Observations of Face-to-face Classroom Teaching

The results of the observations of classroom activities are discussed in this section. The researcher observed the lecturers and students during the face-to-face lectures for all three modules.

English (ELT 111)

The aim of the observations was driven by the main research question, to identify what blended learning techniques were used during the classes, and their impact and how students engaged with the technology. A number of 82 registered students for the module were observed during the bi-weekly lectures. The lectures were conducted twice a week on the following key concepts:

- Play-based learning,
- Integration,
- Teaching listening and speaking, and
- Teaching reading and writing in Grade R.

Lecture topic 1: Introduction and course overview

The first observation session took place during a lecture which was conducted in a seminar room and comfortably accommodated the 82 students. Students were all seated at square tables, which enabled them to make eye contact with their peers and introduce themselves. The lecturer discussed the course outline and introduction to the module. Furthermore, the lecturer also discussed the course content and the assessment activities, which related to weightings of assessment activities, engagement and marks. These were also clearly outlined in the Course Outline document. Whilst discussing the expectations in class the lecturer opened the course outline document on the computer, presented it on the data projector and navigated through the document. Some students followed by watching the screen in class, some of the students had a printed copy of the course outline and others read through the same document using their laptops. The ELT Lecturer (henceforth known as Dr X) also shared her expectations of the students with them. Clear class rules and guidelines were discussed during the first session. Students agreed to inform the lecturer ahead of time if they could not attend class. Basic rules included not answering phone calls during lectures or leaving the classroom should they need to take important phone calls.

Lecture topic 2: Learning theories

During the second observation session, Dr X presented a PowerPoint lecture, making use of the data projector in the venue. Students made notes of the presentation and some also asked questions related to the lesson content presented. The lecturer focused on different learning theories. The

lecturer spoke loudly and clearly and students were attentively listening to the lecturer while she was explaining the structure of the learning environments within the Grade R classroom. The lecturer noted that the key concepts for this module focused on play-based learning and integration to teach Foundation Phase students how to read with comprehension, write, speak and listen in the classroom. The lecturer also divided the students into work groups, which was essential for their future group assessment tasks and other classroom activities. As play-based learning is important in the Grade R classroom, the lecturer also requested each group to get together and prepare a fun activity at the start of each class. This fun activity also needed to help the learners to learn through play. Hence group work was a continuous activity that students needed to engage in during and outside of the classroom. During the class, students engaged physically with each other in their designated groups. Outside of the physical classroom, students were able to engage by connecting via WhatsApp (mobile chat application) and their online groups which were created within X using the groups eTool. Students were able to choose the method which best suited their needs and which constituted a blended approach. The lecturer would announce, during the face-to-face lecture, to the students in advance which group would be responsible for the 'opening act' of the lecture and she would also remind students of this via the *Announcements* tool on X. This would give the groups some time to plan and prepare in advance for their fun learning activity. Although this lesson was meant to discuss learning theories it focussed more on play-based learning concepts. Students were, however, put into groups for future assessments and encouraged to interact with each other in a variety of different ways which were beneficial.

Lecture topic 3: Curriculum and play-based learning

During the third session, the lecturer focused on using the Curriculum and Assessment Policy Statement (CAPS), contextualising the South African context, using Grade R as a starting point for first-year BEd. students who observe and teach this year level. This particular curriculum, CAPS, was introduced after the National Curriculum Statement (NCS) was revised (see, www.education.gov.za). This curriculum policy provides clear guidelines for teachers on what to teach and how to assess from grade-to-grade and subject-to-subject. During the session, the lecturer further indicated the importance of play-based learning in Grade R. The lecturer noted that language learning is rooted in the principles of integration and play as stated by the Department of Basic Education (DBE). The entire lecture focused on areas of play, using CAPS and how learning can be guided by teachers through teaching and learning activities. The lecturer focused on the various methods of teaching Grade R learners. Grade R is highlighted, as the BEd students in their

first year of study focus directly on the learners within Grade R and how they are able to observe and teach them.

The lecturer made use of the data projector to present the PowerPoint presentation. The slides were again shared with students prior to attending the class via the online environment created on X. Students were able to view and work through the presentation before class and the researcher noted that some students printed the presentation slides, whilst others used their laptops and tablets to follow the presentation by the lecturer. Hence, some students made notes on their printed lecture materials, and other students made notes on their slides by typing on their laptop slides.

At the end of the lecture, a group task was given to the groups. Each group needed to research and prepare a group presentation focusing on different topics of integration and play-based learning. After the lecture students were tasked with preparing a group presentation focusing on various topics of integration and play-based learning to share with the class. The lecturer explained details of the task in the lecture and also on X. Students needed to submit their presentation. This task was shared during the class as the lecturer explained what was required, displaying her slides on the computer screen using the data projector. The same task was also shared via the online environment which students could access and also submit via the *Assignments* eTool on X with the expectation that the students would present this information to the class in person. Students could visit the *Assignment* eTool to view what was required of the group assignment and the *Announcement* eTool, in addition to referring to notes they made during the face-to-face lecture, if they attended the class. The topics for the assignment are listed below and were issued to the students by the lecturer:

- **Group 1**: What counts as play-based learning?
- **Group 2**: Characteristics of play-based learning
- **Group 3**: The value of play-based learning in early childhood education
- **Group 4**: How children learn through play
- **Group 5**: How can teachers support the child's learning through play?
- **Group 6**: Types of play and examples
- **Group 7**: Why is the classroom environment important in play-based learning?
- **Group 8**: Characteristics of meaningful play-based learning classroom environments.
- **Group 9**: Differences between child-initiated and teacher-directed play-based activities
- **Group 10**: How do children make meaning in 21st Century classrooms?

Once the lecturer issued the student groups with their topics, the lecturer also provided detailed guidelines by explaining what was required for the group task presentations (face-to-face) and for the groups to work together, ensuring that they understood their topic. These guidelines were shared in the '*Course Resources'* e-tool in the online environment in X. Students were expected to present their findings through a PowerPoint presentation during a face-to-face lecture. The lecturer also discussed how the marks would be awarded and a clear rubric was shared with students. The lecturer also availed herself during face-to-face consultation times a class WhatsApp group and email for students to ask questions and seek clarity on the design and development of their group presentation. These group presentations were uploaded and submitted to the '*Assignments'* eTool in the online environment. The lecturer consultations were conducted face-to-face by appointment in the lecturer's office and students were also able to consult with the lecturer via email. All these explanations and expectations were further detailed in the online environment within X using the *'Announcements'* tool. Hence, students could refer back to the requirements which were posted online at any time as they prepared for the assignment. Students knew who their group members were and connected with each other via email and WhatsApp groups, which they created privately. Hence, the communication and sharing between group members was not updated on X but students could download and refer back to the online '*Announcements'* and '*Course Resources'* eTools. A class WhatsApp group was also created and students were also able to access the lecturer via this medium to confirm or clarify any course-related matters.

Lecture topic 4: A flipped classroom approach

Play-based learning and integration in an English Home Language Module was the key concept dealt with during the fourth lecture. During the fourth lecture observed by the researcher, the lecturer shared readings with students via the online classroom (X) prior to the face-to-face lecture taking place. The lecture readings were shared via both the '*Announcements'* and the '*Course Resources'* tool on X prior to the face-to-face lecture taking place. Students were able to retrieve these readings from the online platform – X whilst connecting from any geographical location as long as they were able to connect to the internet. Students needed to engage with the reading articles and prepare prior to attending the lecture. Students were required to engage in discussions based on the readings they had prepared with their peers. Some of the article discussions also extended into the online environment and took place via the discussion forum on the X platform. Hence, the students engaged in a flipped classroom approach, as they needed to come to class

prepared. This is typical of a 'flipped classroom approach'. Some of these article reading discussions took place in face-to-face lectures. In some instances, students engaged via their WhatsApp groups and discussed with their peers in preparation for the upcoming class. Hence, not all article readings extended into the formal online environment within X. The groups of students were well-behaved and they were actively engaged in the lecture and willing to learn and cooperated well with the lecturer and their peers. Play-based learning and integration within an English Home Language Module was the key concept dealt with during the lecture. The lecturer reiterated to the students that play-based integration was important when teaching school learners, a language, and the four key aspects of reading, writing, listening and speaking. The Curriculum Assessment Policy Statement (CAPS) allows teachers to adapt and add to slides and content in order for learning and teaching to take place more effectively. The lecturer referred to the integration of subject areas at this level and reminded students that as language teachers, they will need to design activities, which would enable their learners to engage in Mathematics and Life Skills amongst other topics. Focusing on the four key aspects of listening, speaking, reading and writing is imperative when engaged in a Grade R class as the learners are taught in their home language. Hence, how they make sense of the language, their reading and listening skills are critical as they will need to apply these when learning a first additional language in their schooling career.

The following incident is recorded to illustrate that classes do not always go according to plan. As the normal class lecture could not be conducted on Thursday 24 September, (as it was a public holiday in South Africa- Heritage Day), the lecturer shared the presentation prior to the lecture via the '*Announcement'* eTool within the online environment and asked students to review and work through the content. Students managed to access the *Announcement* tool to download the slides or print them. The last slide reminded students to prepare for the theme-based group activity. The theme, namely, 'Fruit' was highlighted and students were required to work in groups and design a learning activity with resources they could easily source as well as recyclable products. This activity was planned to take place during the face-to-face lecture and students were required to connect with each other prior to attending the lecture in order to discuss and plan what items they will bring along to actively engage in the design of their group work activity. There is no evidence to suggest that the communication and planning among student group members took place via the online environment on X. Students may have engaged with each other through other mediums.

Below is the communication by the lecturer to the class before it was due on the Wednesday (before the public holiday). The lecturer shared the announcement with students on the online environment-X.

> *"Good day Grade R teachers*
> *Please receive the attached notes for your consideration. Since Thursday is a holiday, we will meet in S26 on Wednesday at 12 noon. The last slide contains details about group activities for our lecture. Please read and bring the resources stipulated for your group. Please do not bring material that has already been designed, we all bring raw material and the design phase takes place during the lecture. As per the guidelines, our theme for the week is Fruit; hence, all the group resources and activities will be on fruit. Each group is to bring material so that group members will collaboratively design the material. I want all of us to unleash our creative spirits so we can produce innovative resources. You are encouraged to use recycled material and cost- effective material. Let's do this!*
> *Until Wednesday"*

Lecture topic 5: Group presentations

During the fifth face-to-face session that was observed, the students made joint presentations regarding play-based learning and integration focusing on topics provided to them by the lecturer. This was a group task that students had to prepare for, prior to attending the lecture. The guidelines and requirements for this group activity were shared in the lecture presentations via both the *Announcement* and *Course Resources* eTool. As the group task was shared with students during the second lecture, which meant students had a few weeks to prepare and work together to make their presentations. During face-to-face lectures, students were reminded of the group task and to contact the lecturer, if they had any queries or needed clarity. There is no evidence of students engaging in this group task via the online environment, X, although the task was shared via the online platform. This group work mostly took place outside of the face-to-face class lectures. Hence, students may have engaged with each other through other mediums such as email, WhatsApp groups and face-to-face meetings. There were eight groups and each group identified one team member to present. The students were seated at square tables, which enabled group work and interaction amongst peers. The groups conducted their research and presented their findings on the topic, which focused on play-based learning:

- Seven groups presented their findings, making use of the data projector and laptop, which was set up within the venue.
- Most of the student groups identified one speaker to share the group's findings on the research topic.
- Students' presentations were short and focused on the questions.
- The lecturer was seated at the front of the class initially, she then moved through the class as the presentations continued and made sure to connect with the students to ensure they were kept engaged.
- Based on the presentations, the student groups had a good understanding of the topic, namely play-based learning and the characteristics it entails.
- Some difficulty occurred as one group's presentation did not display on the screen. The researcher was called to assist in order to display the YouTube video on the screen. However, the sound was not audible and many students at the back of the class could not hear clearly. The video clips students embedded within their presentations were sourced from the YouTube site and had content which was owned by other experts.
- Students' presentations were created using mainly PowerPoint and were presented via the class desktop computer and data projector.

During these presentations the students identified many characteristics related to play-based learning which focused on the following aspects:

- The structure, presentation and preparation of the classroom environment needs to be inviting and welcoming as this would make children feel at ease and comfortable to engage optimally within the environment.
- Students also listed the advantages and disadvantages of certain play-based learning activities
- Various types of play were specified
    - Fantasy play
    - Functional play
    - Child-directed play
    - Teacher-directed play

Based on the presentations done by students, it can be deduced that the students learned and that they learned that learning occurs in different ways. Some of the student groups referred to their

observation session in schools and could make examples of how play-based learning could be used effectively to ensure learning takes place. All the student groups made use of the data projector to present their research and personal examples illustrated that their learning had taken shape. Although they had created PowerPoint presentations and shared their findings, their presentation skills were lacking. Most of the students who presented were quite nervous and resorted to reading from the screen and from their notes.

- Through the observations it was noted that most groups showcased an understanding of what was taught through their reflections. Hence the learning that took place could be seen as widespread and based on the specific individual who shared.
- One student group shared how the use of shapes is an activity developed by the teacher to direct student learning.
- Many of the slides were text heavy and the students tried to read all the content on the slide in an attempt to not miss important information.

The lecturer had provided a rubric via the *Course Resources* and *Announcement* eTools on X that guided them in the preparation of their information and also how they would be scored. This enabled students to view that she was making use of the rubric and provided constructive feedback to groups after presentations. The lecturer also reminded students that they had ample time to prepare for their presentations and that she would share their marks with them via the institutional Marks Administration System (MAS), once marks are captured on the computer.

Lecture topic 6: Group task engagement

At the start of the lecture, students were seated in their groups and after the lecturer introduced the theme and summarised the learning requirements for the day, the students started to communicate with each other within their groups. During the class, the researcher observed by taking pictures and listening to the discussions, whilst students were engaged in their group work activity. The students were informed of what is required during the face-to-face lecture, this was reiterated by posting the activity in the *Announcement* eTool within X.

The lecturer first requested a group to tell their story aligned to the group activity, which sparked confusion amongst that particular group. The lecturer then indicated what the activity should involve when designing their learning activity. The lecturer spent time speaking to each group

separately and answered their questions by engaging with each group at the tables where they were seated. Some groups only had two members and in order to spread the workload, smaller groups were asked to join up with each other so that the workload could be spread amongst the group members. A typical group consisted of four or more members. It should be noted that the task activity was also shared within the X *Course Resources* eTool and students had access to the outline.

The class was lively and students' eagerness was evident. While some groups first engaged in planning their activities, other groups started on their activities immediately. Based on this, it was clear that the groups had engaged with one another prior to attending the class. Students unpacked their bags with their resources, consisting of paper, magazines, colouring pencils, scissors, glue, clay to name but some resources. As a group, members came prepared to engage in the group activity.

One group made a collage of cut out images of fruit and created a colourful poster of different fruit. This particular group of students debated the plural and singular form of fruit. Some students then searched via Google using their smartphones and tried to find out whether one should refer to the topic at hand as Fruits or Fruit. This debate was concluded with students deciding after their Google search was complete that one would refer to it as Fruits. During this interactive discussion the students used different technologies to do their research and to clarify the questions. Once the poster was designed, they discussed what they would do within the actual class setting. Some suggestions were that they would ask the learners in class to name fruits, and identify all the fruit with a colour. Another idea was that learners could be asked to identify types of fruit on the poster. They would then also listen to the learners' pronunciation of the words and they could also be asked to spell or identify certain letters in the names of the fruit.

Fig 5.1 Group 1: Discussion of Lesson related to topic

Another group prepared coloured dough in preparation for the group activity in class. They then proceeded to take pieces of dough and started making different fruit shapes. Their idea was that the learners would use the dough to make different fruits by using their hands to mould a fruit shape. This activity would enable the learners to make use of their fine motor skills and it would also enable the learners to identify colours and different fruits. This is a play-based activity that Grade R learners should find interesting and exciting.

Fig 5.2 Group 2: Lesson Objects prepared for the classroom topic

A third group proceeded to draw fruit with pencil on paper and then used the magazine to cut colours and paste it onto the fruit. This was a mosaic artwork activity that required the learners to work with small pieces of paper and use glue to paste it onto the fruit.

Fig 5.3 Group 3: Paper Mosaic Poster Design

One interesting activity was when the group also cut out fruit shapes and made the shapes into a 3D fruit farm. This particular activity was innovative and caught the attention of the lecturer and researcher. They were a particularly quiet group of female students, who had prepared in advance for their learning activity, based on the brief that was shared by the lecturer.

Fig 5.4 Group 3D Fruit Farm

Engaging in the learning activity required students to engage and participate in discussion and plan their learning activity outside of the lecture independently. Students needed to work independently and within a group in order to ensure that they were prepared to complete the group task within

class. Students were required to engage in planning, manage their own resources and time, use their own creativity and work independently as well as collaboratively on this task.

At the end of the lecture, the students handed in their completed learning objects and related resources. The class was a fun and interactive learning space and whilst taking pictures, students shared their learning experiences informally with each other. Students were proud of the learning objects they had designed and some requested that the researcher take more pictures. These images were shared with the lecturer to upload onto the online platform for students to view. They also actively shared what they were doing, including why and how they think the learners would enjoy learning through these play-based activities. The students identified the skills that learners would be able to develop while engaged in the exact learning activities they had prepared.

Whilst students were engaged in completing their activities, the lecturer also reminded the students of the importance of creating effective and comfortable learning spaces where students feel safe to learn. Students engaged with the lecturer, who reiterated that the venue, which was assigned for this particular class, was not suitable for the type of learning activities that she had in mind for the group of students. The student discussions included a holistic approach as they shared their reasoning for designing their learning activities. The lecturer did not mention that online learning spaces are another space where learning could potentially take place. Although it was not mentioned explicitly, it was another space that students engaged in addition to attending the physical spaces to engage in their learning and assessment activities. The students were required to engage in an online quiz-which was setup on *Tests and Quizzes* eTool on the X online space. Students were required to complete a number of pop quizzes which focused on key concepts such as CAPS requirements for Grade R and what teachers should consider when preparing their lessons. Students were required to complete the pop quiz at any time before joining the class lectures for the following week. Students could engage in the quizzes at any time during the week and before the class lecture was due to start. The lecturer used students' completion of the test to gauge their understanding of the curriculum specifically for Grade R.

The next section focuses on the module, isiXhosa Second Additional Language. This section showcases the observations of face-to-face interactions by the researcher.

isiXhosa (SXL 101)

The researcher observed eight face-to-face classes within the isiXhosa lectures. This section focuses on the observations related to the face-to-face teaching of isiXhosa as a Second Additional Language (SXL 101) to a number of 123 registered first year students enrolled in the BEd (FPT) programme. The aim of the observations was to highlight the lecturer's teaching methods and to further identify the use of technology and blended learning techniques applied in the year long SXL 101 module. This study is driven by the key research question which focuses on the use and impact of blended learning techniques on student learning.

Lecture topic 1: Translation of nouns

During Session one, in the face-to-face class, the lecturer made use of the physical whiteboard mounted against the wall and used whiteboard markers to write down, discuss and identify nouns. The students were divided into two groups. The one group consisted of students who were seated near the front up to the middle of the class. They were paying attention and making notes. The second group of students was seated in pockets towards the back of the class and chatting to each other, not paying any attention to the lecturer. They were disruptive and a few times the lecturer had to address them and urge them to keep quiet. They were only quiet for a little while and then carried about their own group business. During the first five minutes of the class, the researcher had the initial thought that these students towards the back of the class were not really part of the class, as they did not pay attention at all. However, they quickly changed their activity once the lecturer informed them that they needed to submit their written work by the end of the period. They started to ask each other what they needed to do and attempted to complete their activity in order to hand it in by the end of the period. None of these classroom activities during a lesson was supplemented using the X online platform.

Lecture topic 2: Storytelling and identifying characters

During the second observation, the class started off with the lecturer playing a video using the classroom technology (computer, white screen and data projector). Some of the students, who joined the class late, missed the start of the video and joined in to watch the video with the rest of the students in attendance, as the video was displayed on the screen in the front of the class. This video depicted a Grade R class where the teacher conducted a lesson by telling a story. The lecturer

informed the students to make notes, especially the students who came late, whilst they were watching the video recording. However, the students were not sure what to make notes of and some made notes while others just watched and then also proceeded to focus on their mobile phones.
When the video ended, the lecturer moved to the front of the class and then started posing questions to the students on the story. The questions focused on the characters that were highlighted in the story. The lecturer proceeded to type the nouns but had difficulty with the computer. The lecturer was then guided by the students on 'how to open' a 'new blank document' in order to start typing the answers to the questions. The lecturer started off questioning the students in isiXhosa, to which some could respond but the majority of the students were in the 'dark' about what the lecturer was referring to. She then proceeded to pose the questions in English, which most of the students understood and could also respond to. This questioning method turned the class into an interactive engagement experience. This method introduced by the lecturer seemed to spark more engagement which turned the class into a hub of interaction. According to Lawson (2019, p. 4633) the success of an assessment is dependent on "the student buy-in to the assessment type." In this case the method of informally assessing the students' understanding and knowledge seemed to spark the buy-in of the students.

The isiXhosa words (which referred to the characters in the story) were typed on the screen and then translated into English with the help of the lecturer and students. A student performed with a sense of self-directedness, which was welcomed by the lecturer. "If [students] have the attitude, abilities, and personality traits required for SDL, they are more likely to take advantage of the affordances of ICTs for SDL." (Sumuer, 2018, p. 31).

The lecturer managed to further engage the students' attention towards the end of the class, when she asked them to write down the story they had watched at the beginning of the lecture. Many of the students were confused as they had joined the lecture late. Others paid attention when they heard that they needed to hand in 'their version of the story' written in isiXhosa at the end of the period. The lecturer followed the same method during the Tuesday morning class, as students were requested to hand in their written work. In an interactive classroom, lecturers move from traditional teaching methodologies where they hold the role of "knowledge instructors" to a more collaborative setting as "learning guide[s]" who organise and encourage the learning process. According to Yan (2019) this in turn allows students to participate more actively in learning activities and feel more included in their own learning process.

Lecture topic 3: Differentiating between nouns and pronouns

The lecturer did not make use of any technology during the Tuesday classes and used the whiteboard and whiteboard markers to teach. The lecturer taught by writing down sentences on the whiteboard and afterwards explained the use of nouns and pronouns. While she was writing down the phrases, some students were writing down the phrases in their notebooks and some were jotting it down making use of their mobile devices and laptops. However, some students were busy with their own activities. The lecturer would from time to time ask the students to be quiet. Her teaching methods included writing down sentences on the board and explaining the difference between nouns and pronouns. The lesson then focused on the use of pronouns and students had to rewrite sentences making use of pronouns. By the end of the class, the majority of the students handed in their worksheets as it counted towards their continuous assessment marks.

Students were also made aware of the use of the digital storytelling software and how it can be used in other spheres of their professional and personal lives. It is important that lecturers plan their lessons and teaching adequately, especially if they want to introduce a "change in the learning model as it requires preparation." (Widodo et al., 2020, p. 149).

Many questions were posed regarding the use of the software and why it should be used. Most importantly the questions were posed to the lecturer, as students were confused about the recording of a video and the creation of the digital story. The lecturer made it clear to the students that they are able to work on any theme and create their digital stories within their group of three members. The final exported videos were required to be uploaded onto the X platform under the *Assignment* section, in the SXL 101 module.

After the demonstration session, the students were allowed to ask questions to clarify their understanding should they need more information. Students wanted to know if they could use their own software and not the software provided to them. This question illustrated once again that some of the students were technologically competent as they were already familiar with other types of software to produce videos. When implementing interactive learning, "students make contributions to the learning dialogue, such as challenging an answer, offering a solution, or incorporating feedback." (Vercellotti, 2018, p. 198).

Lecture topic 4: Useful everyday words

During the fourth lecture session a Word document was shared with students listing everyday words and phrases in isiXhosa. The same phrases and words were also translated to English for ease of reference for the students. This was shared with students via X using the *Announcement* and *Course Resources* eTools. Some students accessed these files via their laptops and some through using their mobile devices, while others printed their documents ahead of engaging in the face-to-face lecture. During the lecture the students were requested to read out the words and phrases aloud. This enabled them to practise their pronunciation and hear themselves and each other. Although some students could open their notes on the electronic devices, the lecturer also presented the WORD document via the Document camera using the classroom technology. This allowed those students who had not printed the work and did not have access to any technology, to still focus and follow - by making notes using a pen and paper. The lecturer repeated the words and phrases several times to ensure that students could listen and pronounce them correctly. Students were interactive and joined in the exercises and learning seemed fun and enjoyable. Whilst conducting the lesson, the lecturer also made use of examples in which to use the phrases and shared her own learning experiences. During this lesson, the interaction between lecturer and students was visible. As the lecturer shared her own experiences, students were interested and some posed more questions regarding examples and experiences the lecturer shared. The interaction between students and their peers was also more frequent and students laughed at each other while trying to pronounce the words. The lecturer reiterated that students should practise more and help each other when they struggle. The lecturer made use of both the online environment in X to retrieve and present the WORD document and projected it on the screen for all students using the document camera. This allowed the lecturer to keep facing the class and engage with them whilst referring to the document, she could still maintain eye contact with the students. In an interactive classroom, lecturers move from traditional teaching methodologies where they hold the role of "knowledge instructors" to a more collaborative setting as "learning guide[s]" who organise and encourage the learning process. This in turn allowed students to participate more actively in learning activities (Yan, 2019).

Lecture topic 5: Click sounds

The lecturer identified a relevant video on YouTube, which was embedded within the *Lessons* eTool within the online environment on X. During the lecture, Ms. B also proceeded to play the video to the class to showcase the different click sounds making use of the classroom technology (computer,

data projector and whiteboard). The video focused on the different click sounds and explained where and how the tongue should be placed to make the different sounds. This was interesting to the students and they asked the lecturer how they can access the video after the lecture ended. The lecturer then explained that it is hosted within their online environment (SXL 101) in X and showed them how to access the *Lessons* eTool to review the video again for their own learning purposes. After the lecturer completed the session on the learning video, the students were informed of the video recording assessment activity they needed to complete, showcasing their attainment of the skill in order to pronounce words with the correct click sounds. The video recording assessment activity was similar to the one that was showcased in class. Students were tasked to make the click sounds and pronounce certain words with the different click sounds which included the 'c', 'q' and 'x' clicks specifically. The video assessment was selected as students would be able to read out the words and make the click sound. This assessment type would enable the lecturer to review and watch the recorded video assessment, while also listening to their pronunciation in their recorded video. This video assessment activity was submitted in the *Assignments* eTool within the online environment on X. The video recording assessment activity enabled the lecturer to assess their understanding and pronunciation of the words and phrases. Hence, the video could also serve as a learning object, to be used in future lessons. The students could also use these videos when they were teaching actual Foundation Phase learners at schools – either during their teaching practice sessions or as actual teachers in the classroom.

Lecture topic 6: Single and plural forms (fruit and vegetables)

The sixth lecture focused on the singular and plural forms of fruits and vegetables. The lecturer, in preparation for this lecture, shared the worksheet with students prior to the lecture. This was shared via the *Announcement* eTool on X. Students were able to download and use the worksheet in class by printing it out or using it on their mobile devices. The lecturer explained the singular and plural forms of the words and also further explained what constitutes plural forms. The words were translated into English so that students could understand and remember them better. At the end of the lecture, students had notes they had taken themselves as the lecturer explained. This activity also afforded the students with some learning content (the worksheet the lecturer provided and their own notes made during the lecture) that they could use when they speak the language or to memorise and apply formative assessment activities.

Tutorial lecture topic 7: Negative form

During the tutorial session, students were taught about the negative form. The lecture slides gave examples of phrases and sentences in the negative form. Once again, the slides were shared via the *Announcement* eTool prior to the face-to-face class and students were able to either print or work with the slides using their own devices. The lecturer continued by explaining the examples and the same phrases were translated into English to help students understand better. The lecturer presented the learning examples via computer and presented using the data projector. Once students showed a better understanding, they were required to complete learning examples on their own or with the help of a peer during the lecture. Completing the activities turned into a group learning activity as students started to help each other and answered the questions raised by the lecturer. Once the phrases were added and the lecturer had captured it on the specific slides - it was uploaded to the *Course Resources* eTool within the SXL 101 module on X. This allowed students to download the completed activity slides and use them to reinforce their learning.

Tutorial lecture topic 8: Revision in preparation for examination

The researcher observed two of the tutorial classes, which were conducted by the tutor in a lecture venue. A group of about thirty students were in the tutorial lecture. The tutor made use of a similar teaching strategy as the lecturer by making use of the whiteboard and whiteboard markers. The tutor was preparing the students by touching on different areas of the module content. She wrote down phrases (using the whiteboard - see image below) in isiXhosa and she then asked the students to translate these to English by calling out the phrases orally. She then proceeded to do the reverse by writing down phrases in English that needed to be translated to isiXhosa. As students were calling out the phrases the tutor wrote them down on the board. After modelling the expected behaviour, by writing a few of these phrases, the tutor then proceeded to ask the students to volunteer by writing down the phrases in isiXhosa and also explain the phrases to the class. Students who volunteered were required to come to the front of the class and write down the correct phrases on the physical whiteboard (see depiction in image below).

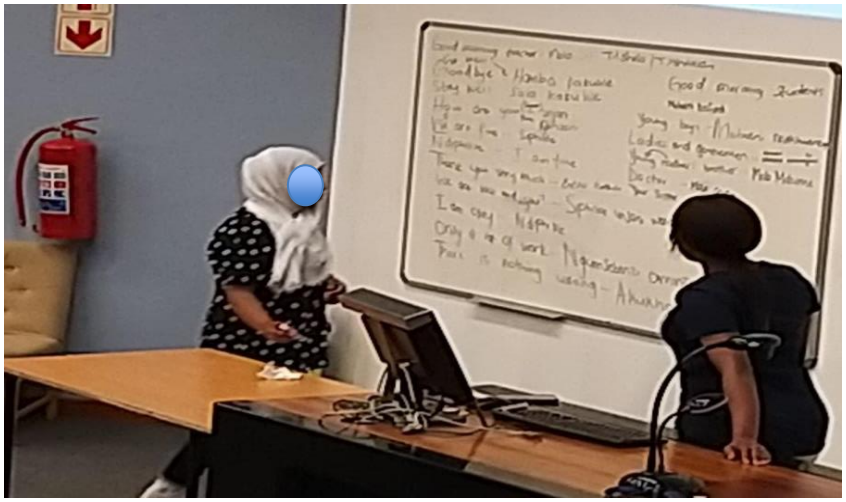

Fig 5.5 Students engaging in class by writing down answers on whiteboard in class

Fig 5.6 Class revising and discussing specific phrases relating to weather conditions

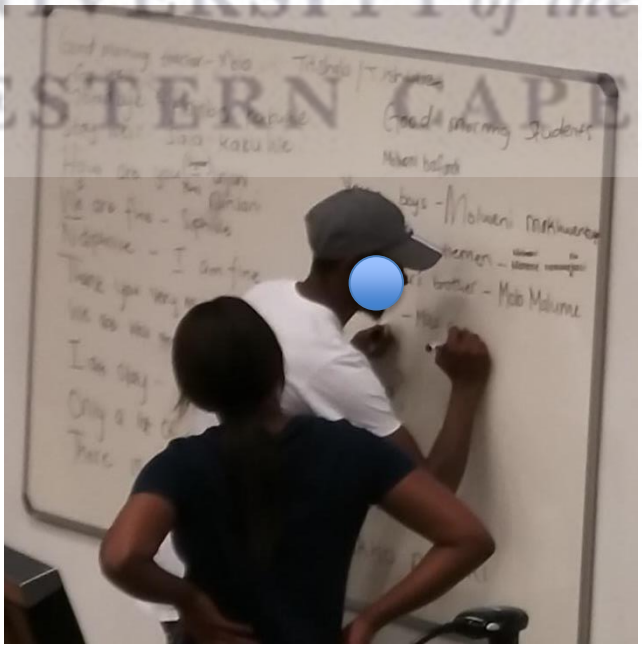

Fig 5.7 Interactive students and tutors whilst reviewing content for exams

Hence, students felt at ease and volunteered freely. This provided an opportunity for students to revise their knowledge and also engage in teaching activities. This activity was done in an attempt to prepare students on how to teach a second additional language in a classroom setting. The atmosphere was very informal and relaxed. The students also paid careful attention to the learning activities. The tutor shared all the notes that were discussed and completed during class with the students on X using the *Announcement* eTool.

The next section focuses on the Foundation Phase Mathematics module. This section reflects on the face-to-face observations conducted by the researcher.

Foundation Phase Mathematics (FPM 111)

The researcher observed eight face-to-face classroom Mathematics lectures. A number of 155 students were registered for the FPM 111 class at the start of the first term in the 2019 academic year. The face-to-face contact lectures were conducted twice a week during lunch time periods on Wednesdays and Thursdays.

The observation sessions were conducted throughout the first semester and further detail is listed in the section below.

Lecture topic 1: Module overview and ground rules

During the first face-to-face class, the lecturer introduced herself and shared more about her teaching background. The lecturer then explained and shared an overview of what the module, Foundation Phase Mathematics entails what would be required of all students engaged in the module. The lecturer then proceeded to discuss clear rules, which would be followed throughout the semester and were shared within the course outline which was shared via the *Announcement* eTool within the module created within the X Platform. These mutually agreed upon rules and guidelines included the following:

- Time management and planning, students agreed that they would respect their own time and that of the lecturers by arriving to class on time.
- Inform the lecturer in advance if they knew that they would not be able to attend class and provide a valid reason (the lecturer will do the same).
- The lecturer would prepare and plan lessons in order to ensure that students were able to understand.

- Students would come to the classes prepared for the lesson by reading articles and/or slides should the lecturer share these before class (Flipped classroom approach).
- Students agreed to engage in both individual and group activities.
- All had to be mindful and respect the diverse views of fellow students, with reference to religion, culture, age, race (amongst others).

The above were some of the rules that both parties agreed to at the start of the semester. The respect and discipline of students and the lecturer was evident during the researcher's observation sessions. These guidelines were intentional as any good teacher would establish rules and discipline from the start. A positive classroom relationship was established from the start and the mutual respect and caring extended into the remainder of the semester module (McLeod et al., 2003). This also reflects a good way of modelling the behaviour that teachers should include in their teaching practice. As prospective teachers, they will be expected to set clear rules and enact discipline with their Foundation Phase learners when they engage in observations and fieldwork in the classroom.

Lecture topic 2: Clear guidelines and topic

At the start of each lecture, the lecturer provided a clear outline of the topic of the lecture. The lecturer, Dr Y, would present the first slide on the screen which was opened on the desktop computer and relayed via the projector, which would alert the students to the four to five steps or key points the lecture would focus on. During class, the lecturer would revert back to the first screen within the presentation slide and remind the students of the key point they were dealing with. The lecturer first engaged and reflected on the theoretical aspects of the topic and then further unpacked the lesson by using pictures or telling stories to provide the students with a frame of reference.

The lecturer shared one presentation that included the lessons for Lectures 1-6. The presentation was shared via X using the *Announcement* eTool and students could view and prepare themselves by reading the content prior to attending the classes. The presentation was designed in such a manner that students needed to attend the lectures to gain a deeper understanding of the content, as the lecturer would paint a picture with words and her own life experiences whilst conducting her lessons.

Dr Y asked the students to engage in an activity of some sort and then provide feedback towards the end of each lecture. Some lectures were a continuation of the previous day or week, and the lecturer

first provided a recap or review of what had already been discussed. Students were then able to share and reflect on their own learning and there would be time for them to ask questions if they were unclear about a process or topic. The lecturer made use of the classroom technologies to present her lectures and in some instances opened the X platform to display the FPM 111 module and the *Announcements* shared with students.

In some instances, where students asked questions, the lecturer provided an opportunity to fellow classmates to answer their peers' questions. She would then reiterate the correct responses and provide examples to the students. The class was generally well behaved and the students were also eager to engage in the class activities. It is interesting to note that, during these classes, students were not passive participants, listening to a lecture. Instead, it was an interactive exchange of ideas and opinions based on either the theoretical content or drawing from their own life experiences.

During these sessions the lecturer conducted the classes interactively through engaging students by telling stories related to the topic, asking students to contribute to questions. Although students engaged interactively and enthusiastically, they still did so in a disciplined manner. This highlighted the fact that the lecturer and students had set mutual and clear guidelines at the start of the programme, which both parties respected. The researcher was made aware of the mutual guidelines during the telephonic interview with the FPM lecturer.

Lecture topic 3: What type of teacher are we preparing and developing?

The lecturer made it part of her teaching strategy to always remind the students that they were 'teachers in training' and needed to always observe what she does in terms of her practice as well. She urged them to take notes and reflect on what kind of teachers they would like to be one day and how they would establish their teaching practice and connection with their learners. This was a reminder often during the face-to-face lectures and was not replicated in the online environment in X.

The lecturer indicated that the key task of the students is to teach Grade R learners to become mathematically proficient. During the classes, the lecturer always reminded the students that they needed a deep understanding of the content they were going to teach, and should be able to effectively transfer this knowledge to their learners. Hence, it is important for students to teach the Grade R learners mathematics by making use of different methods. Being mindful of the fact that learners all learn differently within a class, the lecturer highlighted that students need to prepare

different methods to teach the concepts of addition, multiplication, subtraction and division to Grade R learners.

Lecture topic 4: Using technology in the classroom

As an activity, to illustrate the different ways and means learners learn, the lecturer asked students to work together in pairs and explain at least four methods to get to the number 21. This could be done through various processes of subtraction, division, multiplication and addition. This activity was used to also showcase the strategic competence of the learners, as they could use a variety of methods to solve a problem.

The researcher observed through this task, that students in some instances worked independently, while others worked together to complete the task. Some students also worked together in larger groups especially if they were more familiar with each other. Some students also shared that they were able to identify more than four methods to get to the answers. The enthusiasm with which a large part of the class engaged in the task was unexpected but welcomed. This can be attributed to the way in which the lecturer conducted her classes where students felt comfortable and free to learn. This activity was done with pen and paper by the students. Once the time elapsed for the students to engage in this activity, the lecturer then proceeded to the front of the class and made use of the document camera to write down the different answers to the problem. The students were asked randomly to share their method, and while students in the group would explain the method, they used to solve the problem, the lecturer proceeded to write it down on the paper and reflected the solution using the document camera. She could keep eye contact with the students while writing down the different methods the different student groups shared. After the feedback process, the solutions were displayed to the entire class using the document camera. The lecturer allowed time for students to take pictures of the solutions which were written down. The lecturer proceeded to also upload and share the paper with solutions on the X platform via the *Course Resources* eTool. Some students took pictures of the solutions and shared the images with their peers via WhatsApp. This process reflected a blended approach which was used by the lecturer and students.

Lecture topic 5: Preparing the lesson plan

The lecturer discussed the importance of effective planning and preparation prior to conducting a lesson with a class. The lecturer explained to the students the processes she continuously engages

in, prior to conducting a lesson in class. She further indicated to the students, how good teachers prepare and plan for their classes. She focused on the design of the lesson plan which, according to her, consists of three parts. This three- part lesson plan focuses on three areas:

1. Preparation,
2. Teaching, and
3. Evaluation - reflection.

The first part of the lesson design focuses on the preparation and planning of the lesson content and learning activities. The learning resources also need to be identified and aligned with the content that will be taught. The learning design is based on the needs assessment and the goals that need to be achieved. The teacher also needs to prepare the learning environment (classroom) and ensure that learners feel safe within the learning space. This is an important part of the learning and teaching phase.

The second part of the lesson plan deals with the physical teaching of the lesson content to learners in the classroom. During this phase the teacher needs to be confident and knowledgeable with the learning content and motivate the learners so that they feel comfortable to learn. This teaching can take place through different methods and with the use of different resources within the physical classroom setting and using online learning resources such as the online LMS.

The third part of the plan focuses on the aftermath of the teaching and deals with evaluation and reflection of the teaching process. It focuses on the evaluation of the lesson and how the learners were able to successfully complete certain tasks, as a direct result of the teaching process. If learners were not successful during their first try, teachers need to follow-up with more detailed explanations and employ other avenues to ensure that learners are successful. These three parts in the design of the lesson plan are equally important for the teacher. It is important for teachers to reflect on their teaching and to evaluate their learners' understanding.

The three parts are important as they reflect on both the successes and challenges. The lecturer took the students carefully through the planning stages. Dr Y made use of the Five E's learning cycle model. The five E's model was introduced and explained to the students and each phase was discussed and examples were shared. The Five E's learning cycle model was developed by Educational Scientist, Roger Bybee (1990), through the Biological Science Teaching Project. This model was developed to focus on inquiry-based learning where students engage, explore, explain,

elaborate and evaluate regarding their learning and regarding learning activities or knowledge. This model can also be applied to a lesson plan or knowledge that students seek to understand. In order to review and evaluate whether students understood the lesson and the model, the lecturer asked questions to which more than half the class responded positively.

The lecturer always reminded the students that they will be teaching Foundation Phase learners and shared some techniques they need to use in the classroom. For example, the lecturer reminded the students to explain to the learners a concept and then to use different words and actions to teach the same concept. This is to remind the students to reinforce learning and to make sure that they reach all learners. This could be through learners listening to them, through visual display and through engaging in practical activities. Throughout the lecture focusing on lesson plan design, the lecturer made use of PowerPoint slides, showcasing images and text to explain the lesson. The lecturer further engaged in storytelling using the images in the PowerPoint slides to bring across key concepts. This illustrated the effective use of technology within the classroom. The lecturer showcased a YouTube video, which dealt with the concepts of counting, shapes, colour, comparison, patterning and number sense. Once the video ended, the class reflected on the key concepts that were illustrated in the video. The lecturer asked questions related to the content and students were eagerly answering the questions. They could link the theoretical aspects with the practical activities that took place in the video. This reflected a link with the socio-constructivist learning theory. Students were able to make sense of their own understanding to answer questions. This is discussed further in the next chapter.

Lecture topic 6: Class activity reflecting on types of technology

Students were asked to think about what type of technology they could implement within their Grade R classroom. Students were divided into groups and were tasked to prepare in groups and present to the class. This activity was prepared outside of the classroom and students could use any method to communicate and prepare for this task. The next day in class, the students in their groups, shared what technology they could use within the classroom. Students listed the technology they could implement and explained how it can be used within the classroom. Whilst student groups started sharing their ideas, there were many overlaps in terms of the technology they could use. The most general ideas were the use of a computer, USB flash drive, TV & DVD players, the data projector and PowerPoint slides. Some of the ideas that were shared were the Smartboard, which is an

interactive tool which teachers could use to explain numbers to the learners. Learners can then be asked to write down the numbers they know on the Smartboard.

An innovative idea shared by one student group highlighted the use of a 3D printer. The 3D printer could be used to teach shapes and sizes to Grade R learners. Learners can be asked to draw shapes and these can be printed. Once the shape is printed, the learners can be asked to explain a shape through touching the object and viewing it. They can be asked to name or identify objects in the classroom that are similar in shape. The next session focused on the equipment that prospective teachers could possibly use within their future classrooms.

Lecture topic 7: Engaging with classroom technology equipment for effective teaching and learning

In the first lecture during the second term, the lecturer made use of the Document Camera (doc-cam) eTool within the lecture. The Audio-Visual Services Technician attended the class and set up the doc-cam for the lecturer. The two technology class representatives joined the AVS technician whilst the doc camera was being set up. They were shown how to set up and use the piece of equipment for future classes. The lecturer shared with the class that in future the document camera would be set up by one of the technology representatives. The lecturer uses the document camera to teach the practical part of the course regarding calculations and number sense. This is discussed further in Chapter Five.

The lecturer made use of the document camera, as the tool allowed her to write down the calculations, which all students can view on the screen. The lecturer is able to keep eye contact with the students, while writing down the calculation and explaining it to the students. Her voice projected well and was audible as she made use of the lapel microphone. Students were further able to write down the calculations as the lecturer engaged in the explanation. The students who were slow writers were able to keep up, as the calculation stays on the screen. Students could also take pictures of the completed calculations in order to review them at a later stage. If the lecturer were to use the whiteboard, she would be standing with her back to the students and she would also have to wipe out what was already written. Hence, the selection and use of the document camera was pedagogically sound and justified. Students were able to further review the content and direct questions to the lecturer.

The use of technology within and outside of the FPM 111 classroom is selected, based on the teaching and learning needs of both the lecturer and student. The X platform was being used to remind students of important notifications as well as to share the lecture notes discussed in class. PowerPoint slides were used to conduct the lessons related to theory and the document camera was used to teach mathematical calculations. This tool was effective in that it allowed the lecturer to write down the mathematical problem and reflect the process she followed to solve the calculation. Students were requested to complete some problems and reflect the process and calculations they followed. Students were required to do this as homework and submit their calculations via X within the *Assignments* eTool. The lecturer presented the X platform and showed the students where to find the resources which would help them in their assessment activity. This was opened on the Desktop Computer and was projected on the screen using the data projector.

The lecturer shared an example of an academic writing piece which modelled good teaching behaviour. The clear guidelines expected of the students were shared using the *Assignments* eTool within the online environment on X. The instructions were clearly outlined for students within the instructions section under the *Assignments* eTool. Providing a rubric in support of the assessment activity and outlining the grading practice for the assessment activity was reiterated to the students in both the online environment and in the physical face-to-face lecture.

Lecture topic 8: Writing and submitting an academic essay

The students were required to write an academic essay focusing on the topic, 'Play' and its importance in the Foundation Phase. Clear guidelines were provided to the students bearing in mind that this would be the first academic essay that the FPM 111 students were required to submit at university level. The assignment guidelines were set up within the *Assignments* eTool on X and students could visit it as many times as possible. Students were required to research academic articles to write their first essay. Prior to this assignment, the lecturer arranged Library training for students, which assisted them to search and source relevant articles. Workshops were conducted in the library and the librarians made use of Google Scholar and other databases to conduct their training sessions. The workshop also included training on how to reference using the APA reference style. All these supportive workshops were conducted to prepare students for their academic assignment. The students were also required to submit their assignment on X in the *Assignments* eTool, which was integrated with Turnitin (Tii). Hence, the assignments were also checked on Turnitin for plagiarism. It should be noted that this was the first academic written assignment for this module, students were not required to interpret their similarity index reports which were

generated through Tii. The similarity index was only made visible to the lecturer who could review the reports. Based on the review, the lecturer allowed students to resubmit a second submission if their first submission yielded a very high similarity index. Students were contacted by the lecturer via email communication and a physical one-on-one consultation was set up with the students. During this consultation process, the lecturer gave students feedback regarding their written work and advised on the aspects they needed to focus on in order to ensure that their academic work improves. Effective feedback is an important aspect in the learning process and should be done in a timely manner; and by providing clear feedback on activities, lecturers further guide the students in order to achieve a level of competence that ensures learning has taken place (Gagne, 1965; Stenger, 2014).

The next section will focus on the observations done within the online environments created within the institutional LMS X for students to view course material. The section will also focus on how the online spaces were used for effective teaching, learning and assessment activities for the students.

5.2.2 Observation of the Online Environments

The researcher also observed the online activities which were designed in the online environments for each of the three modules, (i) English (ELT 111), (ii) isiXhosa (SXL 101) and (iii) Foundation Phase Mathematics (FPM 111).

Online Environment Observations

The researcher examined the online activities designed and observed the participation of the lecturers and students in the online environment for all three modules.

English (ELT 111)

The researcher observed the online environment for the English module which was created on the institutional LMS, X.

Online Tutorials (Discussion Forum)

Two online tutorial classes were conducted making use of the institutional LMS, X. The *Discussion Forum* was selected to host the online tutorial as it is an asynchronous eTool, which allows users to engage in the discussions from various geographical locations and time zones. The lecturer provided guidelines to the students for their interactive engagement in the online tutorial. The guidelines document included the netiquette rules, grading guidelines, frequency, significance and style of contributions to the discussion topic. Students were also requested to respond to at least one of their peers' postings, which would affect the marks they would receive for their contribution to the online tutorial.

Lecture topic 7: Online tutorial 1

The online tutorial enabled students to connect and engage in the tutorial from any geographical location at different times. The lecturer gave the students a time-frame to engage in the discussion on the online tutorial. A large number of the class engaged in the first online tutorial. A number of 69 students engaged in the topic from the class of 82 students. The first online tutorial topic focused on the value of play-based learning in Grade R. Students were tasked to discuss and share what they had learned about play-based learning through lecture presentations already discussed in previous lecture sessions. During the tutorial, students shared how play-based learning contributed to the development of language and social skills and further engaged in discussions about whether play-based learning has any value in the Grade R classroom. The students, who engaged, shared their learning with their peers and the lecturer. They also replied to at least one of their peers' contributions and substantiated their responses by using concepts from readings or through their own experiences. Based on the many contributions of students, the general consensus amongst the student group was that learning through play is very important in Grade R.

Fig 5.8 Screenshot Example: Student Responses in the Online Discussion Forum

Lecture topic 8: Online tutorial 2

The second online tutorial reflected fewer contributions by students. Although there were fewer responses, it did not reduce the interaction and significance of the contributions to the topic. In comparison to the first tutorial, it was clear that the students knew what was expected and knew how to respond in the forum. The first tutorial gave students an idea of what was expected and they could view and review the discussions in the first online tutorial.

The second online tutorial topic focused on *holistic development in Grade R.* Students were required to identify one area of development and substantiate the importance of this area in Grade R. Once again, during this tutorial the students were expected to contribute posts of significance, which were substantiated through concepts discussed in lectures and their own learning experiences. The online discussion topic was accessible for a time-frame and students could engage from any geographical location. Students could make use of any device with stable internet connection/data and a browser. More than half of the class engaged in the discussion and shared their views on the topic.

Fig 5.9 Screenshot Example: Online Tutorial Discussion Responses

Although the tutorial postings were fewer than the postings during the first tutorial, the students' contributions were interactive and meaningful. This was affirmed by the lecturer's responses to individual students' contributions, which motivated students to engage further.

As noted earlier in this chapter, the lecturer had engaged with the UIECT unit prior to starting her lectures. During this time the lecturer carefully planned and developed her online environment on X, the institutional LMS. She made use of four eTools on X, which were used most frequently, namely the *Discussion Forum, Announcements*, *Course Resources, Assignments and Tests and Quizzes*. The online environment hosted eTools, which included the categories of communication and assessment tools. The lecturer made frequent use of the *Announcement* tool to share course lecture presentations prior to face-to-face lectures. This enabled students to prepare for the lectures by downloading and viewing the presentations before attending lectures. This was also encouraged by the lecturer as she wanted students to engage in the lectures by reading lecture presentations and articles in order to prepare for classes.

The lecturer made effective use of the *Discussion Forum* eTool to introduce herself to the class and asked students to do the same. This was an interactive method in which each student shared with their peers who they are, their expectations and why they decided to become a teacher. This allowed students to go back into the discussion forum at any time and find their group members to learn more about them and how they could connect.

Dr X also made use of assessment tools, which included the *Assignment* and the *Tests and Quizzes* eTools on X. Students were expected to submit their first ELT assignment via X. They had to write a children's story in the form of a book and submit it in the online environment. A clear rubric was also provided which guided the students in terms of the outcomes and guidelines. The rubric document was attached to the assignment which was setup in the *Assignment* eTool. Students submitted their completed assignment-story online using the *Assignment* eTool. This assessment, once submitted on X, was automatically linked to Turnitin as well. Turnitin is an anti-plagiarism detection system that compares text in a document to archived papers in the Tii database and the World Wide Web. Students could resubmit their stories three times up until the closing date, which enabled them to rewrite, paraphrase and reference their work before their final submission was due. The integration with X and Turnitin (Tii) enabled students to check their academic writing for authenticity and correct referencing techniques, prior to submitting their final submission.

A second assessment activity required students to engage in a quiz, which enabled them to complete it in their online environment. This test consisted of Multiple-Choice Questions (MCQs) and True and False question types (*refer to Appendix 10: List of eTools and its pedagogical value* (embedded

on X). Students could attempt to do the test twice and a time-limit of 50 minutes for each attempt was allocated. The test consisted of 10 questions, which were randomised each time the test was taken. The test dealt with the topic which related to Curriculum Assessment Policy Statements (CAPS) and its features in the teaching and learning programme and tested students' understanding.

A third assessment required students to do a video recording of their micro teaching efforts. Students were required to create these video recordings using either a smartphone or any device, which they were familiar with. Clear guidelines were provided which also included a rubric related to the grading process of the assessment activity. These guidelines were shared with students via the '*Announcement'* and '*Assignment'* eTools in the online environment. Students were required to submit their recorded video via the online environment (X) in the '*Assignments'* eTool. Students did not receive any training to assist them with the creation of the video recorded assignment piece and it was assumed that they would know or request help from their peers if they were unfamiliar. Students were also required to submit their 'Monday observation at schools' assignment. This was also submitted in their online classroom which required students to type out their observations in MS Word and submit using the '*Assignment'* eTool in the X online space (ELT 111). This assessment required the students to list the day's activities whilst they observed in the classroom. After this, students were required to write a reflection of their observation period in the schools. These reflection pieces were shared only with the lecturer as they were submitted in the *Assignment* eTool on X.

The next section focuses on the isiXhosa online environment created within the institutional LMS, X for students to view course material. The section will also focus on how the online space was used for effective teaching and learning for the students.

isiXhosa (SXL 101)

The researcher observed the online environments for the isiXhosa module which was created in the institutional LMS, X.

Online environment, activities and assessment

The researcher examined the online activities designed and observed the participation of the lecturers and students within the online environment for the isiXhosa module

The SXL online environment was created on X and eTools namely, announcement, course resources, assignment and tests and quizzes were selected for use in the module. The *Course Resources* eTool was used to structure and distribute learning material, which includes the course outline and articles related to the learning content. The articles and related course documents from the previous year were migrated to the 2019 course resources section.

Students engaged in the design and development of digital stories and posted their stories onto X. The first SXL assignment required students to create a video recording of themselves demonstrating the click sounds- 'C', 'Q' & 'X'. Students made use of their mobile phones and some recorded each other. They had to record the different click sounds and explain how the sound is made and the words they had to pronounce using the different clicks.

For the group assignment, the students were expected to create a digital story focusing on a theme they would teach in the Grade R class. The students could make use of relevant pictures, type text and record themselves reading sentences or phrases. This activity also enabled the lecturer to listen to pronunciation and typing and spelling of the isiXhosa words.

The students engaged in an online test which focused on Multiple Choice Questions (MCQs), True and False as well as 'Fill in the Missing Answer' for certain questions. The test was set up in two parts; with part one focusing on the translation of terms to isiXhosa and part two of the test focused on the translation of full sentences from English into isiXhosa.

The set up of the test questions was incorrect and students could see the 'correct answers' to the questions. This only became apparent whilst the students were engaged in the test. This invalidated the second part of the test and influenced the marks. However, the first part of the test was automatically marked by the system and the marks obtained were still valid. The second part of the test where students had to write out the complete sentences still needed to be marked by the tutor and lecturer. However, they opted not to use the test marks at all and a new test paper was set up, which students had to write in class during a physical lecture slot. This was the first experience for the lecturer of the online platform. This hiccup was unfortunate, but did not deter the effective use of blended learning techniques in the module. A positive interpretation of this test was that 123

students completed the test from different geographical locations and various mobile devices. The inference could be made that students engaged in this module are technologically literate as they were able to connect to the X LMS without any challenges. They managed to engage and complete the entire test without any IT related issues.

The fact that the test answers reflected in the second part of the test was an unfortunate incident. However, this led to questioning the computer literacy of the lecturer instead of that of the students. The students in turn thought it was fun being provided with the answers while taking the test. Students were requested to write the test again, but this time the test was written in class making use of the MCQ paper test. The lecturer was fearful of using the X platform again, especially for assessment activities, which was understandable given the situation. This unfortunate incident also rendered the use of these test marks invalid. However, the lecturer could make use of the item analysis-statistics functionality in the '*Tests and Quizzes'* tool to reflect on the knowledge obtained by the students focusing on the first ten questions. The Item Analysis functionality that X provides when any test is written online, enables the lecturer to view the learning that has taken place since the start of the semester.

The next section focuses on the online environment created within the institutional LMS on X for students to view course material. The section will also focus on how the online space was used for effective teaching, learning and assessment activities for the students.

Foundation Phase Mathematics (FPM 111)

The researcher observed the online environment for the Mathematics module which was created in the institutional LMS namely: X

Online environment, activities and assessment

The researcher examined the online activities designed and observed the participation of the lecturers and students in the online environment for the Foundation Phase Mathematics module.

The FPM online module was created on X and the basic eTools namely, '*Announcements'*, '*Course Resources', 'Assignments' and 'Tests and Quizzes'* were selected. The '*Announcements'* eTool was used to share important notices and lecturer presentations with the students. The students were

required to engage in various group activities during face-to-face classes, which made the class very interactive. During the face-to-face lectures, students were in some instances divided into groups. It should be noted that the groups did not extend into the online environment on X. Many face-to-face lecture sessions entailed activities, which required the students to engage with the person next to them or in groups as decided by the lecturer. Hence the groups were only used to engage with each other in the physical classroom sessions.

In the instance of this module, the lecturer did not engage in a huge variety of eTools, but made effective use of the *Announcements* eTool to communicate with students. The lecturer did not make use of any online testing quizzes and did not use the *Tests and Quizzes* eTool to conduct any online assessments. All the tests students wrote were paper-based tests and completed in a physical venue. The lecturer did not include any of the online test methods, and cited her unfamiliarity with the online assessment options available to her within the LMS, as her reason. Although the paper-based tests proved to be an effective method, the lecturer noted that an online assessment method may have aided her more positively, as she would have spent less time grading paper-based assessment activities. The lecturer opted for 'sit-down' paper-based tests on all occasions, and question types included longer essay type questions as well as *Multiple Choice Questions* (MCQs).

The lecturer inquired about the *Calculation* and the *Multiple-Choice Question* (MCQs) types, and highlighted that these question types could be used successfully to assess students' understanding of number sense and specific calculations. The lecturer also reflected and shared that it could also be used to assess their knowledge on the theoretical components of the discipline. Despite the fact that the online assessments were not included, the lecturer had implemented sufficient teaching techniques and the limited blend with online activities did not disadvantage the students in any particular manner. This can be deduced as the pass rate for this module reached a high of more than 90% and most students completed the module successfully.

One academic assignment was submitted via the *Assignment* eTool on X and the lecturer prepared the students by organising training sessions to prepare them with the required skills. Students were required to join a hands-on training session conducted by the Faculty librarian. During these sessions, students were familiarised with the process of searching for relevant research articles in online journals, ebooks and other databases. Students were seated in the computer labs and were required to access the library database systems in order to engage in the training sessions. The librarian made use of the desktop computer, data projector and the internet to access the database

systems. Students were taught how to retrieve the identified materials for use in their academic essay. Evidence of the application of these skills was visible in the submission of the first academic essay. Some students were able to reflect and showcase acquired skills in how they referenced their sources as well as the sources listed in the reference list. This reflected that student were able to locate peer-reviewed articles on the specific topic related to the assignment.

The essay assignment required students to write and reflect on the specific relevance of 'Play' in learning. Students were offered another opportunity to rewrite and submit their essay assignments, if their Turnitin similarity Index was higher than expected. This allowed an opportunity for the students to be guided by the lecturer on where they need to focus their learning. This particular assessment was designed to include multiple submission attempts and which created an opportunity for engagement between the students and the lecturer. The lecturer could provide constructive feedback to the student and this influenced student behaviour (Faulconer et al., 2021). It should also be noted that the effectiveness of a certain type of assessment could also be dependent on "the student buy-in to the assessment type" (Lawson, 2019, p. 4633). However, not all students were issued with the opportunity to resubmit, this was only granted in cases where students' similarity index was exceptionally high and the learning outcome was not achieved.

Although the online environment was not used as optimally, the lecturer engaged in various blended techniques to facilitate her classes effectively. These techniques included the use of flipped classroom approach, students were required to prepare the readings prior to attending the class. Although these prior reading engagements were not replicated or set-up in the online *Discussion Forum* on X, the students were questioned about the reading that they were supposed to prepare during the classroom lecture.

In addition, the lecturer also introduced an activity which required students to think about different technologies that they could use in their teaching practice in the future. Students were required to think about this topic as a homework exercise and during the next lecture (the following day), the lecturer requested the groups to share their ideas about teaching with technology in their teaching practices in the future. The groups presented their ideas and the lecturer provided feedback to the groups of students and also posed follow-up questions to certain groups. These are some of the blended learning techniques the lecturer employed during the physical classroom lecture and other practical activities were introduced such as using puzzle pieces and Legos to engage in certain classroom-based activities.

The power of providing constructive feedback to students is a key component to ensure that students stay motivated and harness further development (Stenger, 2014; Cindy, 2018; Pellegrino, Chudowsky & Glaser, 2001). As indicated earlier in this study, the authors Pellegrino, Chudowsky & Glaser, (2001) state that one of the most important roles of assessment is the opportunity it provides for lecturers and teachers to provide timely and informative feedback to students during the instructional learning phases so that their practice of a skill and its subsequent acquisition will be effective and efficient. When students know how they are progressing in terms of the stipulated learning outcomes, they are better equipped at achieving success (Stenger, 2014). Authors Hattie and Brown (2008) further state that the process of assessment should reflect good instruction and continuous assessment and feedback should be integrated with instructional practices.

The next section presents the qualitative data collected through interviews conducted with both lecturers and Heads of Departments.

5.3. Interviews with Lecturers[8]

The request to interview lecturers was sent to the four lecturers responsible for teaching the three modules and to the two HODs. Interviews were conducted using two methods, face-to-face and telephonically. Three interviews were conducted as face-to-face sit-down sessions. One lecturer opted for a telephonic interview and she could only engage with the researcher after office hours. Furthermore, it should be noted that one participant preferred to conduct a paper-based process, refusing to meet the researcher face-to-face or telephonically. English Home Language, isiXhosa Second Additional Language and Foundation Phase Mathematics were interviewed during the study. As the lecturers were interviewed, their responses were documented and presented according to the key questions and categories. The researcher engaged with the lecturers responsible for teaching the respective modules around key categories as it relates to the questionnaire (See Appendix 5a: Interview Questions for Lecturers). Specific interview questions were posed to the lecturers focusing on their teaching philosophy and their use of blended learning in their teaching methods. The main research question, which focussed on the impact of blended learning on the

8 For purposes of authenticity, the research reflects the verbatim responses of all respondents - errors and all.

Foundation Phase Programme, its key strengths and challenges was the key area of interest posed to the three lecturers selected for this interview. The various main sections and themes were unpacked as the interviews relating to their teaching philosophy, blended learning approaches, eTools selection, and assessment activities were conducted. In addition, lecturers were asked whether they thought their teaching approach was instrumental in the development of students as self-directed learners.

It should be noted that Dr X who is also the ELT 111 lecturer, did not respond to numerous attempts by the researcher to schedule a face-to-face interview, telephonic discussion or the completion of the interview questions. Hence for section ELT 111 the researcher will reflect on what was observed during the face-to-face classroom and online environment observations.

What is Blended Learning?

The following responses related to what lecturers define as blended learning.

ELT 111

Lecturer did not respond. The use of blended learning techniques was observed during the face-to-face classroom and online interventions. However, the researcher was granted permission to observe her face-to-face classroom and online environment.

As the lecturer did not respond, the researcher was forced to rely on the observations of blended learning techniques during the face-to-face classroom and online interventions.

SXL 101

Lecturer Ms B completed the questionnaire and defined blended learning as: "Use of technology in teaching"

Ms A defined blended learning as:

> "I don't rely on the conventional way of teaching. My own understanding is that blended learning for me means that that I don't depend on the conventional way of teaching, for example there would be face-to-face and there would be online activities."

FPM 111

During the telephonic interview, lecturer, Dr Y discussed the use of multimodalities and flexible learning when defining blended learning: "Besides the multimodalities, I would add flexible learning and the universal design for learning. Flexible learning, where you are flexible in your teaching and your learning and you can use different approaches. You are not rigid in your approach, you don't stick to just one way of doing something*."* The lecturer noted that she first addressed all these different facets when she plans her lesson and based on the needs, goals and outcomes. "Then I use elements of universal design, the way you want to represent something, the way you want to express something. These are all the things I use when I plan my lesson."

The next question focusses on which teaching philosophy aligned with lecturers' teaching practice.

Teaching Philosophy

The following responses relate to the lecturers' teaching philosophy used in the three modules.

ELT 111

Based on the methods used to conduct face-to-face and online lectures, the teaching philosophy observed included elements of socio-constructivism. Students were able to draw on their own learning experiences to answer questions related to the lectures conducted. In some cases, students were asked to form groups and discuss the questions and topics. Students were tasked with both group and individual tasks which allowed the lecturer to assess their knowledge and skills. The classroom teachings were interactive in nature and students were asked to share their contributions based on their own knowledge, diverse backgrounds and their understanding of theory taught. How constructivism can be aligned to the learning environment and as students engage with the learning content, they may construct their own understanding and this in turn leads to a more independent student. These practices align with the socio- constructivist approach and could be categorised as such.

SXL 101

Lecturer Ms B did not answer this question via the questionnaire.

Ms A described her teaching philosophy as: "The focus of my language and literacy teaching and learning has always been communicative in approach, learner centred, and the focus is on language acquisition for meaning making."

FPM 111

Dr Y shared: "My teaching philosophy is grounded in three aspects, which includes social justice and transformation, ethics of care and social constructivism. These three concepts are all intertwined and are not linear. "Ethics of care include that I will help you and provide a safe place in order to learn what your needs are and see how we can solve your problems."

Dr Y highlighted the importance of social justice and the diverse and distinct difference in social class and status between students, as some students entered the classroom from affluent areas and some are disadvantaged in terms of their socio-economic status.

The next section focusses on the teaching approaches lecturers used across all three modules.

What is your Teaching Approach?

The following responses relate to the teaching approaches used in the three modules.

ELT 111

The researcher observed that the teaching approach used by the lecturer included the sharing of teaching materials with students prior to conducting the face-to-face classes via the *Announcements* eTool in the online environment on X. The lecturer's style of presentation included discussing the content with the students and asking them specific questions regarding the texts shared. Students were given the opportunity to share their own ideas and opinions. The lecturer made use of a flipped-classroom approach for her classes.

SXL 101

The lecturer, Ms B answered the questionnaire by stating that her teaching approach was guided by: "Gardner's motivation theory"

In the words of Ms. A: "Language teaching is not an easy area, any form of learning a new language is difficult to teach, hence teaching within the 21st century should be implemented in a scaffolded approach.*"*

Ms A further stated,

> "…As a language teacher I believe that learners come to the classroom with their unique ways of learning and understanding of content. Following the constructivism theory, I believe that learners come to school with prior knowledge. As a teacher I create lessons that allow learners to express themselves, to feel safe to ask questions. I even question their understanding according to their backgrounds, where they have to substantiate their answers according to their beliefs about a particular topic*"*.

FPM 111

Dr Y. who taught the FPM module stated the following about her approach:

> "Teaching should be flexible and not too rigid in order for students to gain the maximum benefit. So as a lecturer and as a teacher, I have a responsibility to explain and make the students understand what I am talking about. I need to rephrase the questions and I need to further explain in layman's terms what I mean by these three terms. Once there is understanding, my students are able to express themselves and also give examples. This is not something that comes naturally, if your home language is not the language of instruction. Learners entering the classroom are quite diverse, which can be because of socio-economic status, varying skills and interests, race, religion, age, culture, ethnicity, language, gender and different learning needs and knowledge".

The lecturer was cognisant of the students and their rights to equal educational opportunities. She discussed the importance of "social justice and the diverse and distinct difference in social class and status between students, as some students entered the classroom from affluent areas and some are disadvantaged in terms of their socio-economic status".

The lecturer further mentioned the phrase, the "*Pygmalion effect*", which refers to one believing that students can do well. "If you believe students can do well, they believe they can do well as well. This motivation alone has worked phenomenally. They are shocked at their own success and how well they do."

The next section focuses on whether the teaching practices of lecturers include blended learning

Does your Teaching Practice include Blended Learning?

The following responses relate to the inclusion of blended learning in teaching practice

ELT 111

Based on observations, the English lecturer Dr X made use of various blended learning techniques in her teaching practice. Dr X made use of the online environment to conduct two online tutorials making use of the *Discussion Forum* eTool in the X platform. The lecturer also made use of the *Assignments* eTool in the online environment, which requires students to submit three online assessment activities via the X platform. The lecturer also made use of a flipped classroom approach as students were required to view class lectures prior to attending the physical lecture. Lecturer Dr X shared the lecture presentations via the *Announcement* eTool with students and requested students to come to the lecture prepared to engage in group work activities during the face-to-face lectures.

During the face-to-face lectures, Dr X made use of the classroom technologies which included the data projector, the screen to present her PowerPoint lectures and various learning content which included YouTube videos in some instances. The implementation of these teaching modes included both face-to-face instruction as well as online tutorials in the online environment.

SXL 101

Ms B noted that blended learning included the use of: "Video tapes. Sometimes students had to make their videos. Lessons from youtube."

Ms A: "I move away from traditional approaches…my teaching is rooted in the use of ICTs to effectively teach students to make meaning through language activities. As a teacher I create

lessons that allow learners to express themselves, to feel safe to ask questions. I even question their understanding according to their backgrounds, where they have to substantiate their answers according to their beliefs about a particular topic."

FPM 111

The lecturer, Dr Y stated during the interview: "Technology today plays an essential role in education. If we want graduates to succeed in the work environment and in keeping with the 4th Industrial Revolution, we have to provide flexible learning and teaching opportunities. They shouldn't be rigid…"

The lecturer stated that technology plays an essential role in education, hence the researcher observed that the lecturer made use of YouTube, audio, images and text to keep students engaged.

The next section will focus on the specific eTool

eTools selected

The following responses relate to the eTools lecturers selected and used in their online environments.

ELT 111

During the face-to-face and online environment observations conducted, the researcher observed that Dr X (ELT 111) selected various eTools in her online environment. These eTools needed to align with her learning outcomes, assessment and content. According to Crespo et al. (2010), the educational activities and resources need to be aligned to the intended learning outcomes of a learning module to ensure that learners are able to achieve their learning outcomes successfully. This notion is further supported through the term 'constructive alignment' which Biggs (2003) highlights as the learning environment the teacher sets up to support the learning activities appropriate to achieving the desired learning outcomes. The *Discussion forum and Assignment* eTools were selected to host learning and assessment activities. In order for students to become actively engaged in the lecture, the discussion topics were posted and two face-to-face tutorials were offered online via the online *Discussion Forums*. The lecturer also assigned a mark to the

discussions which further prompted students to engage more actively. In addition to the *Discussion forum and Assignment* eTools, the lecturer also made use of the *Announcements, Course Resources* as well as the *Tests and Quizzes* eTools.

SXL 101

Ms B listed the following eTools when she completed the questionnaire: "Video, youtube, chalkboard, charts, books*."*

Ms A: Ms A further noted that there is a

> "move to infuse the traditional practices and approaches by embracing the effective use of Information and Communication Technologies (ICTs) for its pedagogical benefits" She stated that "learning should be fun and interactive" "Making use of videos, powerpoints, the creation of digital stories"

FPM 111

Dr Y stated the following with regard to the selection of eTools:

> "The needs, outcomes and goals of lecturers are what drive the design and development of the lectures. Sometimes, technology does not have to be used. Artefacts, for example, like the Duplo blocks are used to build something." Dr Y stated that "the selection and use of any technology within the module is based on the needs, goals and outcomes of the specific lecture."
>
> "The type of technology I use is based on the needs, the goals and the outcomes of the lecture. I use the chalkboard, I use the whiteboard, I use the doc cam, I use the PowerPoint and I use the YouTube presentation… If I use the PowerPoint presentation and it is just text, you disengage the student, therefore I use a multimodal approach, which is when you use your text, audio and image."

This lecturer indicated that she made use of the "data projector and PowerPoint presentations" to discuss the theory around teaching of Mathematics during the first few weeks of the semester. Once the theory was taught, her teaching included dealing with the more practical part where numeracy

equations and symbols were used and students needed to work on mathematical problems. The researcher also observed that in some instances, she also made use of selected YouTube video clips to either showcase methods of teaching Mathematics or to explain concepts better.

Lecturer, Dr Y, decided to make use of the document camera.

> "This document camera allowed me to write down the equations and maths problems on paper, project it on the screen, which students could see as I was writing down the calculation process. Students could copy the work as well. It catered for all students' needs as the ones that took longer to write found that the page would be reflected on the screen for the duration of the class*"*.

She also allowed students who may have joined late to take pictures with their cell phones. Lecturer Dr Y further noted that making use of the document camera allowed her to still "keep eye contact" with students whilst writing and explaining the content. Throughout the entire semester, it was clear that the lecturer Dr Y had thought very carefully about her teaching practice and the resources and eTools she selected to assist with her teaching.

The lecturer stated that the symbols in Mathematics are already difficult to interpret and understand. Lecturer stated that "Mathematics taught in the first year is quite complex and students can become overwhelmed". For example: the lecturer mentioned that the plus sign (+) is one symbol that has a meaning in a mathematical equation. Symbols can be used to generate an entire sentence. Mathematics is a language on its own and explaining it to diverse students is quite difficult. You have to find other ways to present the content to students, especially to those who are second language English students. Hence the lecturer opted to make use of the chalkboard to write down the calculation and explain the symbols. The document camera was the second eTool used in the class setting to present her teaching materials. These materials, once it was discussed in the class, were also uploaded to the X platform using the *Announcements* eTool after the lectures, allowing students to revise the work and reinforce their learning.

Based on the above data presented, it can be stated that the attitudes of lecturers towards the use of the eTools and their own experiences with technology played a significant role in the implementation of blended learning and the selection of eTools in the respective modules.

The next section will focus on the types of online assessments that lecturers opted to include in the three modules and whether it assisted with self-directed learning.

Online Assessment

The following responses relate to the online assessment activities that were implemented in the online environments and whether they assisted with students' development as self-directed learners.

ELT 111

Dr X created several online assessment activities which required students to write a children's story in the form of a book, complete a video recording of their micro-teaching processes and engage in an online quiz to test both the theory and practical applications of content taught in class. Dr X also made use of assessment tools, which included the *Assignment* and the *Tests and Quizzes* eTools in X. Students were expected to submit three online assessment activities within the online environment via the X platform. They had to write a children's story in the form of a book and submit it in the online environment. A clear rubric was also provided which guided the students in terms of the outcomes and guidelines. The rubric document was attached to the assignment which was setup in the *Assignment* eTool. Students submitted their completed assignment-story online using the *Assignment* eTool. This assessment, once submitted on X, was automatically linked to Turnitin as well. Turnitin is an anti-plagiarism detection system that compares text within a document to archived papers in the Tii database and the World Wide Web. Students could resubmit their stories three times up until the closing date, which enabled them to rewrite, paraphrase and reference their work before their final submission was due. The integration with X and Turnitin (Tii) enabled students to check their academic writing for authenticity and correct referencing techniques, prior to submitting their final submission. A second assessment activity required students to engage in a quiz, which enabled them to complete it in their online environment. This test consisted of Multiple-Choice Questions (MCQs) and True and False question types (refer to Appendix 10: List of eTools and its pedagogical value (embedded on X). Students could attempt to do the test twice and a time-limit of 50 minutes for each attempt was allocated. The test consisted of 10 questions, which were randomised each time the test was taken. The test dealt with the topic which related to Curriculum Assessment Policy Statements (CAPS) and its features in the teaching and learning programme and tested student's understanding.

A third assessment required students to do a video recording of their micro teaching processes. Students were required to create these video recordings using either a smartphone or any device which they were familiar with. Clear guidelines were provided which also included a rubric related to the grading process of the assessment activity. These guidelines were shared with students via the '*Announcement'* and '*Assignment'* eTools in the online environment. Students were required to submit their recorded video via the online environment (X) in the '*Assignments'* eTool.

SXL 101

Various assessment activities were designed which students were required to complete using different eTools. The students were required to submit their assessment activities via the online environment designed on X.

Lecturer, Ms B completed the questionnaire and listed the assessment issued to students as: "I gave my students 2 assignments whereby they were vediorize themselves individually. The other assignment they worked in groups and that was story telling".

Lecturer Ms. A concurred that the digital storytelling and video assessment was included in the module as assessment activities.

Although both lecturers only identified the digital storytelling and video assessment, the researcher could observe in the online environment that the *Tests and Quizzes* eTool was also used to deliver another online assessment.

FPM 111

The lecturer indicated that the assessment activities she created for her students assisted with their development as self-directed learners.

Dr Y states the following:

> "Yes, both, I think so. Because the assessment task that I give are, some are individual and some are in groups. So, it forces those who like to do group work and put the work everything else onto someone else, it forces them to do their own work individually. And vice versa, there are some students who don't like to work with

anybody else but to do everything alone. It forces them to collaborate with other people. You get so many volunteers. You create this relationship with them. You have to look at two other things when you teaching, one is- inter personal and one is intra personal. Your inter personal is the relationship between student and student or between lecturer and student. Your intra personal is whatever is happening inside that student, that student's learning, that students thinking, that students doing, you yourself, that student itself. Group work they worked very very well, and do what is required of them."

The next section will summarise the main points as discussed by the lecturers responsible for the three modules.

5.3.1 Summary of Interviews with Lecturers

Key concepts and themes emerged during the interviews conducted with lecturers. The discussion regarding teaching approaches and the use of blended learning strategies, further indicated how blended learning was used in the three modules. Lecturers also shared around the implementation of online assessments, the use of various eTools and how assessment activities can be used to develop students as self-directed learners. Different techniques were used by lecturers across the three modules and the impact will be discussed in the analysis chapter.

The use of blended learning strategies emphasised the different techniques lecturers implemented in their teaching practice. Through the interviews conducted, the blended strategies which lecturers implemented across the three modules created opportunities for individual and collaborative student engagement. Lecturers all indicated that their teaching practices included blended learning techniques. Across all three modules (ELT 111, SXL 101, FPM 111), the researcher observed that students across the modules engaged in group tasks which required them to actively engage during the face-to-face class. Furthermore, the student relationships created through assessment tasks can impact the development of students as self-directed learners. Through the blended learning techniques implemented across all three modules the researcher observed how students interacted with the eTools and with each other by utilising the online environment. In the next chapter the impact and value of assessment tasks are further discussed. The use of assessment tasks promoted the development of students working independently and collaboratively. Lecturers across all three

modules implemented individual and group assessment tasks and agree that these assessment tasks developed collaboration amongst students as well as developed the self-directed learning.

The next section focuses on interviews conducted with the HODs.

5.4 Interviews with HODs

This section focusses on the interviews conducted with the two Heads of Departments for the Language Education (henceforth referred to as Dr A) and the School of Science and Mathematics Education (henceforth referred to as Prof B) regarding their understanding of blended learning and its inclusion in teaching practices (See Appendix 5b: Interview Questions for HODs).

Blended Learning

The following responses relate to the use and support of blended learning in the respective departments. The HODs were asked if they support the use of blended learning in their teaching practices in their respective departments.

Department of Language Education

According to Dr A,

> *"*there is no way that one can avoid the inclusion of blended learning in teaching and learning practice, if we are to move with the times". He further stated that to "ignore the value digital technologies bring to the teaching practice would be to negate a key instrument through which to negotiate meaning and transmit knowledge, engage students, transform curriculum and decolonise notions of top down knowledge production*"*.

School of Science and Mathematics Education

According to Prof B,

> "I support it (blended learning) mainly because this is one way in which you are able to communicate with students. This is one way in which we are able to upload the materials, so that wherever you are, you know students still have access to that material. Therefore, they will access that material and be able to be involved in their

learning. In as much as you are using a contact method of teaching. There is no way during these times when technology is so advanced, and as we are talking about the 4th industrial revolution, there is no way that you can avoid it…teaching through it and using it to support and supplement what we do in class is therefore very important".

5.4.1 Summary of Interviews with HODs

Both HODs share the same sentiment that the use of blended learning in teaching practice is inescapable, especially during the 4th Industrial Revolution we find ourselves in. Both HODs, shared this sentiment by stating that the "use of digital technology is everywhere and like a second skin to our students and it is who they are, an identity". Hence the use of digital technologies and the effective implementation of blended learning is fully supported by both Departmental Heads.

The next section of this chapter will focus on qualitative feedback from the students, through the online questionnaire and focus group discussion. This is presented from Sections 5.5 to 5.6.

5.5 Student Questionnaire: Feedback[9]

An online student questionnaire was created and sent to the entire student sample which constituted a number of 155 students enrolled in Year 1 of the BEd (FPT) programme. A number of 31 students responded to the online student questionnaire. This constituted 20% of the total class population enrolled in the BEd (FPT) programme. The researcher attributed the poor response to the #FeesMustFall campaign, which led to students feeling quite unsettled and working mainly from home. It should be noted that this low response did not negatively impact the results obtained in the study. The observations conducted during face-to-face classroom lessons and the online environments corroborated the feedback obtained via the student online questionnaire and focus group discussion.

This section of the chapter will focus on the responses recorded for the student questionnaire and the related feedback and interpretations of the first-year students enrolled in the BEd (FPT)

9 For purposes of authenticity, the research reflects the verbatim responses of all respondents - errors and all.

programme in the three modules English Home Language (ELT 111), isiXhosa Second Additional Language (SXL 101) and Foundation Phase Mathematics (FPM 111). The FPM 111 module was a compulsory module that all students engaged in this programme were required to complete. However, students were also required to register for their Home Language module and complete one additional Language module as well. Hence, students were able to share their feedback based on their own learning experiences for these particular modules. Students who engaged in the online questionnaire were required to provide consent before continuing to answer the questions.

A student questionnaire (See Appendix 7) designed by the researcher and distributed via Google Forms focused on the following topics:

- Computer Literacy;
- Use of technology in the classroom;
- Defining blended learning;
- Impact of blended learning techniques on learning;
- Interactive engagement in the face-to-face classroom and group discussions;
- Engagement in the online discussions with lecturers and peers;
- Defining their learning style preferences;
- eTools used in each of the three respective modules;
- Students 'use of eTools in their teaching practice as prospective teachers;
- The 3 modules (ELT 111, SXL 101 and FPM 111): A preparation for teaching in the Foundation Phase at schools?
- Aiding the development of students as independent learners.

The student online questionnaire presents the quantitative and qualitative data recorded via the online student questionnaire. The first part of the online student questionnaire reflected the closed questions, which constituted the quantitative data component. It is presented in the sections that follow below into specific themes as outlined by the researcher.

What is blended learning?

Respondents were asked to indicate whether they know what blended learning is. A percentage of 77.8% of respondents indicated that they knew what blended learning is and proceeded to give their own understanding of the term. The definitions shared by respondents showcase the students' understanding and interpretation of blended learning in the context of teaching and learning. A selection of responses can be read in Table 4.1 below.

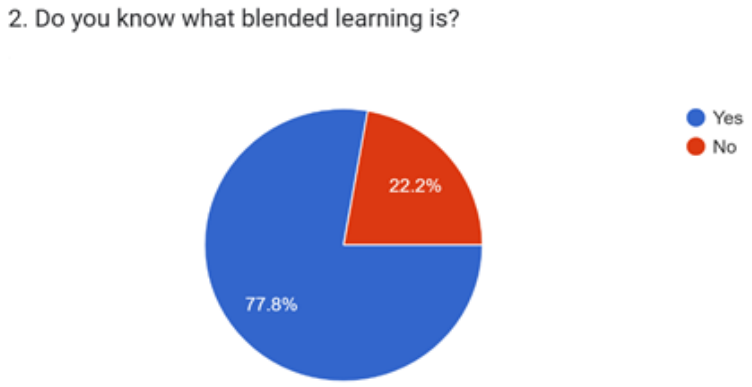

Fig 5.10 Blended Learning

Participant	***Response***
	"Blended learning is a style of education in which students are able to learn via electronic and online media as well as traditional face to face teaching"
	"Where other media tools are used to aid learning"
	"making use of text based, digital and online platforms to aid my learning process."
	"It is learning with the use of technology"
	"When making use of technology and theory to present and teach"
	"Using different ways to learn
	"Learning through technology as well as listening to lecturers"

Table 5.1 What is blended learning

Do you think it would be beneficial for your learning, if course material were offered in audio or video format?

A percentage of 92.9% of respondents reported that providing course material in audio and video formats would assist with their learning while 7.1% of respondents indicated providing course material in this format would not aid their learning. This reflects that a large percentage of the students see blended learning as a benefit to their development.

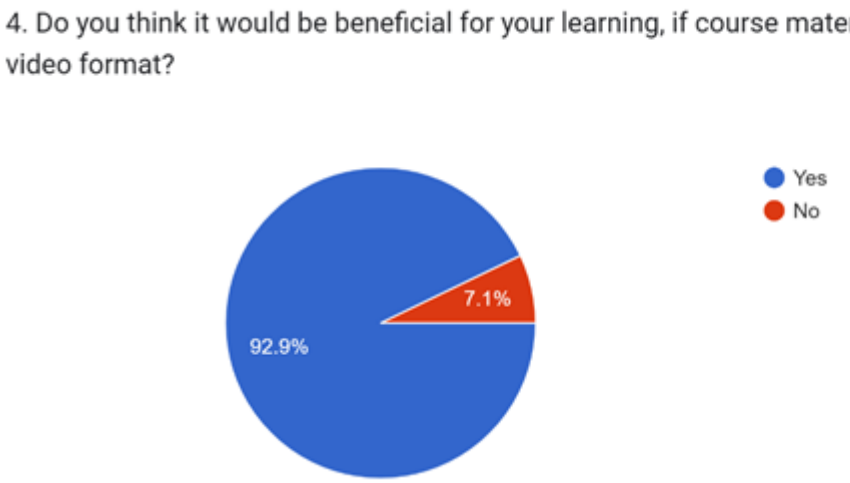

Fig 5.11 Use of Blended Course Material

Do you think the blended learning approach that was implemented in the modules was valuable for your learning?

A percentage of 92.9% of respondents thought that the blended learning approach implemented in all three modules (ELT 111, SXL 101 and FPM 111) was valuable to their learning. A percentage of 7.1% of respondents did not agree with this statement.

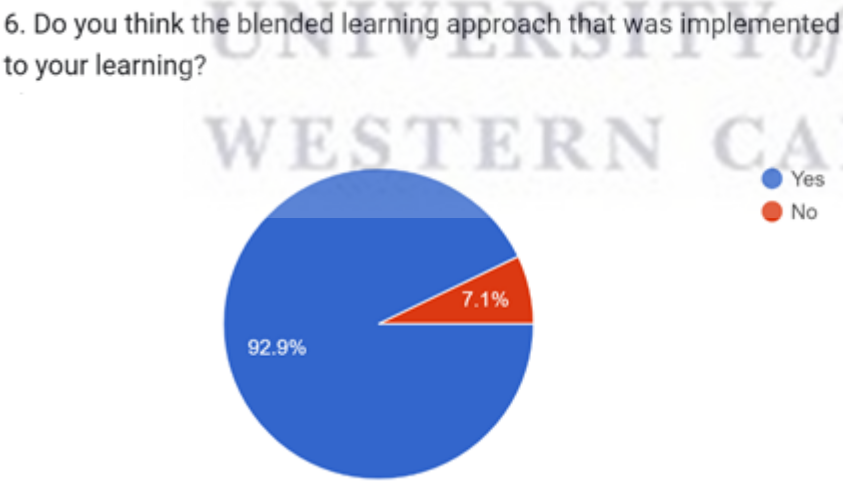

Fig 5.12 Blended Impact on Learning

Do you actively participate in face-to-face classroom group discussions?

A percentage of 82.1% of respondents answered **yes** to participating in face-to-face classroom and group discussions, while 17.9% of the respondents answered **no**. Although the majority of the respondents replied yes to actively participating in the face-to-face classroom, there were a number of students that did not prefer to engage during face-to-face classroom discussions.

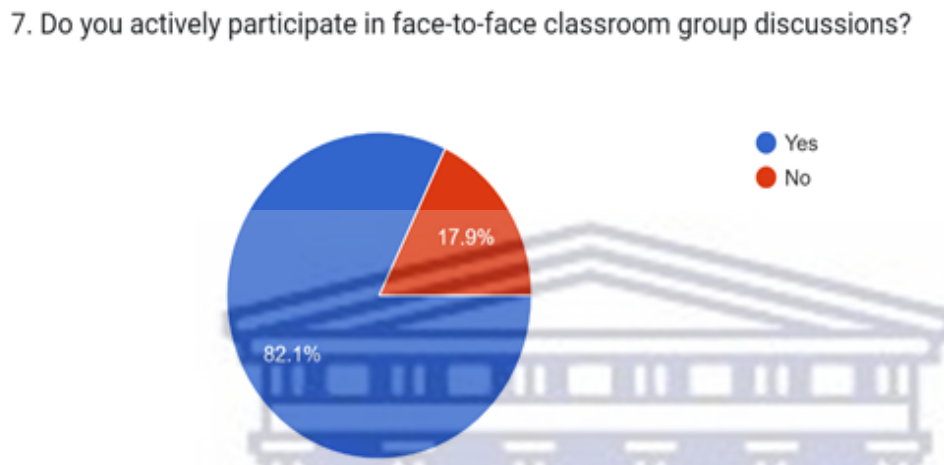

Fig 5.13 Active Participation

Do you feel comfortable using technology to complete your learning activities?

A percentage of 88.9% of student respondents answered yes and that they felt comfortable using technology to complete their learning activities, whilst a percentage of 11.1% indicated that they did not.

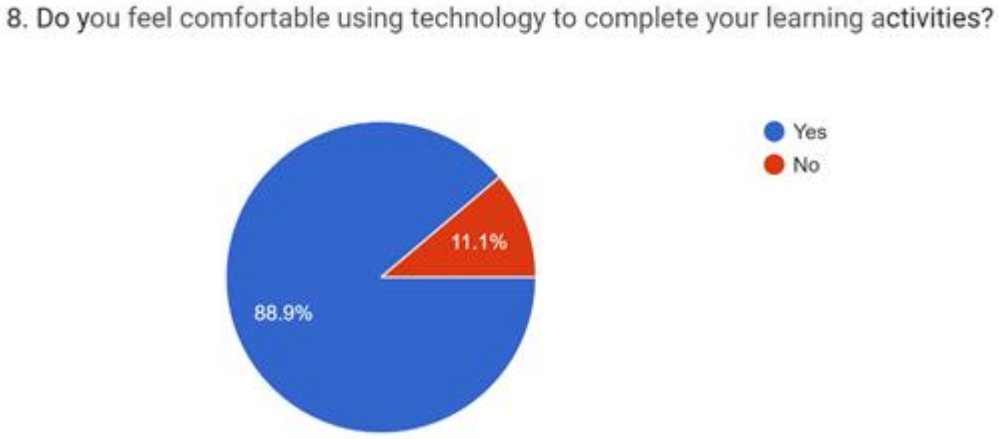

Fig 5.14 Comfort with Technology

Identify any learning activities that helped you to understand and apply concepts in the Language module (English and/ or isi-Xhosa) better

Student respondents were asked to share their own responses regarding the learning activities which assisted them in gaining understanding in the Language modules (English and isiXhosa). These qualitative responses shared by students are reflected in the table below and expand on examples of learning activities in the Language modules. By sharing the learning activities, the specific eTools were also mentioned which highlights the use of blended learning in the modules.

Participant	Response
	"In the ELT 111 module we made use of the discussion forum to explain about play-based learning and the value.. i could first go through the presentation of the lecturer and then discuss it with my friends and think about my own experience and then i could formulate my response.. I could also see other students responses .. this helped me to also see what other think and their perspective..."
	"By having conversations with Xhosa speaking students helped me a lot."
	"Reading isixhosa the different classes and how it relates to the words in English how the lecturer explain and practice different ways for us to understand this module clearly"
	"IsiXhosa notes and YouTube videos"
	"the group activities we did in lcass helped me to learn with my group members"
	"YouTube videos on cliques for isiXhosa and the isiXhosa workbooks we received. The tutorials was also a lifesaver."

Table 5.2 Learning Activities in Modules

Do you think the modules (ELT 111, SXL 101 &FPM 111) prepared you adequately to teach this subject at a school level? Explain your answer by using an example.

Most of the student respondents agreed that the level of preparation they received in the respective modules prepared them to teach adequately in the classroom. They shared some examples, of which some are listed in the table below. There were a few student respondents who indicated that they

still needed more in-depth assistance and support in order to be confident teachers in the respective modules.

Participant	Response
	"Yes it has, these modules has taught me the basics of what i need to know in order to have a well and equipped teaching practice"
	"No. It's is not bright to the most fundamental part. So one has no foundation, you just start where the lecturer starts"
	"NOt at all, I need more in depth training"
	"Yes for the level of a first year student, but only the very basics for isiXhosa and i would need my notebook with me and probably pronounce what i need to say incorrectly"
	"Yes, FPM 111 has. The other 2 modules not so much for example we werent equipped with the necessary skills before teaching practice, for example lesson plans."
	"Yes, definitely because we could bring in concrete materials to demonstrate Mathematics and for English we could use PowerPoint presentations to imenhance learners learning. For Isixhosa we could also use PowerPoint or even flashcards to have different names of things in our classrooms in IsiXhosa."

Table 5.3 Adequate Preparation for the Classroom

a) Effective use of eTools

Have you used a computer or a computer programme prior to attending University?

Students were asked whether they had made use of a computer or a computer programme prior to enrolling in this BEd (FPT) programme to which 92.9% answered **yes** and 7.1% answered **no.** Hence, a large percentage acknowledged that they had used a computer prior to enrolling as a student at the university. Although, 7.1 % indicated they had not worked on a computer, it does not exclude the possible use of mobile devices to access various applications or online environments. However, it should be noted that although 7.1% of the respondents reported to have never worked on a computer, they were still able to complete the questionnaire, which indicates their level of literacy had developed perhaps through their first-year at university.

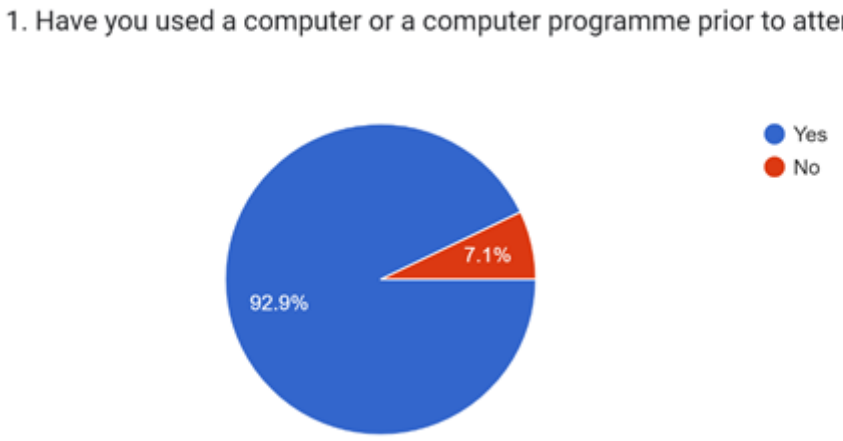

Fig 5.15 Computer Usage

Do you think that using technology for teaching purposes enhanced your learning experience?

One hundred percent (100%) of student respondents agreed that using technology for teaching had assisted in enhancing their learning. The implementation of technology in the classroom was reported as useful by student respondents.

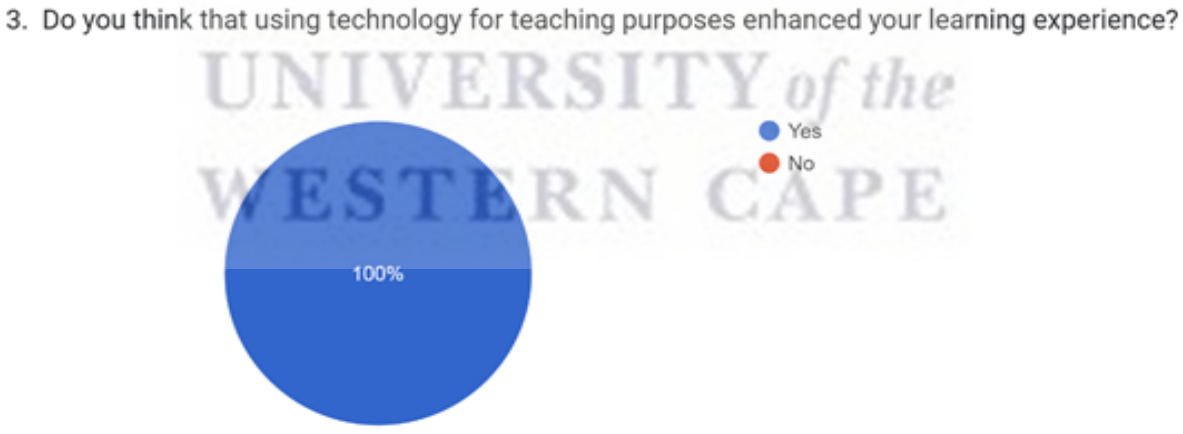

Fig 5.16 Use of Technology

Did the technology implemented by the lecturer help you to understand the module content better?

The majority of respondents -92.6%- agreed that the technology used by lecturers assisted them to understand the module content better, whilst only 7.4% indicated that it did not assist them.

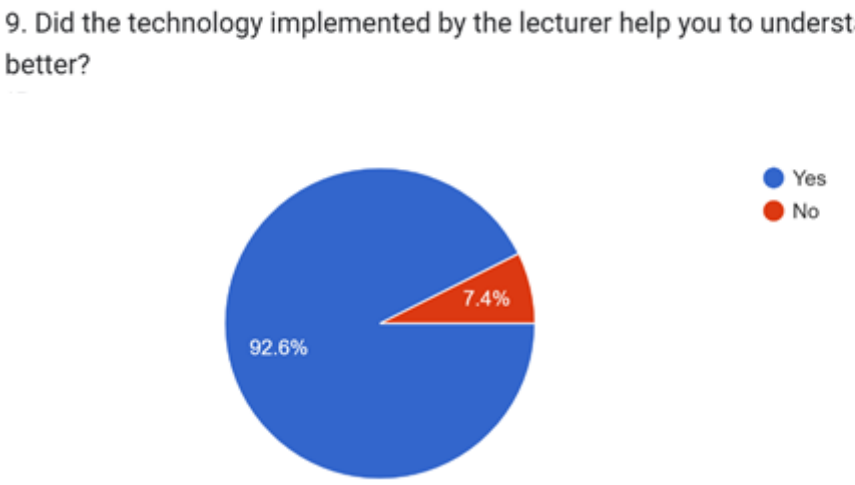

Fig 5.17 Technology Impact Learning

Did you engage in any online discussions with your lecturers or peers?

This pie chart illustrates that 82.1% of student respondents indicated that they engaged in online discussions with their lecturers and peers, while 17.9% of respondents answered no. This high number of online engagements reflects that students' interactive online engagements were well received by the majority of the respondents.

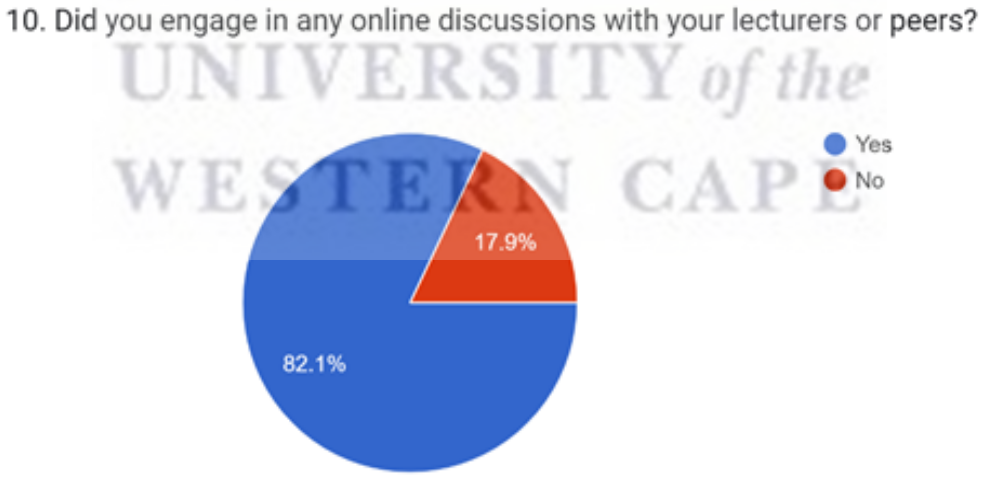

Fig 5.18 Online Engagement

Identify any eTool/technology that helped you to understand any concept or topic in Foundation Phase Mathematics (FPM) better

Students elaborated more on the use of various eTools they were introduced to while completing the Foundation Phase Mathematics module. A selection of the responses is captured in the table

below. Student respondents elaborated on the use of the institutional LMS in order to retrieve notes and PowerPoint lectures for revision purposes. YouTube videos were also listed as a useful eTool to learn more about inclusive teaching practices.

Participant	Response
	"Youtube videos that Dr Y used in class..."
	"Youtube"
	"X was extremely helpful for me. especially during exams when i need to get the notes."
	"It was watching video's from YouTube to better understand how teachers teach inclusively"
	"Ebook, PowerPoint"
	"The lecturer uploading the PowerPoint slides of the lectures on X and any course resources. Going for library training to be able to understand the assignment better."
	"youtube /discussions /google"
	"Projector screen was very useful in displaying how to work out thr mathematics problems."
	"YouTube and Notes from X"

Table 5.4 eTools Usage in FPM 111

As a prospective teacher, how will you make use of any eTools/ technology in your teaching practice, when you teach one day? Please elaborate on your answer

The student respondents listed the use of different technologies such as using video clips to demonstrate certain topics to students which included digital storytelling to illustrate lessons. One respondent highlighted the use of a questionnaire to determine the level of ICT literacy of the learners. Based on the learners' responses, prospective teachers would *"introduce appropriate technology to enhance engagement…"*

Some respondents suggested that some television programmes can be used to stimulate learners to engage and to learn about different concepts. Respondents also indicated that they need to acquire more eSkills in order to teach using technology.

Participant	Response
	"Having technology such as video players, radios and projectors will help children learn wether they are visual, aural or practocal."
	"Showing video clips to demonstrate the topic of study."
	"Practical demonstrations"
	"I will integrate digital worksheets, games and activities to introduce new concepts to the subject"
	"Yes I will, digital content can be shared with students which can be used to illustrate activities"
	"Yes, I will make use of digital storytelling"
	"Making video stories and this technology to help presenting my lessons"
	"Firstly, I will set-up a questionnaire to determine the level of the student's ICT literacy skills. Secondly, based on the feedback provided by students, I will introduce the appropriate technology to enhance engagement between myself and the student. This will assist with my teaching practice which will give students the opportunity to apply the knowledge they have attained."
	"I will use all technology available to me to better prepare my classroom and lessons for my learners, e.g. laptop, tablet, television, cd player, youtube videos etc"

Table 5.5 Applications of eTools

Please list the eTools/technology you were exposed to during the learning activities for ELT 111 SXL 101, FPM 111 for example: X, Turnitin, Discussion Forum, Google Drive, Youtube etc,

The majority of the respondents highlighted their exposure to the use of the institutional LMS, X. Some could list the eTools on X that they used during learning activities in the modules. The other eTools listed were Y*ouTube, Google, WhatsApp, Discussion Forum and Turnitin.*

Participant	Response
	"X, google, google drive, discussion forums, pc's."
	"X ,googleX, google drive, YouTube"
	"Google, YouTube, whatsapp group discussions"

	"X, u tube, can a, google"
	"X, Turnitin, Discussion Forum, Google Drive, YouTube"
	"X; discussion forum & Turnitin"

Table 5.6 Use of eTools Across Modules

Explain which eTool/technology used by ELT 111 lecturer (Dr X) was helpful for your learning.

Student respondents shared that the use of the *Discussion Forum* within the LMS and PowerPoint presentations were most useful in their learning. A student also listed the 'proper' explanation of the concepts by the lecturer as helpful for learning. The use of the eTools, supplemented by the lecturer's clear explanations of key terms, reflects that a blended learning approach was applied in the module.

Participant	Response
	"The online discussion forums as well as us having to use google to create our own story"
	"I think the presentations she used was helpful to explain the topics",
	"The discussion forums were great. Loved the interaction with my peers"
	"Dr used PowerPoint presentations and it was helpful because we could see what she was teaching and she included all her learners in teaching."
	"Dr's teaching style made it easy to learn about her subject because she would make us understand things in out lecture so that when we looked at her slides we knew exactly what was going on"
	"PowerPoint, YouTube and creating video stories, discussion forum"
	"She used lecture slides, but she would properly explain concepts"

Table 5.7 Most Useful eTool: ELT 111

Explain whether the inclusion of technology by the SXL 101 lecturer (Ms B) assisted with your learning of isiXhosa.

Student respondents listed the use of the video to showcase the pronunciation of the click sounds as useful for their learning, while another student response listed the use of the projector screen to showcase the Xhosa words as beneficial to their learning. The creation of digital stories was listed

as another useful technology that assisted with their learning. As students reflected on the eTools used in the module, it shows that a blended approach was applied in the module.

Participant	Response
	"The use of making digital stories and videos"
	"I don't remember any technology by Ms B This was probably the most confusing module I ever had."
	"Yes it did we were introduced to online test and even to create out own video story."
	"Yes- the videos was useful and the clicks how to pronounce it was useful"
	"the click video helped a lot to get the clicks right and i could go back to watch it again. It would have been nice if the lecturer uploaded it to X or something"
	"The projector screen helped in showing the Xhosa words clearly."

Table 5.8 Most Useful eTool: SXL 101

Explain which eTool/technology used in FPM 111 by lecturer (Dr Y) was most helpful to your learning

The student respondents listed the YouTube videos the lecturer showcased before introducing new maths concepts as beneficial for their learning. They also mentioned the use of objects the lecturer brought to class which assisted in their learning. The use of X, PowerPoint slides and the whiteboard were useful tools that supported their learning. The various eTools listed by students reflect that a blended approach was applied by the lecturer.

Participant	Responses
	"She used youtube videos to explain and show us examples of certain concepts.. and she taught us through stories.."
	"The video clips she played before introducing a new maths concept. Loved Dr Y's lessons. Very clear and amazing."
	"Powerpoints this was very useful because we could make notes as well as refer back to her PowerPoint presentations for clarity."
	"X (PowerPoint slides) and the YouTube videos she shared with us."
	"NOt an exact tool but the lecturer was knowledgable and she always reminded us of what our role is and what we need to teach the learners"
	"She used power points, wrote on the board and brought objects to class to better explain concepts. (Best lecturer I had)"

Table 5.9 Most Useful eTool: FPM 111

b) Self-directed learning

Did the learning activities that you were introduced to during lectures help you to understand the tasks better?

One hundred percent (100%) of respondents responded positively to the use of learning activities introduced during lectures. The respondents also agreed that the learning activities assisted them to understand their tasks better.

Fig 5.19 Learning Activities Impact Task

If you could choose any of the following, how would you describe your learning process, I learn best through: (you may select more than one option)

Students were requested to describe their learning process by selecting from various options. The options listed were, watching demonstrations, listening to lectures, engaging in groups, making

notes and working independently. A number of 53.6% of the student respondents indicated that they learn best through watching others do demonstrations, while 46.4% indicated that they learn through visual displays. It seems that 39.3% of students learn through engaging in groups while 32.1% indicated that they learn best through independent learning. The most preferred learning processes were to listen to lectures, watching demonstrations, make notes and engaging in groups.

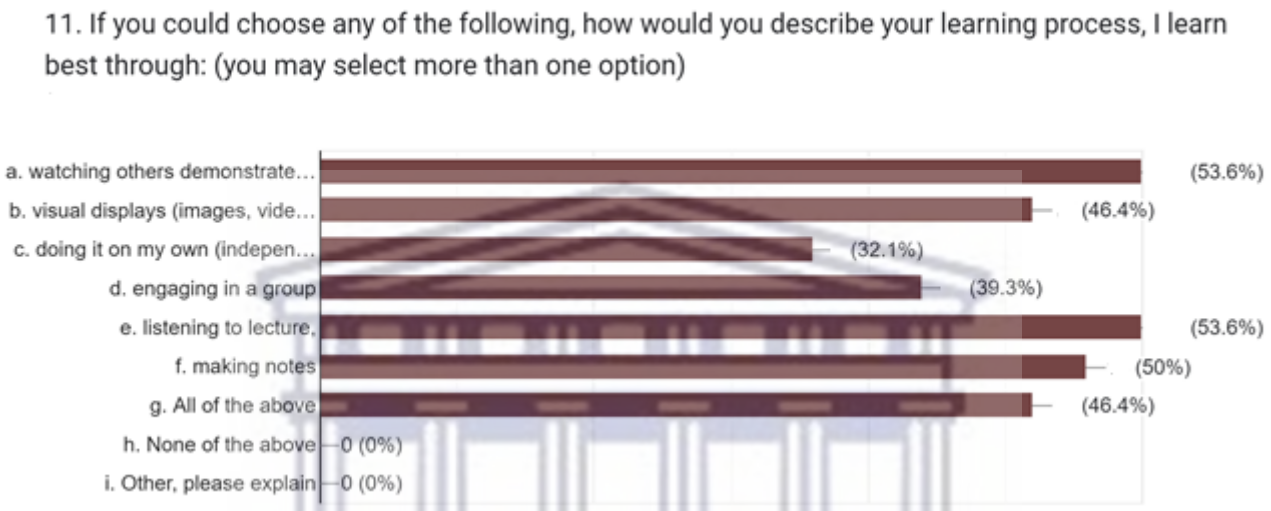

Fig 5.20 Learning Styles

The next section will focus on the second part of the online student questionnaire which, represents the qualitative responses obtained through recorded responses for the open-ended questions. The data are presented below from Tables 5.10 to 5.19.

How would you describe your learning style?

Student respondents deliberated on the type of learning styles they preferred, with some students indicating that they are visual learners and like to watch demonstrations before they attempt activities on their own. Listening, watching demonstrations and practical engagement were listed as important aspects by the student respondents.

Participant	Response
	"visual learner"
	"Im more visual and aural learner"
	"To understand the topic is most importance. Then visual and practicals can help with that."
	"Hands on. Very practical and tact tile"

	"I am a learner that likes to see how people do it and then I make notes and llike to trye it out myself. So i learn through seeing and then doing it myself"
	"I have a mixed learning style.. reading, listening to lectures and then sometimes also watching videos helps me to learn"

Table 5.10 Learning Style

Were your learning needs and expectations addressed through the teaching of the three modules? Please use an example to explain your answer

Student respondents deliberated on their learning needs and expectations. Some responded positively while other responses were not as favourable. One student listed their dyslexia as a disability and noted that they felt unsupported and had to navigate their way through this alone with the help of YouTube only. It is not known whether the lecturers were aware of the student's disability in order to offer more support. See responses reflected in table below

Participant	**Response**
	"Yes, there were always examples and lectures would decribe everything"
	"Not always. I found math difficult, because I have a form of dyscalculia. There is nothing to help any person with a disability. You just have to work on your own, relying on u tube "
	"Yes, Most definitely. Tutorials were very helpful with reflections and take home activities. I had the chance to think about what I don't know and actually do my own research thereon. My writing skills improved quite a bit when doing essays for FPM111, in ELT111 as well as my creative storytelling."
	"Yes at first I did not understand these modules but through the way the lecturers presented the modules I now have a clear understanding."
	Yes, but I do feel i could have gained more knowledge through additional worksheets and visual content for isiXhosa. Needed more practicals to pronounce the clicks in the language.
	FPM 111 was an amazing module, I have never done xhosa before so SXL 101 is a challenge"

Table 5.11 Learning Needs and Expectations

Explain whether the modules helped you to develop as independent learners and self-directed learners

All student respondents agreed that the three modules assisted them in developing as independent learners. Student responses highlighted that individual assessment activities helped them to take initiative and work independently. These modules also required them to be more responsible, plan their activities and explore how they will engage individually.

Participant	Response
	"Yes it has because, FPM has helped me understand the way young children's understands the mathematics concepts. SXL has made me more confident with my languages and ELT was a very practical module and i was more engaged."
	"The modules definitely helped me I learnt how to submit task online how to make use technology to help me with my atudies"
	"All activities withn the different modules required individual assessment submissions. I had to learn on my own and plan how I will do my assignments. This makes me an independent learner yes"
	"The modules definitely helped me to become an independent learner. I am able to take initiative and feel more comfortable to work on my own."
	"It definitely did because it made us to feel more responsible regarding our own work everything was given to us in form of notes and PowerPoint presentations and we could take our own notes to aid our own learning"
	"All the modules required me to learn on my own. Essays, exams, tests you need to write while knowing things and you need to also explore on your own"

Table 5.12 Independent Learners

5.5.1 Summary of Student Feedback

The data collated consist of the feedback of the first-year BEd (FPT) students. The data reflect the students' overall experiences of the learning activities included in the three modules (ELT 111, SXL 101 and FPM 111). It should be noted that 92.9% of respondents were computer literate. All student respondents were confident that the inclusion of technology in the teaching practice was valuable for their learning and skills development. They further agreed that the learning activities enabled

them to understand the content better. While most student respondents acknowledged they were prepared adequately to engage in classroom teaching, there were some who felt they needed more in-depth training in order to present and teach effectively in a classroom setting. The student respondents noted that the learning activities they were exposed to, prepared and developed them as independent learners who could take responsibility for their own learning. It is important to note that these prospective teachers were also able to share how they would make use of the different technologies to teach in their own classrooms in the future.

The next section will focus on the qualitative data obtained through the student focus group discussion. The data are presented from Sections 5.6. to 5.6.1.

5.6 The Focus Group Discussion

The focus group discussion took place during October 2019 before students engaged in the final exams. It should be noted that a focus group discussion was employed in an attempt to triangulate the responses shared in the student questionnaire. Every fifth student enrolled in each module was selected and requested to join the focus group discussion. It should be noted that the list was in alphabetical order. Hence, the researcher sent an email invitation to 62 students. It should be noted that the sample population of the BEd (FPT) programme was a total of 155 students.

It should be noted that only 10 students turned up for the focus group discussion. The researcher acknowledges that this focus group discussion was impacted by the #FeesMustFall protests, which led to students feeling quite unsettled and working mainly from home. It should be noted that this low response did not negatively impact the results obtained in the study. The observations conducted during face-to-face classroom and the online environments corroborated the feedback obtained via the student online questionnaire and focus group discussion. The focus group discussion aimed to obtain further insights into an area of interest in an accommodating, non-aggressive atmosphere (Casey & Krueger, 1994). Hence, during the focus group discussion, questions were directed to the group. The students engaged in the focus group formed a diverse collective in terms of age, race, religion and culture. The focus group members were those students who could physically be present on campus on the day of the discussion. The members ranged in age, some were mature female adults and some were first-year students who came directly from high school. Three specific questions were posed to the group and those are reflected in the tables below.

What level of computer literacy did you have prior to starting this programme at the university?

Most respondents in the focus group indicated that they were computer literate before joining the university. Some expressed that they had either worked with computers at school whilst some of the more mature respondents indicated that they were introduced to computers during their prior employment. Some student respondents indicated that they had informally picked up the skills through friends and family members. The statements in the table below indicate the computer literacy levels of students enrolled in the BEd (FPT) programme. One of the responses is an honest sharing by an adult student who felt at ease to share her struggle with the use of technology. She reflected on the assistance of the peer-student in the class who was willing to assist and support her learning. It also reflects the peer connectedness that took place and how the younger students were more adept at sharing and teaching others. It is something that comes more naturally to some of the generation Z's than most other generational members. This is an observation made through engagement with students during the classes. A general observation, as a result of the researcher's own experience of facilitation (conducting eTools training for academics that fall in the category - generation X), who are not very keen to show their peers what they have learned. Many of them prefer engaging in individual one-on-one consultation sessions and learning in the comfort of their own spaces.

Module	Responses
ELT 111	"I did not really have an understanding or knowledge of the technology and was forced to become more familiar with it during the course of all the modules. Fortunately, I was surrounded by the younger children in my class who helped me. I now have a laptop and have upgraded my smartphone."
SXL 101	"When I was busy doing the video for the storytelling activity I was clueless as in how to do this. Myself and my partner had to figure things out as we went along. So we made use of the video recording app and struggled a bit to get the right music in the background because we didn't want the music to be louder than our voices. So this was tricky and we had to practice saying the isiXhosa words from a page that we wrote on ,to help us get it right. We made use of animated pictures to make our story interesting as well as eye catching and colorful because we wanted children to like the story we put together. I'm not very technology savvy ,so I learnt a lot of new things and was amazed at how easy it is and saves you time when you have to submit within a deadline period."
FPM 111	"As technology is taking over more and more, I need to equip myself to use technology for my classroom. For example, being computer literate and using a projector effectively, using YouTube for lesson plans."

Table 5.13 Level of Computer Literacy

What technology used in the modules was most beneficial for your learning?

The students also expressed that their learning was significantly enhanced through the use of different technologies. The video clips lecturers had presented in class to explain or showcase concepts had assisted with their understanding of certain concepts. They also indicated that the creation of digital photo stories equipped them with skills they would be able to use in their own classrooms. One student was of the view that the isiXhosa lecturer could have implemented more activities to assist with learning the additional language. The rest of the group were positive that they would be able to make use and implement technology in their own classroom setting. This notion was expressed during both the focus group discussion and online questionnaire responses.

The students in the focus group highlighted that they made use of the *Discussion Forum* in the English Home Language (ELT 111) module to discuss play-based learning. They emphasised that they could refer to the lecturer's presentations, discuss with their peers and then reflect about their own experiences before sharing a contribution in the *Discussion Forum*. It also provided them the opportunity to see the responses of their peers and further engage in discussions. Students were also asked to first introduce themselves in the *Discussion Forum* and share more about themselves. Hence, students were able to refer back to the introductions and read more about their peers.

Module	Response
ELT 111	"In the ELT 111 module we made use of the discussion forum to explain about playbased learning and the value.. i could first go thrgough the presentation of the lecturer and then discuss it with my friends and think about my own experience and then i could formulate my response. I could also see other students responses .. this helped me to also see what other think and their perspective."
SXL 101	"The technology that we used was powerpoints created on a laptop and presented through a projector, this was beneficial to my learning because the powerpoint gave me the information required to learn for the class and I was also able to access these powerpoints later on through X"
FPM 111	"The PowerPoints used during the day's lecture were always available on X. This was really helpful as I did miss some important points that I could not take note of during the lecture. Being able to easily access the presentations and use them while summarising refreshed my memory."

Table 5.14 Most Useful eTool/technology for Learning

Impact of the module on student learning

During the focus group discussion, students were asked to reflect on one of the three modules that had the greatest impact on their learning (ELT 111, SXL 101, FPM 111). During the group discussion, two modules were identified as having impacted students' learning which were ELT 111 and FPM 111.

The ELT 111 module was selected as impactful due to the lecturer's knowledge of the subject matter and how it was delivered during face-to-face and online interventions. The student respondents noted that the module prepared them for their future teaching in the classroom. An adult respondent chose FPM 111 as the module with the greatest impact on her learning. After finishing school in 2005, she entered the Foundation Phase programme through the Recognition of Prior Learning (RPL) route. During her matric year she obtained an 'H' symbol for Mathematics and it was not her favourite subject at all. However, during her first year in the BEd (FPT) programme, almost 17 years after completing school, she started to enjoy Mathematics. This student attributed this change of attitude to a combination of her own level of maturity and intrinsic motivation, as well as the teaching approaches the lecturer used in the delivery of the FPM 111 module.

Module	***Responses***
ELT 111	"The Module that had a greater impact was the Module ELT. The reason ELT had a greater impact is because it centres around children and their development. It prepares me for what will happen in the classroom in the near future. I enjoyed this module because the lecturer was very helpful and understood the course material she was presenting. I do realise that most schools have children from different cultures and backgrounds In conclusion, ELT was a very helpful module in preparation for me to become a teacher."
FPM 111	"..Lecturer Dr Y, really inspired me and she made me feel like I could do anything…one of the mathematical activities I never knew how to do was long division… and I know it may be simple for some to do, but for me it was hard and very difficult… lecturer [Dr Y] made it so easy and she didn't mind to explain the same problem ten times… she tried to simplify it all the time… Now if you wake me up in the middle of the night, I would be able to explain to you how to do long division…I was so excited to go write my final Maths paper, cause I knew my stuff and the lecturer gave me that notion where I felt I could do it no matter what my matric results said… and I passed with a C symbol which was just amazing for me, my family was so happy with me and they were so surprised. She makes sure you understand. Mathematics is one of the modules that you can enjoy if you get the best person. If she can stay there and give the students the entry level for their first years... It will be good. If someone

	can give me mathematics like that, then I can teach it to my children when I'm working one day".

Table 5.15 Most Impactful Module for Learning

5.6.1 Summary of Focus Group Discussion

The responses by students engaged in the focus group discussion, suggest that the methods of teaching were more than adequate and that they enjoyed learning through integrating technology in the classroom. Through this process their learning was expanded and they could see how they would be able to transfer and apply their learnings in their own setting as teachers. It also indicates that the use of technology and engaging with it is important in the 21st century. Even though, some student respondents expressed difficulty with the use of technology at the start of the programme, they managed to gain competency through the use of the eTools to complete their tasks.

The next section will focus on the quantitative data obtained through the Marks Administration System (MAS) in the Education Faculty. The data are presented from Sections 5.7 to 5.7.1.

5.7 Student Results: Overall pass rates in the three modules

The next section will focus on the supporting quantitative data which were collected via the Marks Administration System (MAS) in the Education Faculty. The data highlight the overall pass-rate achieved in the three modules.

Blended learning is becoming more prevalent in higher education programmes. The reasons for the inclusion of blended learning range from accommodating more students to improving the quality of courses offered (Gill, 2009). The impact and implementation of blended learning approaches in the BEd (FPT) programme can be measured through monitoring the overall student pass-rate of the first-years during the 2019 academic year. The following section will discuss the overall pass rate for all three modules in this study.

English Home Language (ELT 111)

Table 5.16 reflects the English Home Language (ELT 111) module pass rate for the 2019 academic year. A number of 82 students were registered for the (ELT 111) module. An overall pass rate of

95% was achieved. A percentage of 25.61% of the students engaged in the module passed with an A aggregate. 31.71% of the students passed with a B aggregate. A percentage of 35.36% of the students engaged in the module passed with a C aggregate. The high overall pass rate is an indication that student learning was impacted by blended learning. The impact on student learning can be attributed to the blended learning approaches implemented. In addition to the face-to-face classroom lectures, an online environment was created by the lecturer in the institutional LMS, X to supplement the teaching practice. Students engaged in various assessment and communication activities via the *Announcement, Course Resources, Discussion Forum, Tests and Quizzes and Assignments eTools.* Additional blended learning activities included the use of YouTube videos to present lectures. Students were also required to create a video assignment, submit an essay linked to the Turnitin (Tii) anti-plagiarism platform and complete online quizzes. The implementation of the blended learning activities was released to students in a scaffolded manner. The assessment activities that students completed indicate that there is a link between the implementation of a blended learning approach and assessment. Reflecting on the final results for this module, it shows that the blended learning approaches and activities implemented contributed to the students' development and overall pass rate. Students shared their thoughts on the impact of some of the blended learning assessment activities that they engaged in. This is reflected in the following student response:

"The discussion forums were great. Loved the interaction with my peers"

Results: English Home Language

Module Name	Academic Year	Number of students who passed	Pass Rate= %
English Home/First Language (ELT 111)	2019	78	95%
A aggregate	2019	21	25.61%
B Aggregate	2019	26	31.71%
C Aggregate	2019	29	35.36%
D Aggregate	2019	2	2.44%
E Aggregate	2019	0	0
F Aggregate	2019	2	2.44%

G Aggregate	2019	2	2.44%
H Aggregate	2019	0	0

Table 5.16 ELT 111 - 2019 Overall Pass Rate

isiXhosa Second Additional Language (SXL 101)

Table 5.17: reflects the isiXhosa Second Additional Language (SXL 101) module pass rate for the 2019 academic year. A total of 123 students were registered for the module. An overall pass-rate of 94% was achieved during the 2019 academic year. A percentage of 17.9% of the students passed with an A aggregate while 18.7% of the students passed with a B aggregate. A percentage of 36.6% of the students passed with a C aggregate. The high pass-rate achieved in this module is an indication that student learning was impacted. The lecturer implemented various blended learning activities in addition to the face-to-face classroom lectures. An online environment was created in the X LMS which hosted various assessment and communication activities. Students were required to engage in various blended learning activities which included the creation of a digital story and completion of an online quiz. The assessment methods and the use of various blended learning approaches impacted student learning, which contributed to the high overall pass rate of 94%. Students shared their thoughts on the impact of some of the blended learning assessment activities that they completed. This is reflected in the following student response:

"In isi-Xhosa I was introduced to the picture-story. Where we were required to record our voices only. I learnt how to pronounce these words properly instead of memorizing them for a test. It was difficult and exciting and rather funny"

Results: isiXhosa Second Additional Language

Module Name	Academic Year	Number of students who passed	Pass Rate %
IsiXhosa (SXL 101)	2019	116	94%
A aggregate	2019	22	17.9%
B Aggregate	2019	23	18.7%
C Aggregate	2019	45	36.6%
D Aggregate	2019	25	20.3%
E Aggregate	2019	2	1.6%

F Aggregate	2019	2	1.6%
G Aggregate	2019	4	3.3 %
H Aggregate	2019	0	0

Table 5.17 SXL 101- 2019 Overall Pass Rate

Foundation Phase Mathematics (FPM 111)

Table 5.18 reflects the Foundation Phase Mathematics (FPM 111) module pass rate for the 2019 academic year. A total number of 155 students were registered for the FPM 111 module. An overall pass rate of 96% was achieved during the 2019 academic year. The results show that 44% of the students passed with an A aggregate which is a large percentage of the overall class. A percentage of 23% of the students passed with a B aggregate while 16% passed with a C aggregate. The high overall pass rate for this module shows that the student learning was impacted positively. Despite acknowledging potential national concerns about students' mathematics knowledge, it should be noted that the entry requirements for BEd FPT students are notably high, with an entry requirement of 50%. The impact on student learning can be attributed to the blended learning approaches implemented and activities implemented by the lecturer. In addition to the face-to-face classroom lectures and writing paper-based sit-down tests, the lecturer also created an online module in the institutional LMS namely X. During the course of the semester, students were required to view online *Announcements*, course materials and submit an academic essay via the *Assignments* eTool linked to Turnitin (Tii). The lecturer also made use of various learning objects such as Duplo blocks, Legos and YouTube videos to explain different concepts. The use of various blended learning approaches and assessment activities impacted student learning, which contributed to the high overall pass rate of 96%. Students shared their thoughts on the impact of some of the blended learning teaching methods the lecturer facilitated. This is reflected in the following student response

"She used youtube videos to explain and show us examples of certain concepts.. and she taught us through stories.."

Results: Foundation Phase Mathematics (FPM)

Module Name	Academic Year	Number of students who passed	Pass Rate %
Foundation Phase Mathematics (FPM 111)	2019	149	96%
A	2019	68	44%

B	2019	36	23%
C	2019	25	16%
D	2019	0	0
E	2019	20	13%
F	2019	1	0.7%
G	2019	1	0.7%
H	2019	4	2.6%

Table 5.18 FPM 111- 2019 Overall Pass Rate

5.7.1 Summary of Student Pass rates

Reflecting on the final results for all three modules as reflected in Table 4, it shows that the blended learning, teaching and assessment methods used were impactful. A pass rate of over 90% was achieved in all three modules. A deeper dive into the average aggregates of the final results is an indication that blended learning methods used have made an impact on student learning. The responses of the students through the questionnaire and focus group discussion and the overall results show that the assessment methods and the use of various blended learning approaches and techniques impacted positively on student learning. Students also reflected and confirmed that the teaching methods used forced them to engage in both independent and collaborative learning. These independent and collaborative activities further encouraged them to manage their time and plan the completion of their learning and assessment activities in a timeous manner.

Table 5.19 below reflects the overall pass rate percentage for the three modules investigated as part of this study.

Module Name	Academic Year	Number of students	Pass Rate %
English Home/First Language (ELT 111)	2019	82	95%
isiXhosa (SXL 101)	2019	123	94%
Foundation Phase Mathematics (FPM 111)	2019	155	96%

Table 5.19 Overall Student Numbers and Pass Rate for Modules (ELT 111, SXL 101, FPM 111) in BEd (FPT) programme

The next section focuses on quantitative data which was collected through the *Statistics* eTool via the institutional LMS which recorded the student engagement in the online environment. The data are presented from Sections 5.8 to 5.8.1.

5.8 Statistics eTool in respective modules

The institutional LMS, X has an eTool named *Statistics* which can be embedded in an online environment. The *Statistics* eTool allows lecturers to view how students have engaged in the online environment during a specific time period. Therefore, it can be used as an action research tool for online teaching-and-learning purposes. For the purposes of this study, the *Statistics* eTool was used as a research instrument to view the activity of students in the online environments. This activity was a method of collecting quantitative data regarding access to the modules, how students were making use of the materials, assessment and communication activities. The online environments were used as a source of information and data to be analysed and interpreted. The data can be quantified and used to interpret the impact of blended learning in the modules. The quantitative data were used to support the qualitative data obtained through face-to-face classroom and online environment observations, lecturer and HOD interviews, the student questionnaire and a student-led focus group discussion.

ELT 111

The ELT 111 data collected via the *Statistics* eTool were used to generate the pie chart (Figure 5.21) below. The data reflected that the most popular event viewed and opened by students was the learning content resources. 82 students frequented the learning content hosted in the *Course Resources* eTool a number of 2891 times which constituted 53.5% of the overall access during the 14-week period. The second most accessed eTool was the *Discussion Forum* at 1759 times and constituted 32.4% of the overall access by students. This aligns with the observations done in the online environment as students were actively engaged in discussions related to the play-based topics in teaching. Third most accessed eTool was the *Tests and Quizzes* which was accessed at 605 times and constituted 11.2% of the overall access by students. Students engaged in two pop-quizzes which focussed on the learning topics discussed in the face-to-face classroom lectures. The least accessed eTool was the *Assignments* eTool at 166 times and constituted 3.1% of the overall access. It was used to submit the one video assessment task that students were required to submit. The lecturer varied the timing with regards to sharing the learning content in the module. In some events the learning content was shared with the students prior to them engaging in the face-to-face class. This enabled students to prepare for the lecture before attending classes. In some instances, the lecturer shared the learning content with students via the online environment after classes were conducted. The release of learning content was timed and structured based on the

learning needs as determined by the subject-matter expert. The ELT 111 lecturer selected the *Discussion forum, Course Resources, Assignments and Tests and Quizzes* for this module. The *Discussion Forum* was used to conduct and replace a face-to-face lecture. It was also used to ensure a flipped classroom approach as students were required to read and prepare themselves prior to attending the lecture. The most accessed eTool in the ELT 111 module was the *Course Resources* which hosted all the important learning materials. The statistics showcased in the pie chart (Figure 5.21) demonstrate how students have accessed the online environment to actively engage with the various blended learning activities implemented.

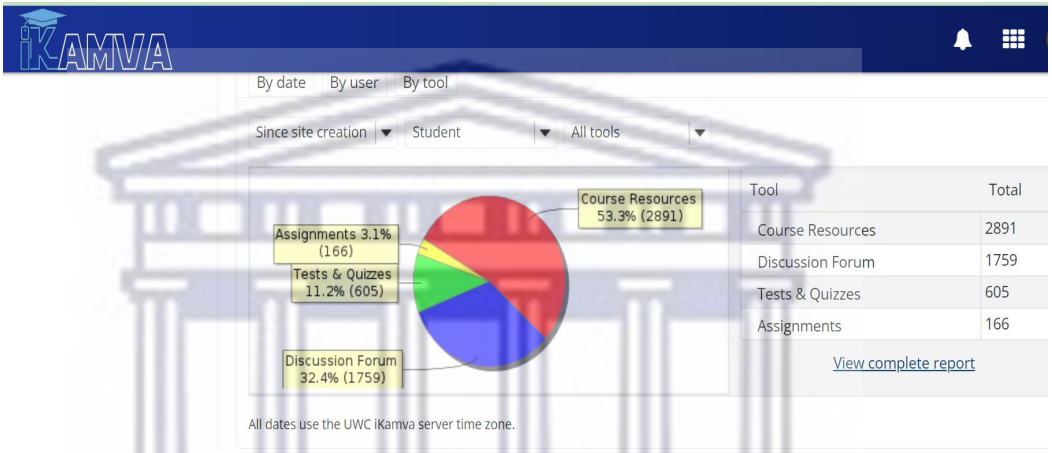

Fig 5.21 ELT 111: Most Accessed eTool by Students

SXL 101

The SXL 101 data collected via the *Statistics* eTool were used to generate the pie chart (Figure 5.22) below, which lists the events that students engaged in most for the isiXhosa (SXL 101) online module. The most accessed event was the viewing and opening of the learning content. The lecturer structured and shared the lecture slides with students on a weekly basis. The content was shared with students after their engagement in the face-to-face lectures. This learning content shared via the *Course Resources* was opened 5271 which constituted 76.6% of the overall access by the 123 registered students engaged in the module over a 28-week period as this was a year module. The second most accessed eTool by students was the *Lessons* eTool which was accessed 662 times and constituted 9.6% of the overall access in order to view the YouTube video clip to listen to the click sounds in the isiXhosa language. The third most accessed eTool was the Tests and Quizzes eTool at 608 times and constituted 8.8% of the overall access with the *Assignments* eTool in fourth place accessed at 168 times and constituted 2.4% of the overall access. The lecturer made use of the *Course Resources, Tests and Quizzes, Assignments* and *Lessons* eTools. Students

were required to submit their online assessments tasks via the *Tests and Quizzes* and *Assignment* eTools. This video was shared to reinforce learning activities of pronunciation and sounds of key words. The *Lessons* eTool was the second most frequented eTool after viewing the learning content files. Although the *Discussion Forum* and *Announcements* were enabled in the modules, they were not actively used for learning activities by the lecturer and were viewed less by students. The statistics reflected in the module show that students were actively engaged in the online environment which impacted student learning and independent learning.

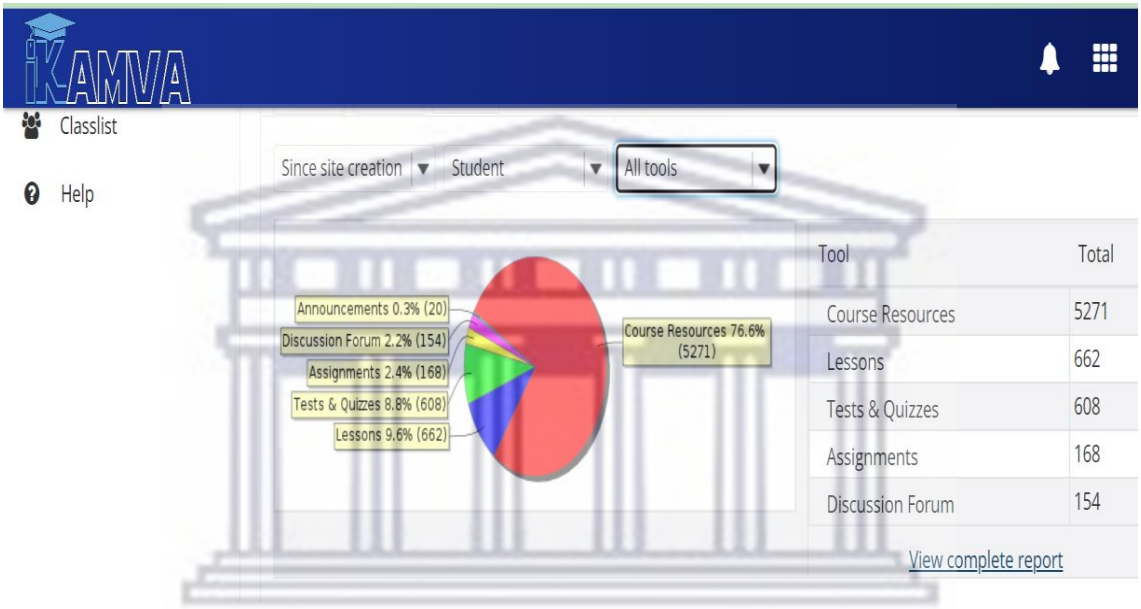

Fig 5.22 SXL 101: Most Accessed eTool by Students

FPM 111

The FPM 111 data collected via the *Statistics* eTool was used to generate the pie chart (Figure 4.23) below. The chart reflects that the learning content shared via the *Course Resources* eTool was opened 5145 times by 155 students enrolled in the module over a 14-week period. Thus, the pie chart (Figure 5.23) indicates how frequently the selected eTools were accessed, based on the activities created. Most students opened the learning content, which was shared in the *Course Resources* folder in the online module. The second most accessed eTool was the Web Content eTool which was accessed by students 514 times and constituted 8.8% of the overall access. The third most accessed eTool was the *Assignments* eTool 145 times and constituted 2.5% of the overall access. This means that the online module was most frequently accessed by students when learning materials were uploaded and shared by lecturers. The lecturer selected the *Announcements, Course Resources* and *Assignment* eTools in the FPM 111 module. The Foundation Phase Mathematics

module enabled students to submit an academic essay via the *Assignment* eTool. At the end of the semester the students were also required to complete an online evaluation, which was embedded in the Web Content tool. The evaluation focused on the value of the module, the lecturer and the learning content.

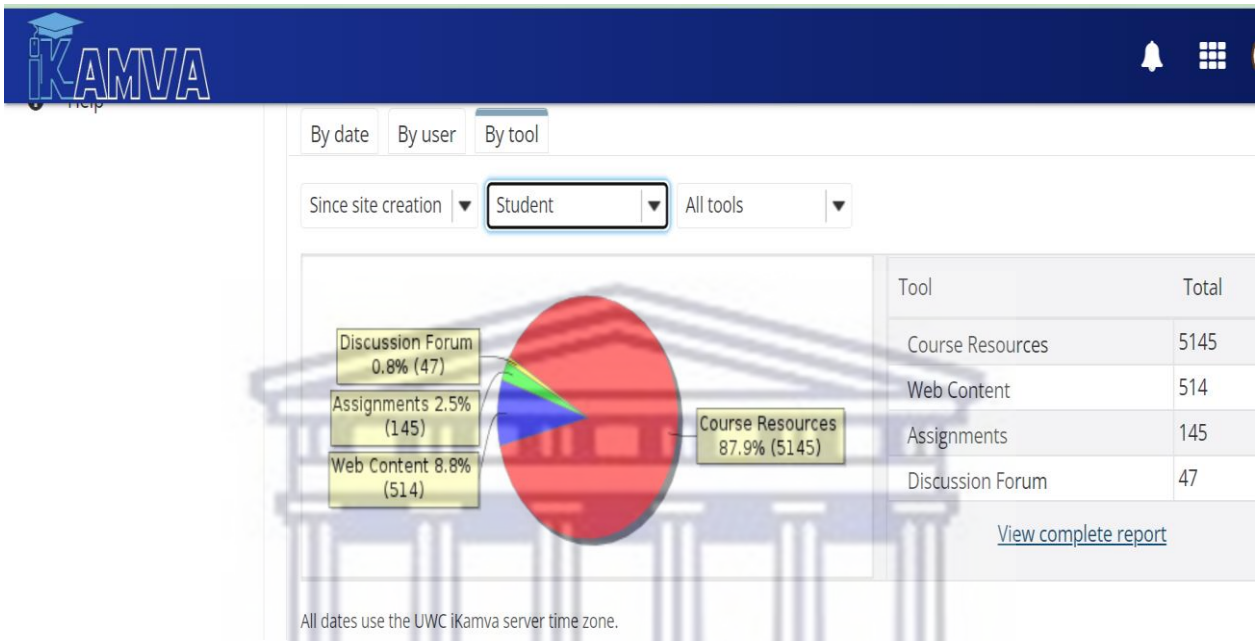

Fig 5.23 FPM 111: Most Accessed eTool by Students

5.8.1 Summary of the data retrieved

Sharing the learning content and activities in the online environments allowed students to access the structured blended learning content and assessment activities more frequently. This impacted student learning as they could view and engage with the learning material to reinforce their learning. Students were able to access the interactive online environments from any geographical location, where internet connectivity was available to further engage in discussions, submit online assessment tasks, view important announcements and learning material. The engagement throughout all three modules during the 2019 academic year, is reflective of students actively engaging in the structured blended learning activities to submit tasks and view relevant learning content.

5.9 Chapter Summary

This chapter focussed on the presentation of the data collected to answer the main research question, which explored the impact of blended learning on the BEd (FPT) programme, both strengths and

challenges. The data were collected through observations during face-to-face lectures and the online environments designed by lecturers within the institutional LMS, X. The collection of data were further enhanced by interviews with lecturers and the HODs. This was further corroborated by the student feedback obtained through an online questionnaire and a student-led focus group discussion. The qualitative data obtained were further supported with some supporting quantitative data in the form of the overall student pass-rates, along with access statistics drawn from the three online modules within the institutional LMS. The statistics indicate the most accessed eTools by students in the respective online environments. Based on the data presented, the use of blended learning approaches in the three modules has been widespread. Although positively received, many challenges still remain.

The next chapter will focus on the discussion and analysis of data collected.

Chapter 6: DATA ANALYSIS AND DISCUSSION

6.1 Introduction

This chapter analyses and further discusses the data presented in Chapter Five. The data analysis is guided by the main research question which seeks to explore the impact of blended learning approaches on first-year students in the BEd (FPT) programme.

This chapter also presents the discussion and analysis of the main themes which emanated from the data collected through mainly qualitative methods but with supporting quantitative data. The qualitative data collection constituted the face-to-face classroom observations; online environment observations, lecturer and HOD interviews, student online questionnaire and a student-led focus group discussion. The *Statistics* eTool was used to retrieve quantitative data in relation to student engagement. Moreover, the student results retrieved via the Marks Administration System (MAS) were also used as supporting quantitative data. As indicated earlier, Chapter Two, provided an overview of the relevant literature, as well as the theoretical framework used. This enabled the researcher to analyse the data from the perspective of how learning works. Various blended learning models namely the Shewhart's Cycle for Blended Learning, the Six Dimensions of Blended Learning, Gilly Salmon's Five-Stage Model, the Rotational Model of Staker & Horn and the Central role Teachers play in effective Blended Learning were discussed to underpin models for the effective implementation of blended learning approaches. These models were used to analyse and identify which models - and at which stages - the lecturers employed in the planning and design of their online modules within the BEd (FPT) programme.

The researcher embarked on a process of thematic analysis to identify and refine themes emanating from the qualitative and quantitative data. In this chapter, the researcher discusses the main themes in an attempt to answer the main research question and sub questions:

Main question

- What is the impact of blended learning on first-year students in the BEd (FPT) programme?

Sub-questions:

- What is the role of self-directed learning in the blended learning approach?

- Is there a focus on assessment within the blended learning approach?

6.2 Discussion and Interpretation of the Themes

At this stage of the study, it is critical to list the key themes that have emerged from the data collected. A number of themes and sub-themes were identified during the process of presenting the data, which included classroom observations, lecturer interviews, student questionnaires, focus group discussion, and observations of the online environments designed for each of the three modules on the institutional LMS, X and the analysis of student results. As the main research question focuses on the impact of blended learning on teaching, learning and assessment, the questions posed to both lecturers and students focused on the above.

There were three themes that emerged from the data. The first, and the most important one, is Learning Approaches, which can be sub-divided into the following activities:

1. Learning Approaches
    - Interactive Engagement
    - Effective use of eTools
    - Self-directed Learning
    - Group work
    - Peer- Learning

Themes 2 and 3 are necessary features that need to be in place for the learning approaches to be implemented for blended learning to function optimally. They are broken down as follows:

2. Extensive Planning & Preparation for large class teaching
    - The need for a structured and well-designed blended methodology
    - Effective learning spaces - both physical and online spaces of learning,

3. Need for ICT skills training and support
    - Need for ICT skills training and support for students
    - Need for ICT skills training and support for staff

The main themes are captured diagrammatically in Figure 6.1 below:

Fig 6.1 Discussion of Key Themes

As lecturers are subject matter experts and have academic freedom, the onus rests on them to choose a teaching framework to ensure that their course aims and objectives are reached.

The next section discusses the themes and sub-themes identified above. As indicated earlier, the most important theme to emerge was learning approaches.

6.2.1 THEME 1: Learning Approaches

Constructivist learning theory focuses on the interaction of students in learning activities, which is an important factor of learning, according to Heaslip, Donovan and Cullen (2014). Interactive learning and development are a social and collaborative activity that cannot be taught but rather enables students to critically engage their thinking on a specific matter (Powell & Kalina, 2009). Once learning activities are fun and students are immersed in their learning activities, they are learning without thinking about it too deeply and they are less anxious. Once students feel safe, they are able to learn better and are more receptive to new things. Constructivist learning theory focuses on the interaction of students in learning activities, which is an important factor of learning, according to Heaslip, Donovan and Cullen (2014).

6.2.1.1 Interactive Engagements: Across Modules

Social interaction in an online course should be considered as a pivotal element of learning according to Maeoff, (2003) as cited in Lebrun & Rice (2013). In the same vein, Gaillie (2005) as cited in Lebrun & Rice (2013) reports that increased social interaction is a significant factor which aids in student learning and retention. In addition, Gosmire, Morrison, & Van Osdel, (2009) suggest that students can be engaged more effectively during an online course, if lecturers make effective use of the LMS communication tools. The sections that follow illustrate, the way each of the lecturers used interactive engagements.

ELT 111

Lecturer Dr X implemented blended learning techniques in her teaching practice. The techniques included a flipped classroom approach, online tutorials via the *Discussion Forum,* face-to-face lectures, group work and individual activities which created opportunities for students to learn differently and engage with their peers as demonstrated in Chapter Five. As students were seated in groups, they engaged voluntarily with each other while completing their learning activities. The group assessment tasks also created opportunities for students to engage more freely and effectively with each other and the lecturer. The face-to-face lectures and online tutorials using the *Discussion forum* eTool within the structured online environment (X) enabled the researcher to observe the students' responses regarding the subject topics and how they could apply different learnings and experiences within both the physical and online learning environments. It also identified the thought processes the lecturer solicited to select an eTool and align it with a relevant assessment activity. According to Freeman and McKenzie (2002), it is up to academics to think, take control, and align the eTool use to their assessment approach and learning goals (Freeman & McKenzie, 2002). The lecturer was guided for assessment by the pedagogy in the selection of the appropriate eTools.

As the students could draw on their own experiences to answer the questions and talk about their learning, it aligns to the notions of both Chickering and Zelda (1987, p. 3) and Lujan and DiCarlo, (2006, p. 18) which state “Students must talk about what they are learning, write about it, relate it to past experiences, and apply it to their daily lives”.

SXL 101

Ms B (SXL 101) made use of blended learning techniques which included face-to-face lectures and tutorials and the use of various eTools in the online environment created within the institutional LMS, X. The lecturer created opportunities for students to be active participants within the classroom and to engage with both the lecturer and their peers regarding the course content. During one class lecture, the lecturer presented a YouTube video which depicted a Grade R classroom teacher conducting a lesson about storytelling. Once the students had watched the video during the lecture, the lecturer posed specific questions regarding the video. This teaching method was used to elicit student participation and by the end of the class the students were actively engaging and sharing their understanding of certain scenes the lecturer chose. The same technique was applied during the tutorial classes. Specific questions were posed related to the learning content, which encouraged students to share their answers. The students who answered questions were invited to the front of the class to write down their answers on the whiteboard. This created an interactive engagement between students, their peers and the lecturer. The method of teaching used by the lecturer promoted student interaction (Yang, 2012). Students were able to reflect on the video and their own understanding and answer specific questions posed by the lecturer. This method of interaction applied by the lecturer aligned with Lujan and Dicarlo (2006) who state that students should actively engage with the content to foster learning.

Ms B's teaching is not prescriptive and further showcases that students need to collaborate and work together and learn from each other in the learning and teaching process during the class. This notion is corroborated by Silberman (1996) who stresses, when students learn with others, they have the 'emotional and intellectual' support that allows them to surpass their current knowledge and skills and achieve their shared goals. Lujan and DiCarlo (2006) also state that students become more engaged in their learning when they discuss the materials with each other as this facilitates their understanding and encourages hard work. All of this is rooted in the graduate attribute (refer to Appendix 11: Graduate learning attributes at University X) which seeks to prepare and develop students as lifelong learners, where learning should enable collaborative engagement and make them learn both independently as well as in groups.

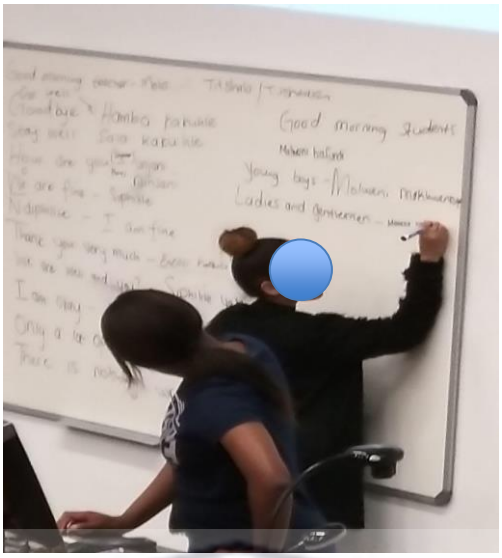

Fig 6.2 Student writing down her specific response on whiteboard

FPM 111

Dr Y (FPM 111) made use of different blended learning techniques in her teaching practice through conducting face-to-face lectures, tutorials, the use of eTools and different assessment activities students were required to submit. As stated in the previous chapter, the lecturer conducted her classes through sharing her own life experiences, sharing stories which identified a specific concept being taught, and then proceeding to pose questions. The blended techniques used during lectures encouraged students to ask more clarifying questions related to topics. The lecturer would either answer the questions or ask another question to make students think about their questions and what the potential answer might be. This required that students engaged in thinking about how they would solve problems presented; it also required students to actively participate and answer any questions the lecturer posed.

Discussion

It is important that lecturers carefully design learning and assessment activities that will encourage active student participation and which will support student development and learning (Mehall, 2020). An ‘effectively designed course’ provides an opportunity for students to ‘increasingly and spontaneously’ interact with each other within the course (Martin et al., 2010, p. 231). Hence, it is important that the different types of planned social interactions in the online environment occur in a focused way, if learning is to effectively occur.

According to Maeoff, (2003 as cited in Lebrun & Rice, 2013) social interaction in an online course is an important element of learning and Gaillie (2005 as cited in Lebrun & Rice, 2013) has reported that increased social interaction is a significant factor which aids in student learning and retention.

Designing learning and assessment activities that allow students to think critically about concepts, engage in discussion with their peers regarding these concepts and accept the guidance of their lecturers, will develop a graduate who can engage in lifelong learning. Mentz and van Zyl (2016) discuss the importance of developing pre-service teachers in South Africa into lifelong and self-directed learners. The use of blended learning activities in all three modules influenced students' development and their ability to engage effectively in the activities and learn new skills. Hence, the activities implemented within the respective modules are believed to have assisted students with the development of their own learning skills and to engage and interact effectively throughout the course of the programme.

Elements of the Sub-Model, namely the Flipped-Classroom by Staker and Horn (2011) referred to in Chapter Two was visible throughout this theme. As the students were required to engage in online discussion topics, Dr X (ELT 111) used a flipped-classroom approach for the online tutorial activity. Students were required to review the topic and construct their own contribution related to the topic. This flipped-classroom activity enabled students to prepare and plan outside of the classroom in order to actively engage in the online discussion forum, an activity that develops the student's confidence and motivation (Halili & Zainuddin, 2015).

The theme of interactive engagement aligns with the Five-Stage model designed by Gilly Salmon (2002), which is also referred to in Chapter Two. During Stages Two and Three (*Online Socialisation* and *Information Exchange*) the lecturers in the ELT 111, SXL 101 and FPM 111, used the online space to share the related expectations of the course and the course outline information regarding class lectures using the *Course Resources and Announcement* eTools. Lecturers created opportunities for students to engage in activities in which they could develop their own identities. As the students became familiar with each other, students forged a shared connection with their peers so that further information exchange could take place more easily, which aligns to Stage 3 of the model. Dr X who taught the ELT 111 module, created two online tutorials using the *Discussion forum* during which students were required to engage around the specific topics of play-based learning and how it impacts the teaching process. This student engagement created a space where

students shared their understanding of the topic and also commented on each other's work. This also aligned to Stage Four of Gilly Salmon's Five-Stage model.

This theme also agrees with Shewart's Cycle of a blended learning model (Serrano et al., (2019). During the application or applying stage of the Shewhart's model, the lecturer played an active role in determining the pace and the learning behaviour that is demonstrated in the online classroom. During this phase lecturers across all three modules (ELT 111, SXL101 and FPM 111) engaged in online activities that required the creation of an online environment with the correct blend of eTools and related assessment activities, which was spaced according to "time, people, place and resources" (Serrano et al., 2019, p. 276).

6.2.1.2 Effective Use of eTools within X- institutional Learning Management System

The common feature in all three modules is that an online presence was established in the institutional LMS, namely X. However, the level and degree of implementation of blended learning in the selected first-year modules differed. This is evident from the online teaching and assessment activities created within each online environment (as presented in Chapter Five). It should be noted that the level of implementation and development of the online environment, depends on the manner in which subject-matter experts are open to diversify their teaching practices.

Upon viewing and observing the modules on X, it was evident that each online environment differs in how it was designed and the selection and effective use of eTools. All three modules enabled the use of the *Announcements* and *Course Resources* eTools. These eTools were used to share important notices and announcements with students and tutors. The *Course Resources* eTool was used to structure and share important lecture slides, learning materials, homework and related articles with students. Students were able to access these important learning materials from any geographical location if they had a suitable device with internet connection and a browser.

ELT 111

Similar to the Foundation Phase Mathematics module, the English module also reflected that the most popular event viewed and opened by students was the learning content resources. The 82 students frequented the learning content 2891 times over the 14-week period. In contrast to the FPM

module, which shared all module content prior to students engaging in class, the lecturer varied the timing with regards to sharing the learning content. In some events the content was shared prior to engaging in the class so that students could prepare for the lecture and other times content was shared after the classes were conducted. Timing and structured release of content was critical for the lecturer and depended on the content which was dealt with during lectures. The method of when to share content was a decision made by the subject-matter expert. In contrast to the other two modules, the lecturer for the ELT 111 module selected the *Discussion forum* and made effective use of the eTool to conduct and replace a face-to-face lecture. It was also used to ensure a flipped classroom effect as students were required to read and prepare themselves prior to attending the lecture.

NOTE: Figure 5.21 is repeated to assist the reader to make sense of the data more easily.

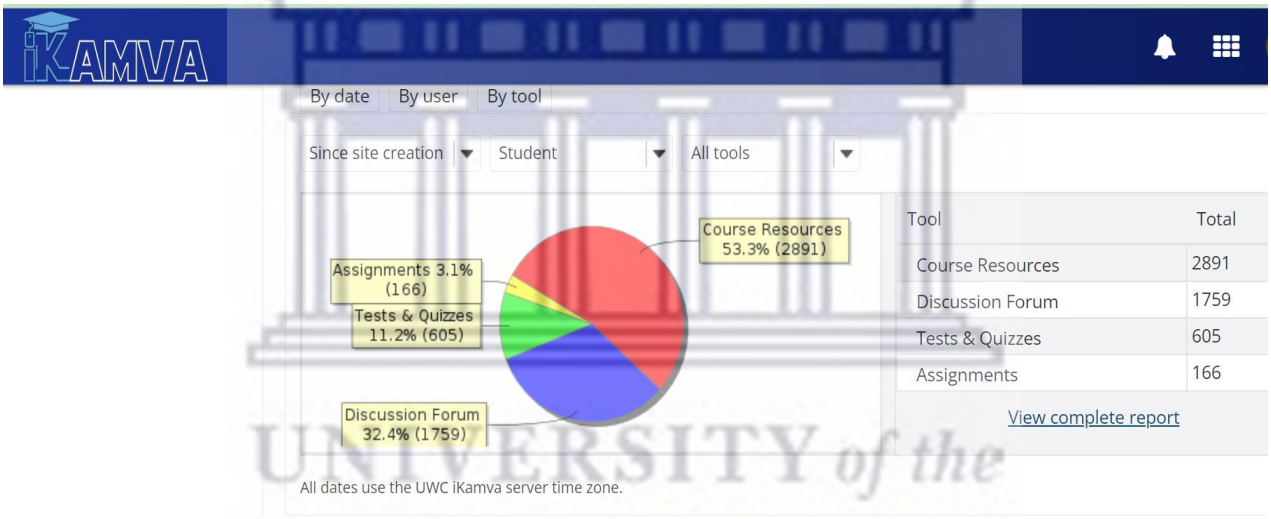

Fig 6.3 ELT 111-Most Accessed eTools by Student

SXL 101

The Pie chart below illustrates the events that students engaged in most in the isiXhosa (SXL 101) module. The most accessed event was the viewing and opening of the learning content. The lecturer and tutor structured and shared lecture slides with students on a weekly basis. The content was shared with students after their engagement in the face-to-face lectures. The content was opened 5271 times by the 123 registered students who engaged in the module over a 28-week period as this was a year module. Similar to the ELT module, the SXL module also made use of eAssessments activities and enabled the *Tests and Quizzes* and *Assignment* eTools for submission of assessment activities. Students frequented the Lessons eTool as well in order to view the YouTube video clip of click sounds in isiXhosa. The vide was shared to reinforce learning activities of pronunciation

and sounds of key words. The *Lessons* eTool was the second most frequented eTool after viewing the learning content files.

NOTE: Figure 5.22 is repeated, to assist the reader to make sense of the data more easily.

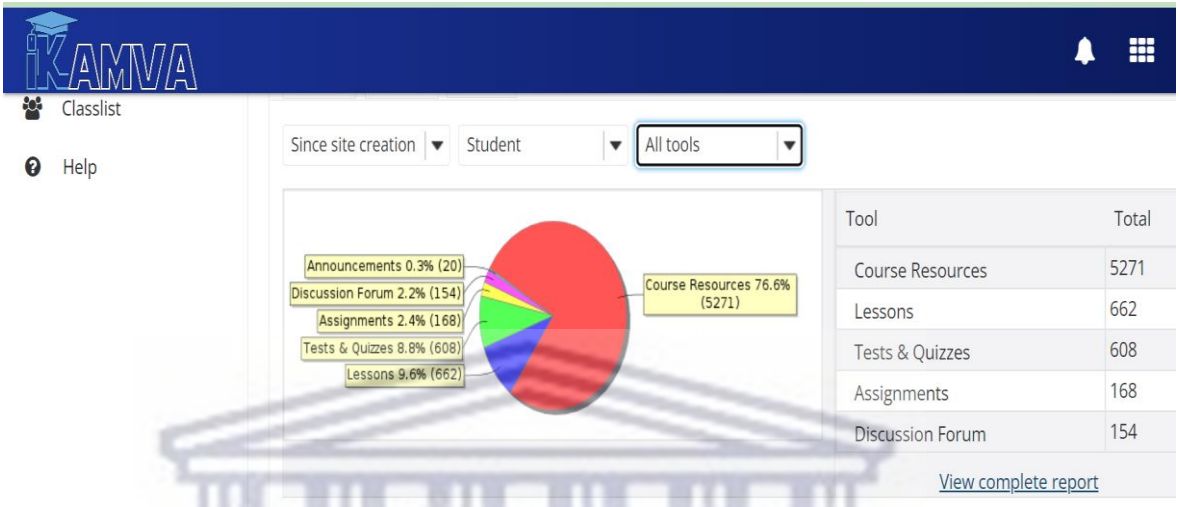

Fig 6.4 SXL 101- Most active eTools Accessed by Student

FPM 111

Most students opened the content files that were shared within the course resources folder of the module. This was the most popular event listed within the *Statistic*s eTool within X. This event is located within the *Course Resources* eTool. This indicates that students mostly accessed the online environments to retrieve their learning material shared by lecturers. Both the English (ELT 111) and isiXhosa (SXL 101) modules used a variety of eTools (See the respective pie charts), while the Mathematics (FPM 111) lecturer selected fewer eTools. It should be noted that the purpose and selection of eTools were carefully discussed with subject matter experts and enabled accordingly.

The Pie chart illustrates that students most frequently opened the course content. As the chart reflects, the content was opened 5145 times by the 155 students enrolled in the module over a 14-week (one semester) period. The Pie chart also illustrates how frequently the selected eTools were accessed, based on the activities created. The Foundation Phase Mathematics module enabled students to engage in a discussion forum and submit an academic assignment. At the end of the semester the students were also required to complete an online evaluation, which focused on the value of the module, the lecturer and the learning content.

NOTE: Figure 5.23 is repeated, so that the reader can make sense of the data more easily.

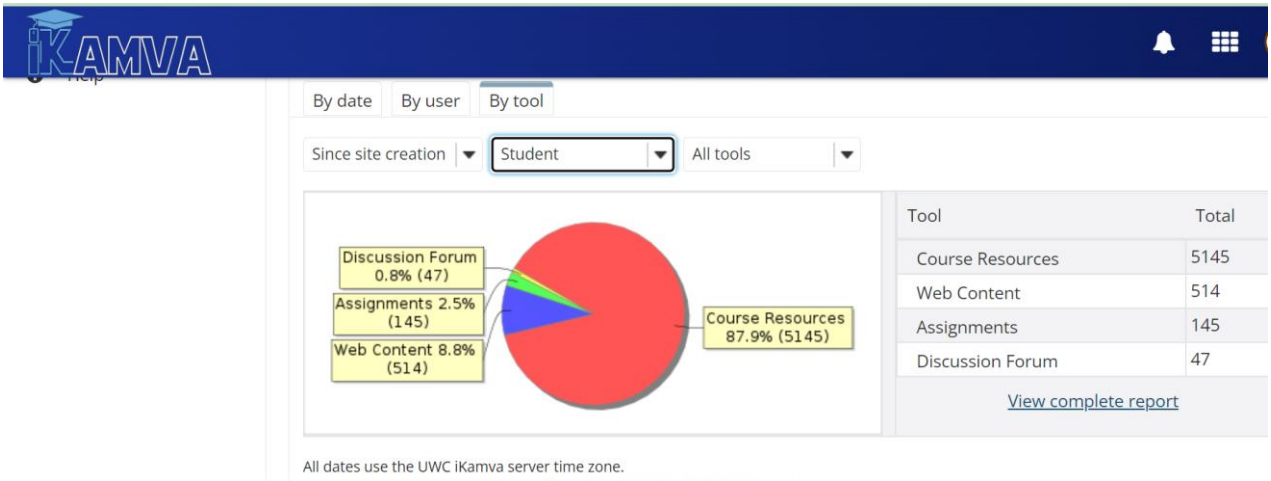

Fig 6.5 FPM 111-Most Active eTool Accessed by Students

Discussion

Based on the analysis of the effective use of the institutional LMS, X, the biggest similarity observed is that all three modules had an online environment and presence within the institutional system for the benefit of supplementing teaching and learning. Another similarity is that the students most frequently accessed the learning content that lecturers had shared. The online environments were used most effectively by students to access learning content and lecturers used it in an elementary fashion for structuring and distributing most of the learning content.

In contrast to both the Mathematics and isiXhosa modules, the English lecturer selected the use of the *Discussion Forum* tool, which required students to share their knowledge and understanding of play-based learning within the curriculum. All these methods mentioned used blended learning techniques and different eTools for teaching and learning practices. The use of these eTools yielded both advantages and challenges.

The major difference observed is that each subject-matter expert/lecturer had a different way of using the system, in addition to the main purpose of structuring and sharing learning content. Each lecturer developed different learning activities, that required students to use different eTools to engage with the online environment. Hence, students were familiarised with the various eTools listed on the X system. The Mathematics lecturer (Dr Y) selected the *Assignment* eTool for students to submit an academic essay. This assignment was linked to Turnitin (Tii), an anti-plagiarism detection system, which is also integrated in the *Assignment* eTool on X.

In contrast with the Mathematics module, in the isiXhosa module, the lecturer used the *Lessons* eTool to structure and share related video content to reinforce learning of the additional language. It was challenging for all lecturers and some students as the teaching methods they used and the eTools required a familiarisation which they did not have at the outset of the course. Students were not familiar with the use of X as they were first-year students engaged in the first semester of their academic studies. It required the lecturers to make use of the academic professional support team, UIECT, to assist and guide students during a short lecture demonstration. According to Stoltenkamp et al. (2005), it is imperative that lecturers prepare in advance for the inclusion of eTools in their online teaching. Some lecturers in the BEd (FPT) programme prepared in advance and students were introduced to the LMS during their orientation sessions. Hence, introducing and demonstrating the use of the various eTools during a classroom lecture assisted their understanding of what was required of them. Some advantages included a familiarisation with the online environment and students were able to ask relevant questions to aid in their understanding.

This theme aligns with Stage One of Salmon's Five-Stage model which refers to access and motivation. It is during this stage that Salmon (2004, p. 31) indicates that users need "information and technical support to get online, and strong motivation and encouragement to put in the necessary time and effort." This promotes the importance of essential training with the use of the LMS for both lecturers and students. During this stage lecturers and students need to gain access and become familiar with the eTools selected. As noted, lecturers in the BEd (FPT) programme applied this first stage of the model in their online module, by contacting UIECT to provide training for themselves and for their students.

The process of planning also aligns with Shewhart's Cycle of Blended Learning. Lecturers were able to select the eTools based on their knowledge and information they have acquired during their years of experience as lecturers as well as during consultation and conceptualisation sessions with UIECT Team. These sessions were facilitated with lecturers and Instructional Designers at the institution during training sessions and one-on-one consultations. The lecturers also shared clear guidelines and instructions to familiarise students with what was expected within the modules. During this stage students were also required to share more about themselves and why they chose to engage in the BEd (FPT) programme. This corroborates with the design and application phases of Shewhart's cycle for a blended learning model.

6.2.1.3 What is the Role of Self-Directed Learning within a Blended Learning Approach?

The above sub-question, is one that needs to be discussed as it is an important aspect and objective of this research study. Self-directed learning was discussed in Chapter Four as a key aspect within the research study and has emanated as a theme on its own.

ELT 111

It should be noted that some ELT 111 lectures were not conducted, due to venue constraints. The lecturer would secure a flat venue within the Faculty on a weekly basis. When this particular venue was not available, students were provided with clear instructions and time to engage in specific topics and planned activities through self-directed means. These activities required students to read an article and share their understanding via the *Discussion Forum.* Students were also instructed to prepare and plan group task activities prior to attending class lectures. Hence, students could direct their own time and plan how they would contribute to specific tasks and dedicate the amount of time they would spend on an activity. These students were provided with time to prepare for the various group and individual tasks and assessments during the semester. The lecturer (Dr X) shared learning material and requested students to plan and prepare both independently and with their peers for various class activities. This blended learning approach created a flexibility which allowed students more control of their learning process "according to time, place, path and pace" ensuring opportunities for increased interaction between lecturers and students during face-to-face sessions (Dakhi et al., 2020, p. 52). This enabled a flipped-classroom approach as students were able to prepare outside of class and be more interactive while engaged in the face-to-face classroom activities.

SXL 101

Lecturer, Ms. B indicated that her teaching and assessment activities were designed to develop students both as independent learners, as well as students who can effectively work within groups. Individual accountability was required when students created a video recording of themselves demonstrating the click sounds- 'C', 'Q' & 'X'. Students made use of their mobile phones and some recorded each other. They had to record the different click sounds and explain how the sound is made. They also had to pronounce words which contained these clicks. Evidence of group work,

entailed creation of a digital story focusing on a theme they would teach within the Grade R class. The students could make use of relevant pictures, type text and record themselves reading sentences or phrases. This activity also enabled the lecturer to listen to pronunciation and typing and spelling of the isiXhosa words. This method of assessment also assisted the lecturer to assess the level of competency and understanding of the isiXhosa language by the students.

Aligned to the question of assessment methods and its use to develop students' independent learning, lecturer Ms. A (SXL 101), further indicated that the individual click video assignment enabled students to work independently and take initiative. The lecturer also indicated that the students' learning was assisted through the use of blended learning techniques.

The video assessment was designed for students to record themselves whilst explaining the different click sounds. This required students to think about the phrases or text they wanted to use as they explained the different click sounds. In addition to creating their own videos and sharing with the lecturer, they created a learning and teaching resource which could be used as a teaching aid as well when they went out to teach at schools. This gave them the opportunity to see the affordance of the assessment activity as a teaching aid. It also enabled the lecturer to gain an understanding of the students' learning through video assessment.

FPM 111

During the face-to-face FPM lectures conducted by Dr Y, the lecturer referred to creating a 'safe learning environment' for her students where they felt at ease to ask questions and engage within the class. According to Maulana, Helms-Lorenz and Van de Grift (2017) the level of engagement by students is closely linked to how the class environment is managed by the lecturer. Creating a safe learning environment with clear guidance and instructions can foster better student engagement. Throughout the observation sessions, the researcher could see that students felt safe to ask questions, to clarify their understanding and others felt free to suggest ideas for problems that emerged from scenarios discussed in class. While the lecturer introduced a group task in the class, students were comfortable to ask clarifying questions regarding the activity, to which the lecturer responded immediately. During the process of explaining long division calculations, various students raised their hands to ask the lecturer to repeat a specific step or to clarify a step. This reflected that students were confident to ask questions and to ensure that they understood the work. Hence the students were actively participating in the class by asking questions and clarifying their understanding for

their own learning. This aligns with the notion of self-directed learning where students take responsibility for their own understanding. It aligns with Lujan and DiCarlo's thinking (2005) who argue that lecturers should incorporate activities which actively include students in the learning process.

Discussion

Students engaged in problem-solving discussions to combat certain uneasy situations in a class without even realising it. When lecturers create an interactive classroom, it paves the way for students to become more collaborative and lecturers become learning guides who are able to organise and encourage the learning process, which allows students to engage more actively in learning activities (Yan, 2019). As students become more actively engaged, they can take on characteristics of self-directed learners who are able to identify learning needs, take responsibility for their own learning and take initiative to solve problems (Guglielmino, 1978). The assessment tasks given to students were both group work and individual tasks. However, the group tasks forced students to collaborate and work with each other and deal with diversity. As time passed, students were becoming more familiar with each other and they would volunteer to engage in group tasks. During group tasks students had to work together and each student's contribution was important and they were encouraged to engage and present their contribution. This created a space for students to build confidence and come up with solutions on their own. The lecturer noted the interpersonal communication that transpired between students. She could also identify the intra-personal communications (student internal thinking and learning) during the student group engagements. This created an internal discussion where the students discussed ideas with themselves in order to come up with a solution or idea. As the lecturer created a flexible environment for students to engage actively, it created a space for students to take initiative and build the confidence to plan, prepare and execute solutions for specific problems. The lecturer stated that she needs to bond with the students in terms of the activities and also build relationships of trust. Mcleod et al. (2003, p. 63) have noted that "modelling the behaviour we expect of our students is a powerful strategy of instruction and creates relationships of trust and care".

An individual assignment was assigned to all the students which required them to write an academic essay focusing on the topic, 'Play' and its importance in the Foundation Phase. Clear guidelines were provided to the students bearing in mind that this would be the first academic essay that the FPM 111 students were required to submit at university level. The assignment guidelines were set

up within *Assignments* eTool within X and students could visit it as many times as possible. Students were required to research academic articles to write their first essay. It should be noted that not all students were proficient in basic computer skills. As the lecturer was cognisant of this, the individual academic writing assignment was only introduced during the second term of the academic year, providing the students a window period in which they could acquire the necessary ICT skills.

These ICT skills included, search and source relevant peer-reviewed articles on the specific topic, typing assignments using WORD, copying and pasting text, working between multiple browsers and making use of the APA referencing techniques for their academic essay. Hence the librarian was included to offer a skills training session. Students needed to sign-up for a session to learn basic research skills required to complete their academic essay assignment. The students engaged in a practical research skills workshop in order to complete their assignment. The assignment was submitted online via the *Assignments* eTool in X which was also automatically linked to Turnitin (Tii). These activities prepared the students on the specific skills they required to complete their first essay assignment. The lecturer also indicated that one chapter she taught, was also available as an eBook. The Librarian taught the students the skills in order to download the eBook and print it, prior to attending the class. Hence, students could prepare prior to attending the class by reading the downloaded chapter.

During the teaching of this Mathematics module, there were a range of concepts and skills that students were taught. According to the lecturer, a lot of tacit knowledge goes into teaching the module. The infusion of technology, awareness of the environment and lifelong learning skills were interwoven within this module, according to the lecturer's response during the interview. This was corroborated by the observations made by the researcher. Lecturer Dr Y stated that these skills contributed to their self-directed learning as well. Students were also required to make use of Turnitin (Tii) to ensure that their academic writing was referenced correctly and abided with the rules of the institution. This was another skill that students could apply to their learning in other modules and throughout their academic journey. This learning activity was designed to assist with the development of students' academic writing, as well as enabling them to become self-directed learners. While students were taught the specific skills, they also had to apply them to their writing task to achieve a good final outcome. As this was an individual task, they needed to take initiative and apply their research skills to search for relevant articles to write their academic piece. Hence, they needed to work independently, manage their time and reflect their own learning and interpretation of the topic. These blended learning techniques the lecturer implemented prepared

students to engage in the various self-directed learning activities to ensure that they complete their individual task and submit it on time.

Shewhart's Cycle (Serrano et al., 2019) highlights the evaluating phase that is aligned to the theme of self-directed learning. During this phase lecturers determined where students had gained a level of competence and developed themselves as independent self-directed learners. A scaffolded design was used to verify student's level of achievement at different stages of their learning. Students' competence was identified by the lecturers through the activities students completed and the related results of assessment they obtained. Students' overall assessment results and pass-rate achieved at the end of all three modules, was also a method for lecturers to evaluate whether their design of learning activities had been effective.

Elements of Stage Four and Five of the Five-Stage model were also visible in these activities implemented throughout the BEd (FPT) programme. During Stage Four, lecturers of ELT 111, SXL 101 and FPM 111 provided students with manageable learning activities that they were required to complete and submit either online or during the face-to-face classroom. Although the five-stage model refers mainly to the online environment, it should be noted that this study focused on a blended learning approach, which is a combination of the face-to-face and online activities. Lecturers used a scaffolded approach to structure the learning and assessment activities within the face-to-face classroom and the online environments. Lecturers guided the students during face-to-face classroom sessions in relation to group work and individual activities as discussed in the sections for ELT 111, SXL 101 and FPM 111. The *Discussion Forum* activity of ELT 111, the creation of the Click video of SXL 101, and the academic writing essay of FPM 111 all relate to the development of students' knowledge structure and their development as independent self-directed learners.

6.2.1.4 Learning Styles: Making Use of different Technologies to continue Teaching, Learning and Assessment Practices

Based on the responses to the questionnaire, most students indicated that they learn through a combination of activities, which include lecture notes, readings, videos, audio recordings and through practical hands-on experiences and demonstrations. These responses indicate that the use and implementation of blended learning has an impact on student learning and development. It also demonstrates that the use and implementation of multimodal approaches affects students' learning

ability and their level of retaining information. The methods introduced also note that students all learn through different methods and styles, hence the listening, movement (kinaesthetic) and visual type of learning styles are stimulated when blended learning techniques are implemented. According to Little (2013), lecturers engaging in online facilitation and designing blended learning activities should pursue effective instructional strategies that are compatible with students' learning styles, especially based on student diversity. Real and immediate learning and assessment requirements can be addressed through designing teaching activities that are collaborative in nature and which also include the different learning styles of students and or participants (Gilbert, 2001). This refers to both the students in the BEd (FPT) programme as well as other participants, who could be the lecturers who engage in a workshop to develop blended learning and assessment activities.

ELT 111

Based on the observations conducted the lecturer prepared learning and teaching activities focusing on different ways to stimulate the learning process. Audio and visual components were included in both the lecture presentations and the learning activities introduced to students. Students were required to engage in the *Discussion Forums* eTool on the LMS to showcase their understanding of play-based learning in the Foundation Phase for Grade R learners specifically. During this activity they were able to think about and formulate a response. Through reading their peer's responses they could gain further understanding. Lecturers and students also used YouTube, PowerPoint presentations during face-to-face lectures.

SXL 101

During the face-to-face class, the lecturer made use of the physical whiteboard mounted against the wall and used whiteboard markers to write down, discuss and identify nouns. Responses by students within the online questionnaire showed, more than 50% of the respondents indicated that they learned best through watching others demonstrate. Hence the lecturer was able to engage the students through posing specific questions related to the topic of nouns. Students were able to apply their cognitive skills by translating, identifying and discussing nouns. Students also engaged in audio-visual activities, like the creation of a digital story to create a lesson plan.

FPM 111

During the observations, it was noted that at the start of each lecture, the lecturer would either start the class with a question, asking students to think and then answer, or an activity would be introduced and which required a group of students to join the lecturer at the front of the class to engage in an activity which the rest of the class could watch. The activities caused students to think and demonstrate how they could potentially solve a problem.

Discussion

The lecturers responsible for the three modules have made use of an array of eTools to enhance and deliver their teaching. This also alludes to the fact that students all learn differently. Hence, the need to introduce different methods of teaching to accommodate different learners in a setting is seen as important. According to a study conducted by Willingham, Hughes and Dobolyi (2015), it was found that there are differences in how people learn, but also that one person's preferred learning style might differ in different subject to subject and situations. However, learning style theories also indicate that a person can remain a visual learner, regardless of the experience or situation. Whether this is true or not is not the focus of this study, but rather how the different emerging technologies can assist students' learning and also transform the teaching and learning process. The way blended learning has been used in the transformation of teaching-and-learning interactions in a highly diverse and resource-scarce Higher Education context, is an important aspect of this study. Blended learning should be viewed as an opportunity to redesign the way in which a course is designed and delivered in the higher education setting.

Learning styles are important as children in the Foundation Phase learn differently (Willingham, Hughes & Dobolyi, 2015). Play-based learning is most effective to develop learner growth and needs to be incorporated into the learning and teaching plans more. This is what is promoted through the CAPS Curriculum and the integration of technology and blended learning needs to be incorporated into the curriculum and highlighted in the learning spaces of the Foundation Phase Curriculum. Guild (2001) states that new evidence emerges continuously to support the notion that not all learners and students learn in the same way. Subban (2006) has indicated that education in the 4th Industrial Revolution has been influenced by several renowned theorists, who have investigated the different methods learners use to interpret their learning (Brooks, 2004; Davis, Sumara, & Luce-Kapler, 2000). Hence different learning styles influence how instructional practices are designed to elicit deeper student engagement and learning.

Based on the observations conducted during lectures, all three modules used an array of blended learning techniques. Although various eTools and technologies have been implemented, these are introduced in a limited manner, partly due to the extensive time it requires from lecturers to design where and how these technologies are included. It could also be linked to the lecturer's lack of knowledge of the appropriate eTools and the knowledge of using the specific technologies. This is a gap that could potentially be closed through consultation with teaching-and-learning specialists in the faculty in collaboration with niche area instructional design experts and related audio-visual and multimedia aids. Hence, the redesign of student-centred learning approaches requires an integrated collaborative partnership with various stakeholders.

It is expected that students will not have access to these technologies in the schools where they will teach, as most communities and public schools are not equipped with the latest technologies. As Demiray (2010) says developing countries do not have technological resources, and this is one of the key reasons for the slow pace of equipping public schools with computer laboratories and Internet access. Moreover, the effective use of these eTools is a further stumbling block for many African developing economies. However, this is not the attitude that should be driving the decision-making processes at university level. Graduates should be exposed to technologies so that they will be agents of change in the schools and communities which they will serve. Gachago et al. (2013) through a study conducted as part of a larger project, found that the use of emerging technologies is the domain of a few individuals who have the impulse to innovate, and that they might be intrinsically motivated by their own passion for the use of technology. Though this might have been true in 2013, it should be noted that the educational landscape at University X has changed dramatically with the active awareness campaign conducted by the UIECT. This notion of the university in the digital age has been a key aspect of the institutional operating plan for 2016-2020 and 2020-2025. The impact of the #FeesMustFall movement during 2015 and especially 2016 propelled the transformation of teaching practices in the institution. Many academics who had not engaged in the use of blended learning previously, were forced to continue with the academic year. In doing so, lecturers had to introduce and make use of emerging technologies, even in their most elementary form, to ensure they were able to reach their student populations. Similarly, with the onslaught of the COVID 19 pandemic during the 2020 academic year, the same, if not a higher level of transformative teaching practice was experienced. In addition, academics also have a social responsibility towards their students to prepare them for the world of work and for their students to make a positive contribution and bring positive change to the society and communities they will serve.

This type of technology also establishes that students learn differently and that their learning styles are linked to the method of teaching. Most learning styles described in Chapter Four were accommodated through teaching practices used. Visual, kinaesthetic and auditory learners were stimulated and accommodated in the teaching processes. The blended method of teaching used also highlights the importance of the institution's graduate attributes, which include lifelong learning, the infusion of technology and contributing effectively to social skills and the knowledge economy.

This theme can also be aligned to the model "Teachers play a central role in Blended Learning" referred to in Chapter Two, Figure 2.9. Teachers play a central role in designing student-centred activities which can be used to further elicit student engagement. As activities were designed in a manner that addressed the different learning styles of students enrolled in the BEd (FPT) programme. All lecturers across the three modules (ELT 111, SXL 101 and FPM 111) carefully planned, developed and implemented the learning activities for students. The learning activities which students were required to complete assessed their visual, auditory and kinaesthetic styles of learning. The discussion activity introduced in the ELT 111 module, assessed students understanding of the learning content. Using the whiteboard in the classroom and engaging students through question and answers enabled students to apply their cognitive skills in identifying, translating and discussing the topic of nouns. In the FPM 111 module, the lecturer engaged students through different modes as they had to solve math problems. This required students to make use of their listening and reasoning skills to solve the problems. Hence, the lecturer played a central role in designing activities to appeal to students' different learning styles.

6.2.1.5 Group Work: Planning in Alignment to Outcomes of the Activities

Students were introduced to and were required to engage in group work throughout all three modules. Hence students were encouraged to engage with their peers in order to complete group assignments. Clare (2015) states that there has been a change from individual competencies to group competencies. This shift has also been adopted in learning institutions and the workplace where more value is placed on how individuals work independently, and as part of a team or group. Group work and team building are instrumental in the learning environment in the 21st century and in the new world of work. Clare (2015) distinguishes between collaborative and cooperative learning, but highlights that both approaches focus on peers working together to develop their academic and social skills. The purpose of both approaches is to provide students with meaningful opportunities to engage with each other in order for learning to be effective. Collaborative learning can include

various learning activities where a group of students work together to gain an understanding of a common project. They work collaboratively to solve a problem and explore a topic.

ELT 111

The lecturer arranged several group work activities which enabled students to interact with each other. This was also a method to prepare students for their future group assessments. Students were divided into groups and each group had to prepare a fun lesson at the start of each class. Each group was assigned an opportunity to prepare a fun activity at the start of each class. A group work assessment was also designed which required students to prepare a lesson around play-based learning.

SXL 101

For the group assignment, the students were expected to create a digital story focusing on a theme they would teach within the Grade R class. The students could make use of relevant pictures, type the text and record themselves while reading sentences or phrases. This activity also enabled the lecturer to listen to pronunciation as well as typing and spelling of isiXhosa words. During her interview, Ms A stressed that students come to the classroom with their own unique skill set and perspectives based on their backgrounds. Both lecturers agreed that students should be given the opportunity to build and develop their existing knowledge in more depth through different learning activities. This gives the learning and their perception about learning a more nuanced effect.

FPM 111

Dr Y confirmed that her teaching philosophy is rooted within the social constructivist paradigm. She believes that students learn through engaging and doing activities- and that they learn from their peers. This is affirmed by the statement made by Dr Y… "social constructivism, you learn from everyone else. Learners do not come as empty vessels, they all bring their own knowledge and experience. I will always group students and they are not allowed to choose their groups". Assigning members to groups, enables the lecturer to group students together that may otherwise not be keen to work together. Dr Y stated that "Groups are put together through a number system and diverse students are in a group together and each one brings their own unique skills." Students engaged in

a group activity had to decide what technology they would use in their classroom teaching of the Foundation Phase learners.

Discussion

Group work was a continuous method of interaction between students engaged in the three modules. Lecturers used different methods to assign students to groups. While students were engaged in group work, they were responsible to work together as a group. However, in order to work as a collective, they also needed to prepare themselves individually to contribute meaningfully to the collective. Group members needed to engage in activities both in and out of the classroom. This also required students to work with their peers and learn from each other, hence learning in a cooperative manner.

Cooperative learning depends on the interaction and individual cooperation of each team member to actively engage and share their knowledge. Through social and peer interaction they learn to achieve their academic goals which are clearly stipulated from the onset. According to Johnson and Johnson (2013), cooperative learning occurs when small groups work together to accomplish a common goal and each group member can develop their own learning. This learning process is active and forces students to build and develop their knowledge and gain a better understanding through an independent process which allows the learners to learn and develop strategies to construct their own learning (Tan et al., 2007; Mentz & van Zyl, 2016). Both approaches redefine the traditional student-teacher approach as they are drawn into doing activities together. Both Cooperative and Collaborative learning is set to have been founded on Socrates' belief that working together is more effective than attending a lecture. Passive listening is not always an effective method for teaching all students (Clare, 2015).

Social interaction in an online course should be considered a pivotal element of learning according to Maeoff (2003) as cited in Lebrun & Rice, 2013). In the same vein, Gaillie (20050 as cited in Lebrun & Rice, 2013) has reported that increased social interaction is a significant factor which aids in student learning and retention. In addition, Gosmire, Morrison, & Van Osdel, (2009) suggest that students can be engaged more effectively during an online course, if lecturers were to make effective use of the LMS communication tools.

Designing learning activities which required groupwork to ensure the student development and engagement took place involved extensive planning on the part of the lecturers engaged in the BEd (FPT) programme. Working together in groups and learning from each other created a sense of community which is a goal reached through Stage Three and Four of the Five-Stage model of Gilly Salmon. While observing group tasks across the three modules the researcher was able to note that the students in the BEd (FPT) programme were able to share and exchange information regarding the tasks and the understanding of the tasks. Furthermore, the researcher observed how SXL 101 students were able to discuss the group task to create a digital story related to a specific theme. The creation of the digital story required basic scriptwriting and sourcing of images, combining them in a specific order and synchronising audio, transitions between images and more editing. The process of combining and submitting the final product included a collaborative process that became complex in nature. This aligns to Stage Four of the Gilly Salmon model whereby students were able to engage in more complex activities and collaborate more frequently.

6.2.1.6 Peer- Learning

In the cooperative learning setting, students become more engaged in learning by discussing material with their peers, facilitating understanding and encouraging one another to work hard. In addition, cooperative learning has positive effects on race relations, self-esteem, and a willingness to cooperate in other settings (Slavin, 1983). Furthermore, the implementation of peer modelling also assists students to develop positive perceptions and experiences of their face-to-face and online activities. Thus, students could illustrate how they learn by being shown positive approaches and online learning (Han et al., 2020).

ELT 111

Throughout the ELT 111 module the lecturer encouraged student interaction and engagement with each other and the lecturer (Maulana, Helms-Lorenz & Van de Grift, 2017; Heaslip et al., 2014). The continuous communication and interaction between the lecturer and students further enhanced the collaboration and learning that took place. Maulana, Helms-Lorenz and Van de Grift (2017) stress that students' level of engagement is closely linked to the manner in which a class environment is managed by the lecturer to create a safe learning environment, and the clarity with which instructions are shared with the class. The teaching and assessment activities included

problem-solving, interaction between peers, and the use of information to construct new knowledge (Henrie, Halverson & Graham, 2015).

SXL 101

In the module, SXL 101, the use of multimedia assessment activities encouraged students to create audio-visual assessment tasks and to submit them via the Assignments eTool on the online environment, X. As students were required to create a digital story and also record a video lesson, as part of their assessment activities, students were encouraged to learn more about the appropriate technologies. This also encouraged collaboration among peers who could learn from each other as one of the multimedia assessments was a group task. The use of these blended learning assessments forced all students to explore the audio-visual technology required and acquire more skills.

FPM 111

The FPM 111 students were tasked to think about the type of technology they could implement in their Grade R classroom. Students were divided into groups and tasked to prepare in groups and present to the class. This activity required students to share their own ideas and learn from each other regarding the effective use of technology in the classroom. They then needed to decide as a collective which idea would be shared with the broader class. Further peer engagement was established as the lecturer asked students to discuss a certain learning task. Students were asked to connect with the person next to them and discuss the various ways they could calculate a problem to get to the number 21.

Discussion

The inclusion of these blended learning activities encouraged student engagement with their peers and new technologies. This relates to Vygotsky's (1962) theory of social constructivism, where learning is seen as a social activity, which also includes the critical thinking process of the student or individual. Social Constructivism focuses on the importance of social interaction among students for their learning to be enhanced.

Islam et al. (2022) suggest a model to enable better student-teacher interaction in blended learning environments. This model uses 3 stages that includes (i) online-peer group comments during face-to-face sessions, (ii) synchronous off-campus interactions during students' personal study time, and

(iii) off-campus asynchronous modes of interactions which enable flexible group work learning. In the study conducted by Islam et al. (2022) students were actively engaged in discussions with their peers and provided contributions that enabled better understanding of the task. Students proceeded to share examples which clarified a specific issue and offered further support to their peers. The design of this task enabled peer-to-peer interaction in a constructive manner and assisted with the development of knowledge construction. As students were engaged in this activity, it also enabled the relationship between the teacher and the students to improve, because the teacher intervened to provide relevant feedback at opportune intervals (Islam et al., 2022).

The ELT 111 students were required to discuss the topic of play-based learning using the Discussion Forum in the LMS. They were then required to reply to each other's contributions. This peer-learning activity aligns to Stages Four and Five of the Five-Stage Model of Salmon (2002). Through this interactive peer-learning activity, students were encouraged and demonstrated the value of diverse/ multiple perspectives when working together. In addition, these students were able to identify learning goals they wanted to achieve and develop their learning more accurately. Furthermore, lecturers across all three modules (ELT 111, SXL 101 and FPM111) encouraged students to reflect on their own learning, what they had learnt and how they had engaged in the learning process. Students also reflected on their own learning as a result of learning from their peers. This process led students to develop as independent learners which moved them to Stage Five of Salmon's Five-Stage model. The overall pass rate in each module reflects the learning that took place across the ELT 111, SXL 101 and FPM 111 modules.

6.2.2 THEME 2: Extensive Planning & Preparation for Large Class Teaching

A key theme that emerged from the data presentation as indicated in Chapter Five, emphasised in all three modules (ELT 111, SXL 101, FPM 111), was the need for extensive planning and preparation on the part of the lecturer. The class sizes ranged between 82-155 in the English, isiXhosa and Mathematics models. While observing the classes, the researcher saw that the lecturers engaged in extensive planning and preparation prior to conducting their lessons in both the face-to-face classes and online activities.

ELT 111

A key theme which was observed during the ELT 111 modules was that the lecturer engaged in extensive planning and preparation of the learning activities and the learning spaces for effective

teaching and learning. Effective classroom management and planning of teaching activities aligned to outcomes was an important factor that contributed to the mutual respect that was evident throughout the classroom and online observations. Student collaboration and engagement were promoted among peers as students were required to engage in group tasks to discuss topics and complete learning activities. The students were engaged in a variety of blended learning and teaching activities which were visible through the face-to-face class engagements and the online group task submission. The online tutorial discussions and tests were conducted via the *Discussion forum* and the *Tests and Quizzes* eTools respectively. These blended learning activities were used to assess the students' understanding of the curriculum for Foundation Phase learners at schools. Students were also required to complete individual assignments which required them to apply their own understanding of the content taught and prompted application of the subject and content.

SXL 101

A key theme which has been identified throughout the initial reflections can be emphasised as the need for adequate preparation and planning of some of the technology driven activities. Although planning was evident throughout this module, a lack of adequate preparation and planning of a specific technology driven activity was missing. During the SXL lecture, students were introduced to the digital storytelling assessment activity. Although the lecturer might have planned to include and introduce the digital storytelling assessment exercise, there was no mention of this in the module course outline. This caught the students by surprise which evoked a lot of questions, and frustration for some as the ICT requirements were an added skill the students were required to achieve. The planning did not include the arrangement of adequate training and support prior to students starting and completing this technology-rich assessment activity. Subsequent to the lecture session, the lecturer proceeded to contact the UIECT team to arrange for student training to familiarise them with the required software tools to create their digital story. The digital fluency and readiness of all students to engage in this specific digital assessment activity was assumed which caused panic and in some cases frustration. This confirmed the need for adequate planning and preparation for specific learning and assessment tasks and the support and training for the students regarding specific skills. It also indicated the need for continuous Information and Communication Technology (ICT) skills training and support for staff and students to be able to adequately engage in blended learning and teaching. According to Junus et al. (2021, p. 140) the inclusion of blended learning requires in some instances a “radical change by lecturers and students regarding communication style, summative assessments and content delivery”. According to

Mcleod, Fisher and Hoover (2003) lecturers need to be cognisant of the time students are given to complete and prepare tasks. Hence, the lecturers should allow adequate time for completion of the assessment activities and ensure that students are supported with the necessary skills training based on their needs.

Students were required to engage in many of face-to-face and online activities that required technical skills and familiarity with various software applications, platforms and eTools. Key themes observed during face-to-face class observations and the online environment activities were that the students engaged in a variety of blended learning and teaching activities which included individual assessments and a group assessment task. Students were required to complete a digital story assessment activity and to engage in an online assessment via *Tests and Quizzes* on X. Students also engaged in individual activities which illustrated aspects of self-directed learning and individual accountability. The student assisted the lecturer with some technical difficulty experienced and this reflected the student's ability to troubleshoot and identify problems. It also illustrated their willingness to assist as they were prepared to help the lecturer. Planning the learning and assessment activities for both the face-to-face and online activities is an important aspect which the lecturer had to prepare for in advance.

FPM 111

The key themes identified throughout the face-to-face and online observations were that planning and preparation were important aspects for the lecturer. Effective classroom management was established at the start as clear guidelines, mutual respect and shared rules were agreed on by the lecturer and students. This created a positive trust relationship between the lecturer and students and also increased the interactive engagement and disciplined students. The lecturer included blended face-to-face teaching and learning techniques in the classroom, and that prompted students to engage in class activities without hesitation. The learning content which was mostly presented via the FPM Workbook was not just content passively delivered to the students, instead it was made to 'come alive' through the lecturer's portrayal of her own learning experiences. Students who did not attend the class, missed-out on pivotal learning experiences. Students completed an individual essay writing task which was submitted online, as well as group tasks which were done in the face-to-face classroom. These activities are evidence of a blended learning approach implemented in the teaching practices of the FPM module.

Discussion

Lecturers responsible for the three modules, engaged in extensive planning and preparation activities to conduct their lessons. The lecturers prepared their lesson presentations, assessment activities, identified classroom resources and multimedia components. This was mentioned in their course outlines which were shared with students at the start of their respective modules. As part of the extensive planning, lecturers had to engage in careful selection of various eTools in alignment within their online environments and related activities. These eTools were selected in alignment with their learning outcomes, assessment and content. To ensure that students were able to achieve their intended learning outcomes successfully, the educational activities and resources needed to be aligned with the intended learning outcomes of a learning module (Crespo et al., 2010). This notion is further supported through the term 'constructive alignment' which Biggs (2003) highlights as the learning environment the teacher sets up to support the learning activities appropriate to achieving the desired learning outcomes.

This was done, as some students might have needed more time to book a computer in order to complete their studies as they had to work within the constraints of adequate ICT resources. Some students come from poor communities and did not readily have access to their mobile and laptop devices of their own to complete their activities at home. Thus, the students' different educational backgrounds and access to resources was overcome.

Authors Lynch and Baker (2005, pp. 146-147) propose a form of schooling that respects and includes all students by creating multiple opportunities for teachers and students to experience diverse perspectives and people on a daily basis. In an attempt to ensure that social justice is aligned to the just distribution and redistribution of resources, Rawls' (2001, p. 42) first principle of justice states that each person should have the same, constant right to a "fully adequate scheme of equal basic liberties". The second principle of justice states that because "[no] one chooses to be born into a disadvantaged social group, or with natural disabilities no person should be negatively impacted by those disadvantageous circumstances" (Kymlicka, 1989, p.186). Hence, the second principle restricts the level of inequality possible in society (Brighouse, 2004) and the fight for resources. The two guiding principles aligned to social justice need to ensure an educational system wherein all students are "provided an education that builds their autonomy", which allows them to participate as equal citizens and learners within the education system (Reich, 2002, p. 8). Although the lecturer did not explicitly mention the just distribution of ICT resources for all students involved

in the programme, it is evident that she considered this when she designed the delivery method of her content.

It should be noted that lecturers across all three modules were required to plan extensively to ensure that students are able to effectively engage in all the learning activities. Lecturers carefully planned and made provision to integrate ICT skills training sessions in their modules. The inclusion of training sessions prepared students to gain the necessary skills to complete their tasks. Hence lecturers designed and evaluated the usefulness of completed tasks to improve their delivery, based on student results. Student results also indicated whether they had understood and completed the tasks effectively. These phases that lecturers engaged in, included all five steps of Shewhart's Cycle of Blended Learning. According to Serrano et al. (2019, p. 276) a "great deal of planning and forethought" is required when lecturers decide to integrate blended learning approaches in their modules.

6.2.2.1 The Need for Structured and Well-designed Blended Environments

Dam (2014) believes that the only way to develop students' linguistic and communicative proficiency is to involve their ability to reflect on and engage in their own experiences and understanding of a language. In order to ensure that students are able to reflect and engage, it is important for lecturers to create a structured environment that allows this engagement. Hence, both face-to-face and online lectures and activities should be designed to lead students to gain the necessary confidence to acquire knowledge and be able to reflect on it.

Research on a Foundation Phase Education Programme found that there were few learning activities that actually showed that pre-service teachers had been exposed to application tasks that made "visible both the conceptual object of study and the practice-based context" (Christiansen, et al., 2018 p. 524). Tasks that have not clearly defined the conceptual object will not enable students to develop a methodical way of thinking about their teaching practices. The authors argue that these kinds of tasks allow pre-service teachers to move quickly towards application before developing a "deep understanding of the concept" (Christiansen et al., 2018, p. 524) and how it aligns to other concepts. Hence, class activities should be developed to ensure pre-service teachers are able to reflect deeply and build on concepts to design learning activities that are meaningful. Furthermore, the researchers emphasise that this will result in pre-service teachers making minor changes to their practices without considering the relationship between "content knowledge, learners and the

teachers themselves". Han et al. (2020) emphasise the importance of a student "self-report questionnaire" at the early stages of a blended course, in order to determine student needs and perceptions, their approaches to understanding and learning; and how they "move between face-to-face and online learning". In turn, the teachers and curriculum designers will be able to align learning activities and assessments according to the students' reflections and experiences.

ELT 111

The ELT 111 lecturer (Dr X) conducted structured lessons about play-based learning and the benefits it has for Foundation Phase learners. After this step, students were required to share their understanding of play-based learning through structured lectures. This allowed students to reflect on their learning and then share it via the Discussion Forum on the online environment. A clear rubric was also provided which helped the students in terms of the outcomes and guidelines. The rubric document was attached to the assignment which was set up in the Assignment eTool. As the lecturer modelled the behaviour through posting her discussion first, students began to share their reflections as well. It was observed that the level of interaction with the lecturer was informal, and students valued the lecturer's interaction and corrective feedback on this individual task and subsequent group tasks. The behaviour of the lecturer during class, the students and the peer interaction emphasised that teaching is a social process, which includes the input and mediation of both expert lecturers, peers, tutors, mentors and teachers (Kemmis, 2011; Fitzmaurice, 2010). Learning how to teach effectively is a social process that requires lecturers to model the behaviour they wish to instil in the student teachers. According to Maulana, Helms-Lorenz and Van de Grift (2017) lecturers need to illustrate their lecturing style and model the teaching strategies to help students attain the learning outcomes and become effective teachers.

SXL 101

SXL 101 lecturers proceeded to engage students by posing certain questions and introducing mechanisms of assessment that would enable students to become more interactive. As students started to interact with the lecturer in answering certain questions and questioning the lecturer regarding certain learning and assessment activities, they became involved in their own learning process. Vercellotti (2018, p. 198) states that "with interactive active learning, students make contributions to their learning dialogue, such as challenging an answer, offering a solution, or incorporating feedback". This process allowed students to become more vocal and comfortable in

class to share more of their own learning experiences, hence they became more interactive and this allowed the lecturer to assess their level of understanding. This also enabled the lecturer to provide meaningful feedback to students by posing questions, which assisted the students' learning. According to Goodwin and Miller (2013) the student-centred approach enables lecturers to provide more feedback to students, and this in turn could assist with their learning and help to erase any misconceptions.

FPM 111

The FPM 111 lecturer started off some of her lectures by asking students to think and reflect on topics such as 'the use of technology within Foundation Phase Mathematics' and 'How to introduce learning through play'. The students spent time during the lecture sharing their ideas which created a platform for sharing. This method of teaching encouraged the active participation of the students within the class and set the tone for the rest of the lecture. Lujan and DiCarlo (2006, p. 18) believe that '… students must talk about what they are learning, write about it, relate it to past experiences, and apply it to their daily lives', a view shared by Chickering and Zelda (1987). During this process of class engagements, students were more adept in engaging in discussions, sharing their ideas, and answering questions.

Discussion

Students require clear guidelines and structure during both face-to-face and online environments. At the start of each lecture, the lecturers Dr X (ELT 111) and Dr Y (FPM 111) provided a clear outline of the topic of the lecture. Dr Y (FPM 111) shared the Course outline at the start of the module and informed students of what is required of them. The lecturer discussed the Course outline and introduction to the module. Furthermore, the lecturer also discussed the course content and the assessment activities, which related to weightings of assessment activities, engagement, and marks.

Dr X (ELT 111) shared the Course outline with students via the Announcements eTool on X, prior to meeting the students in the first class. Ms B (SXL 101) shared the Course outline with students through an incremental step-by-step process and three weeks into the module the revised Course outline was shared via the Course Resources eTool on X.

According to Hattie (2009), learning intentions of any assessment activity need to be clearly communicated to students before they engage in the activity. This assists students to plan and prepare their activities through a step-by-step guide.

This theme aligns to Salmon's Five Stage model. Salmon (2002) states that at the start of a course students should be guided through the steps of access and motivation as illustrated in the Five-Stage Model at Stage One. An inviting environment should be created with clear guidelines on what students are expected to do in both the face-to-face and the online environment (Salmon, 2002). All lecturers across the three modules attempted to do this by sharing clear guidelines and outlines of their courses, as well as what was expected of their students at the start of the modules. A scaffolded approach was followed within the SXL 101 module which guided the students on what was required for their learning.

Lecturers across the three modules valued the interaction in the face-to-face and online environments. Reflection as a method of evaluating the learning and teaching process was a key component for the lecturer in the FPM 111 module. Dr Y (FPM 111) continuously reminded students that they needed to reflect on the reasons for introducing certain activities and to revisit the learning outcomes in order to ensure that the learning and assessment activities they introduced were valuable for learners.

"In reflective learning environments, the production of the learning process is not centralised by the teacher's role anymore, and learning is focused on the multidisciplinary nature of problems, on reflective process and peer assessment, on the development of interpersonal and communicative skills, on the process of acquiring knowledge and not only on the expected outcomes." (Boud, 1985 in Bruno & Dell'Aversana, 2018, p. 346).

This quote summarises what the lecturer, Dr Y, (FPM 111) continuously reminded the students of during the class lectures. Her teaching practice was student-centred with a focus on the active and reflective engagement of students where the lecturer fulfilled the role of a facilitator and coach, instead of lecturing (Deboer, 2002). However, although activities were designed to promote student engagement, the lecturer still played a central role as they needed to have acquired a "deep understanding of the concept" (Christiansen et al., 2018, p. 524) and how it links with other concepts to design learning activities that promote student engagement and deep understanding.

The model proposed by Minhas et al. (2021) identifying the central role of the teacher in the implementation of effective blended learning is also further aligned to this theme. It emphasises the important role of the teacher to select and design both the face-to-face and online activities to ensure that a well-designed module is developed and that students are able to engage and complete their

tasks. Lecturers across all three modules (ELT 111, SXL 101 & FPM 111) designed and facilitated face-to-face lecture sessions which identified specific topics and activities clearly.

6.2.2.2 Effective Learning Spaces both Physical and Online Spaces of Learning

The Covid-19 national lockdown compelled educators to search for learning and teaching spaces and times that were possible anywhere and at any time. It forced them to change their actions across industries and it changed the way they saw where and how learning and teaching could take place. During the observations conducted in all three modules it was evident that the physical learning spaces dedicated for teaching and learning were challenging. The lecture halls lent themselves to a more one-directional kind of teaching approach. The focus was more on lecturers who tend to lecture and share information with students and who are seen as the sole providers of information. These kinds of lecture venues do not enable peer-to-peer interaction. Students tend to be quieter and listen to what is being shared so that they can take notes. The teaching style of the lecturer and the lecture venue emphasise the benefits and challenges of blended learning.

Physical learning spaces on campus are varied where some lend themselves to lecturing, others are good for convening small class tutorial discussions, while others are more suitable for group and peer learning. Creating an effective learning space for teaching and learning to take place is important in any teaching situation. A physical space needs to be developed to meet students' learning needs in this regard and to develop 21st century learners in a globalising world. In the 4th Industrial Revolution, lecturers and students are not confined to physical learning spaces only. The increased use of blended learning provides access to interactive online learning spaces which can be used effectively.

ELT 111

Dr X (ELT 111) was able to move between the students who were seated at square tables in their groups engaging in student-led discussions about learning activities. This moved the focus away from the lecturer as the "sage on the stage" and assisted the lecturer to engage, facilitate and listen to student group discussions and contribute where she saw it necessary. The lecturer also designed an online environment which allowed students and the lecturer to engage effectively in learning activities, complete online assessment activities and view important communication and distribute learning resources with students. Hence the physical face-to-face classroom was supplemented with an interactive online environment on the LMS.

SXL 101

Ms B (SXL 101) could move between the students while she was busy with teaching in the prefab lab venue. The tables were spaced out and allowed her to talk to the students and check their work and answer any questions they may have regarding the topic. However, on Friday mornings- the theatre setup restricted movement and the lecturer opted to address students from the lecture podium. However, during some lectures, students were called or volunteered to approach the front and assisted the lecturer with facilitation activities. Besides the physical face-to-face classroom, the lecturer created an online environment on the institutional LMS. The online environment was used to share related course information via the Course Resources and assessments activities were submitted by students. Students also engaged in a quiz which was setup via the Test and Quizzes eTool.

FPM 111

Dr Y (FPM 111) could not move away from the physical lecture theatre. However, in an attempt to engage the entire class, the lecturer moved around in the lecture venue and as she facilitated, asked questions and kept students engaged during activities. An assessment activity was designed which required students to write an academic essay, which they submitted via the online environment on the LMS. The learning content was also distributed via the online environment which required students to engage with content via the online space.

Discussion

Both the English and Mathematics lecturers were affected by the venues that were allocated for their lectures. The Mathematics lecturer emphasised the challenge brought about by the venue, but realised that there was little room for change as there were 155 students in the class. However, she indicated that more in-depth hands-on interaction could take place in the smaller tutorial classes as the classes were smaller and the tutorial rooms were more practical for peer engagement.

Although a lecture hall was allocated for the English module, the lecturer had indicated to the students that the space was not adequate for their teaching needs. The lecturer informed the students that they needed a flat venue in order to engage in the presentations, student group activities and to make it more effective for peer-to-peer class engagement. This was one resource that she was not willing to relinquish and proceeded to find alternative venues. She managed to negotiate a different venue for the lectures. The lecturer proceeded to organise a suitable venue each week and

communicated this information to the class on a weekly basis through the X *Announcement* eTool. Square tables were organised and structured into little groups which allowed students to all be seated facing the whiteboard. This learning space was suitable for the needs of two assessment activities, which included group presentations and the preparation of a group learning activity. Negotiating for different learning spaces was a key challenge experienced, as the venue which was allocated to them did not lend itself to the type of learning and teaching the lecturer had in mind.

It should be noted that the traditional lecture room design is based on the mediaeval university layout. In an attempt to develop a different perspective of the educational environment, a new classroom design, namely the Active Learning Classroom (ALC) was established at SoongSil University in Korea. Beichner and Saul (2003, p. 1) engaged in the SCALE-UP Project which produced a "…highly collaborative, hands-on, computer-rich, interactive learning environment" specifically for large undergraduate classes at university level. What is known as the SCALE-UP Project has considerably increased hands-on activities during class time, simulations, and debating interesting questions, as well as hypothesis-driven labs (Beichner & Saul, 2003). Beichner and Saul (2003) claim that the active learning classroom increased the ability of students to solve problems, their conceptual understanding increased, attitudes toward their engagement and subject improved, failure rates were drastically reduced (especially for women and minorities), and performance in follow-up physics and engineering classes was positively impacted.

The SCALE-UP, also known as the studio/workshop classes, involves the entire class. This class is taught in the same venue with the same students and instructors in each class. All activities, including laboratory experiments, can be arranged to build on one another in sequence for greater learning impact than when some activities are taught in smaller tutorial sessions, which run parallel to the lecture course. Another advantage of the studio format class style is that lecturers can freely circulate and interact with any group at any time. However, the interactive class dynamic would still allow students to 'hide' from lecturers. Considerable amount of research has been conducted to find the best method to engage peer-to-peer interaction. Beichner and Saul (2003) found that the round table design, much the same as that of a restaurant, was the best option to enforce and facilitate interactive peer-to-peer interaction and learning. Although large tables were preferred, it hindered deep interaction between all members of the groups. If the aim is to develop a student with a deeper understanding of any given concept or task, then the students need to be actively involved. This means students need to engage in the messy business of experiential learning. During a hands-on interactive class, they would be able to engage in an experiment, dealing with concepts and debating

their understanding. Real active knowledge is built by engaging with the problem and trying to solve it in a real-world scenario. Simulated environments could assist with this problem.

John Henry Newman as far back as 1852 wrote that true learning "*consists, not merely in the passive reception into the mind of a number of ideas hitherto unknown to it, but in the mind's energetic and simultaneous action upon and towards and among those new idea*s" (John Henry Newman, 1852 - 'The idea of a University').

However, the implementation of blended learning techniques, enabled the learning spaces to move beyond the parameters of the physical classrooms. Lecturers were able to create an online learning space, which enabled students to engage in learning activities and communicate with their peers and lecturers beyond the boundaries and borders of physical environments. Digital technologies and learning environments transformed the "time for learning, now learning is all the time" Pinto et al. (2020, p. 344). The fact that students are now able to sit in an uber and be engaged in an online discussion or tutorial confirms the statement of Pinto et al. (2020). Students and lecturers are not confined to a geographical location for learning and teaching to take place.

In order to address this challenge, the ELT lecturer created an online communication space by making use of the *Discussion Forum* eTool. This eTool enabled students and lecturers to engage and communicate with each other within the online environment. The lecturer created topics for discussion, which required students to engage with their peers and lecturer. This asynchronous communication tool enabled students to read the discussion topic, think about their response and construct and share within the discussion forum. This task enabled students to learn and engage in the discussion from their own geographical location and at different times. This further enabled blended learning, as students were not confined to a venue. This also led to self-directed learning, which is a prominent theme that was identified earlier in the chapter as students are able to learn individually and develop as self-directed learners. Lecturers Ms B (SXL) and Dr Y (FPM) did not include the discussion of topics via the online *Discussion Forum* in their online environments. However, both the SXL and FPM lecturers included methods to engage students more actively in discussions in the face-to-face classroom. Posing specific questions to students encouraged them to actively engage by answering questions and posing clarifying questions to the lecturers as well.

The *Six Dimensions of Blended Learning* model addressed by Saboowala and Mishra (2021) is evident in this theme. As the BEd (FPT) lecturers were able to engage in both the physical and

online spaces and create learning activities for student engagement, it reflected the readiness of lecturers to create "flexible learning, online learning, the use of technology, classroom learning, online interaction and study management" which are the six factors that influence the readiness of lecturers and in-service teachers (Saboowala & Mishra, 2021, p. 19). The lecturers across all three modules engaged in eTools workshops and consultations facilitated by UIECT to assist with their readiness to implement their blended learning approaches. As lecturers were able to implement these blended learning approaches, they also modelled the behaviour for their students engaged in the BEd (FPT) programme to be prepared, and assisted in their readiness to implement blended learning approaches in their classrooms.

6.2.3 THEME 3: Need for ICT Skills Training and Support

6.2.3.1 Need for ICT Skills Training and Support for Students

In the era of the 4th Industrial Revolution, it has become the norm for students to be equipped with the basic Information and Communication Technologies (ICT) skills throughout their university career. The required skills include to 'navigate the internet and conduct academic searches via search engines' (Leonard et al., 2016). Throughout the three modules observed, it was clear that lecturers expected the students to complete various types of academic assessments, which included typed academic assignments, search for reviewed articles via the library's databases and the submission of various multimedia assessment tasks. These tasks, which included PowerPoint presentations, digital stories and video recordings via the LMS, email and Google Applications.

ELT 111

During observations of both the face-to-face classroom sessions and the online environment the researcher noted the different tasks and assessment activities students were required to complete. Students were expected to submit their first assignment, a children's story, via X. They had to write a children's story in the form of a book, inserting animated images representing key patterns. A clear rubric was provided which guided the students in terms of the outcomes and guidelines. Students submitted their completed assignment using the *Assignment* eTool. The assignment was linked to Turnitin. This enabled students to view the similarity index. This assisted students to ensure that they had referenced the correct publications. The last assessment required students to

create a video assessment of their micro teaching efforts within the classroom. All these assessment activities expected students to be computer literate.

SXL 101

A demonstration of the digital storytelling technology introduced students to new technology that they were not familiar with. Students were taught how to use the specific software to create their groupwork assignment, namely a digital story. The ICT skills obtained were evident in the digital stories that student groups submitted. Students were able to source and add different images, add transitions to the images, add text and audio clips, add background audio and export the digital story as a complete video. The completed digital story was submitted via the *Assignments* eTool on X. These learning and assessment activities that were introduced as part of the teaching practice, afforded students the opportunity to work collaboratively and develop their ICT skills.

FPM 111

Students were required to write an academic essay and submit via the *Assignment* eTool within X. Prior to completing this assignment, the lecturer had liaised with the Library Support staff to conduct a training session with students on how to search for peer-reviewed articles and use the correct referencing techniques to write their essay. This enabled students to become familiar with the relevant research techniques to complete their assignment.

Discussion

These assessment tasks students completed required requisite ICT skills. As the FPM 111 module was offered during the first semester, the FPM lecturer prepared in advance by requesting students to receive appropriate ICT skills training, which assisted students to complete their first assignment task. However, this preparation did not translate into the SXL 101 module. The digital fluency and readiness of all students to engage in a specific digital assessment activity was assumed by the SXL lecturer, which caused panic and in some cases frustration for students. No planning and preparation were done to arrange suitable training and support for students prior to the roll-out of the module in the first semester to equip them with the necessary ICT skills to create their own digital stories.

This confirmed the need for adequate support and training for the students with regard to specific skills and software. It also highlighted the need for continuous ICT skills training and support for students to be able to adequately engage in the blended learning and teaching activities included

within the modules. Authors Leonard, Mokwele, Siebrits and Stoltenkamp (2016) suggest that ICT support is crucial as many students and staff are not comfortable with ICTs when entering the university. Based on a study conducted at University X, authors Leonard, Mokwele, Siebrits, and Stoltenkamp's (2016) findings proved that there was a need to train and support students on the basic digital literacy skills needed at university level through specific support programmes such as the one offered by the Digital Academic Literacy (DAL) Programme.

This theme aligns with Shewhart's Cycle for Blended Learning (Serrano et al., 2019). The model outlines the process flow as it relates to planning because lecturers needed to carefully plan how to integrate ICT skills training into their modules. A key aspect of student development was the incorporation of relevant ICT skills training sessions into the learning programmes. These ICT sessions were designed to assist students to complete specific learning tasks related to the subject-matter or modules. This theme also aligns with Stage One of Gilly Salmon's Five-Stage Model which promotes the inclusion of adequate skills training in order to build students' confidence regarding the use of the technologies. In addition, it is important to ensure that the LMS is adequately supported to ensure effective implementation.

6.2.3.2 Need for ICT Skills Training and Support for Staff

The readiness of lecturers to engage in the design and development of a well-structured online environment is an important theme that emerged from the research study. Through this study it has emerged that a need exists for lecturers and staff to be supported through training and support of various ICT skills to conduct their daily teaching activities. As mentioned, all three lecturers engaged in extensive preparation and planning activities prior to starting their modules. They had attended various workshops offered by the professional Unit for Innovative Education and Communication Technologies (UIECT). These included preparatory workshops to assist with the creation of their respective online environments within the institutional LMS X, the selection of content creation, communication and assessment eTools. These were followed up with individual consultations to assist in a more customised manner. However, during the observations it was noted that lecturers lacked some ICT skills in relation to accessing, navigating and displaying content via classroom equipment. These ICT skills entail the use of audio and visual effects, and troubleshooting when making use of classroom technologies (in face-to-face lectures).

The lecturer made use of the audio-visual equipment to display her lecture presentations during the face-to-face classes. She also used various eTools in her online environment to distribute lecture content, setup assessment tasks and enable student engagement. The lecturer also prepared herself by participating in workshops which focussed on the various eTools and Assessment workshops offered by the UIECT Team.

SXL 101

A challenge was presented when an online test was created using the Tests and Quizzes eTool in the SXL 101 online environment. The students engaged in an online test which focused on multiple choice, true and false as well as 'fill in the missing answer' for certain questions. The test was set up in two parts; with part one focusing on the translation of terms to isiXhosa and part two of the test focused on the translation of full sentences from English to isiXhosa. The set-up of the test questions was created incorrectly and students could see the 'correct answers' to the questions. This became apparent only when the students were engaged in the test. This invalidated the second part of the test and influenced the marks. However, the first part of the test was automatically marked by the system and the marks obtained were still valid. The second part of the test where students had to write out the complete sentences still needed to be marked by the tutor and lecturer. This emphasises that there was a need for adequate training and support for the lecturers to ensure they are familiar with the eTools prior to releasing assessments to students.

A second observation indicated that the lecturer was unable to present the lecture due to technical difficulty. The lecturer used this as a teaching and learning opportunity by asking for assistance from the class. A student voluntarily moved to the facilitator's PC and proceeded to troubleshoot and assist the lecturer. This act on the part of the student reflects her taking initiative to assist and get involved in the teaching and learning process and reflects a self-directed learner. The researcher also noted that the interaction between the lecturer, tutors and students was more relaxed, students felt comfortable to learn as well as ask questions. The lecturer encouraged this interaction and also included the students in the whole process of learning and teaching collaboratively. Hence an environment of supportive learning was created amongst the lecturers and students.

The challenge which was experienced was turned into a helpful teaching moment. Authors Mentz and van Zyl (2016) state that well-prepared teachers are in the perfect position to help students develop as critical thinkers, self-directed and lifelong learners. Based on the situation that

transpired, the reverse could be stated as true as well. Prospective teachers can help and support the lecturer which creates a mutual learning situation.

FPM 111

The lecturer did not include any of the online test methods and cited her unfamiliarity with the online assessment options on the LMS, as her reason for not doing so. Hence, the lecturer would have benefitted from more training sessions to familiarise herself with the assessment eTools within the LMS. However, the activities that the lecturer selected to include were carefully planned and thought through in order to ensure that students could apply the skills. During the face-to-face classroom lectures, various technology was used which included the use of the desktop computer, the document camera, PowerPoint presentations and YouTube videos.

Discussion

Lecturers require training with regards to various platforms in order to engage effectively in online platforms and technologies to support the use of blended learning approaches. The use of various ICT packages, LMS, Turnitin [Tii], Library research database, Marks Administration System (MAS) within the university context is important. It is important to note that "changing the learning model requires preparation" according to Widodo et al. (2020, p. 149). This also confirmed the importance of the readiness of both students and lecturers to effectively engage in these blended learning activities that the lecturer implemented in the curriculum. Jayadiningrat, Tika and Yuliani, (2017) in Widodo et al. (2020, p. 151) state that "learning readiness influences learning outcomes."

During the observations the digital fluency of the lecturer was observed and questioned by some students. This highlighted the need for lecturing staff to engage in continuous lifelong learning and basic ICT skill training to stay abreast of technologies to enhance their teaching practice. If [students] have the attitude, abilities, and personality traits required for self-directed learning, they are more likely to take advantage of the affordances of ICTs for SDL." (Sumuer, 2018, p. 31).
According to Kreber and Kanuka (2006) it is of critical importance to provide support and professional development opportunities to assist lecturers to engage in 'pedagogical problem solving' when they implement new technologies within their disciplines. While Sedjiu (2014), recommends that the training of teachers is important to ensure that they are able to implement effective blended learning approaches in the classroom, this mostly focuses on pre-service teachers.

Hence, Sedjiu (2014) also confirms the importance of the professional development of the in-service teachers to ensure that they are also conversant with the use of different technologies to implement blended learning approaches.

The need for ICT skills training for both the students and staff corroborates Gilly Salmon's Stage One of the Five-Stage model. Lecturers responsible for teaching ELT 111, SXL 101 and FPM 111 created interactive online environments within the institutional LMS. Students registered for these modules were granted access to engage on the online environments. According to Salmon (2002), the design of the environment should promote easy access and instil a motivation to engage in the online spaces eagerly. The lecturers shared instructions of what is required of the students within the online environments. During this stage, face-to-face class demonstrations were facilitated to illustrate the process in gaining access to the online environment.

Having raised and discussed the themes emerging from the data, the impact of blended learning both on the students and the programme, is discussed

6.3 Impact of Blended Learning Methodologies: Strengths and Challenges

The impact of blended learning and assessment activities were highlighted throughout the discussion of the themes as well as the learning and teaching activities that lecturers implemented in their three modules. According to Archer (1995) implementation of blended learning appears to activate the individual agency of lecturers and students, which in turn enables flexibility, independence, creativity and a more customised use of emerging technologies. This inclusion might lead to an increased sense of ownership towards learning and further enhance student engagement. In order for lecturers to implement blended learning activities successfully aligned to their pedagogical practices, it is important to review the scalability and sustainability within Higher Educational Institutions (HEI). There is also a need to reflect on various perspectives in relation to the implementation process. In alignment with the Technological Pedagogical Content Knowledge (T-PACK) model, infusing technology, content and pedagogy is one way of transforming teaching and learning. The inclusion of diverse learning, teaching and assessment activities, to influence student learning is an active method of transforming the learning and teaching process for both students and lecturers. The pedagogical value of blended learning activities is paramount to transformation of teaching practice. More importantly it can increase student activity towards self-directedness and developing learners as critical and individual thinkers who should contribute to the

4th Industrial Revolution in the 21st century. During the focus group discussion, the students were required to reflect on their learning and identify what technology within the blended learning approach had stimulated their learning. Their observations are reflected below:

ELT 111

> "Our lecturer introduced us to this website called Canva, and I use it regularly for all my assignments, and if I need to do PowerPoints for the class and it has been very helpful. It is one App that I can use for school or even outside of school and even for personal uses."

SXL 101

> "She also gave us an opportunity to actively and equally engage in discussions and never made us feel intimidated. As a student, we were praised for good work. However, when guidance and advise to the student was needed, it was done in the most informative and respectable way."

FPM 111

> "The PowerPoints used during the day's lecture was always available on X. This was really helpful as I did miss some important points that I could not take note of during the lecture. Being able to easily access the presentations and use it while summarising refreshed my memory. For the practical work, which are the sums, the lecturer used a camera that was placed on the table in front of the venue. This camera would project what the lecturer was writing and explaining, on paper, onto the wall. This was very effective as the lecturer could face us the whole time. In this way I also felt more focussed on what the lecturer was explaining."

This question was asked during the online student questionnaire and students answered in a similar vein (See section **5.5**). The comments and feedback provided by students in the focus group discussion confirmed that they acknowledged the inclusion and impact of blended learning in their modules, as well as on their own learning. It indicates how the respective lecturers have embraced the blended learning methods in their environments and teaching practices. Students could identify their own learning and how blended learning assisted with their learning. This aligns with the notion by Lujan and DiCarlo (2006) which states that teaching practices should include elements that "helps the student to become active and independent learners and problem solvers because it is clear

that active processing of information and not just passive reception of that information leads to learning" (Lujan & DiCarlo, 2006, p. 18).

This chapter reflects on and analyses the blended learning strategies that lecturers adopted in the modules and they were implemented. It is important to note that both Heads of Department in the Language Education and the Science and Mathematics Departments shared the view that the use of digital technology is inevitable and displayed their support for the inclusion of blended learning methods in the teaching practices of lecturers in their departments. The findings reveal that respondents interviewed for this study generally regard the adoption and implementation of blended learning and digital technology as: 'inescapable'. "The landscape within which the Higher Education Institutions are navigating requires academics to change their teaching practices to include more diverse activities in order to include the digital natives. The 4th Industrial Revolution brings with it an array of options and activities that cannot be ignored if we are to thrive in this arena"- Interview with HOD, Dr A.

The students' feedback also reflects the impact of the blended learning techniques implemented by the lecturers. Most students provided positive feedback regarding the different uses and implementation of technologies and some of them also mentioned how they would implement these types of activities within their own prospective classrooms. Examples of how they proposed to include digital technologies in their teaching practice are as follows:

"I will make use of videos to explain certain concepts as children enjoy visually learning."

"I will use all technology available to me to better prepare my classroom and lessons for my learners, e.g. laptop, tablet, television, cd player, youtube vides etc."

"I will make use of videos...cause youtube has many videos that could be used to teach a concept of counting for example to grade R or 1 learners even"

"Showing video clips to demonstrate the topic of study. Practical demonstrations"

Through their feedback students shared how they would make use of digital technologies in their future classrooms. They reflected on the technologies and multimedia components they would use and the value of the different blended technologies to ensure they are able to teach their learners. Hence, their classrooms would be a blend of different face-to-face classroom activities and related activities via online social media platforms and applications.

Meaningful feedback can be defined as a response that provides learning opportunities for students, where they are made aware of their errors, and are able to rectify them based on the feedback provided to them. Hence, when students try to learn new skills, they must get some information to inform them if they are doing the right thing (Heift, 2003; Stenger, 2014). This activity created a safe and interactive learning environment as more than half of the class engaged and contributed to these discussions. This also gave the lecturer an indication of the students' understanding of both topics.

6.3.1 Self-Directed Learning

According to Guglielmino (2013, p. 2), self-directed learning has been one of the 'fastest-growing and most-researched areas of education for the past 40 years' and it has been identified as an 'essential skill for the 21st century'. Zimmerman and Schunk, (2001) state that interesting studies and discoveries about how students have directed their own learning and development have been made. While these studies have illustrated the progression of students as self-directed learners in the education environment, research has also shown that very few teachers and lecturers prepare their students to learn on their own (Guglielmino, 2013). The main aim of the study was to explore the blended learning approaches within the BEd (FPT) programme and its impact on first-year students. In order to achieve the main aim of the study, one of the objectives, was to explore the role of self-directed learning within blended learning approaches within the BEd (FPT) programme. To this end, both students and lecturers were interviewed to discuss the role of self-directed learning in this programme.

Based on interviews conducted with lecturers and the focus group discussion with students, all agreed that the assessment and teaching activities during class interactions assisted with the development of self-directed learning and developing as an independent learner. Developing students as self-directed learners through the use of blended learning approaches, was an objective of the research study and a sub-question this study aimed to answer. The objective was to explore the role of developing prospective teachers as self-directed learners through the implementation of blended learning techniques in the BEd (FPT) programme. The various formative assessment activities developed and implemented by academics had the ability to develop and assist students to become independent learners. All lecturers (in the ELT 111, SXL 101 & FPM 111) agreed that their assessment activities had assisted with the development of deep learning for their students. These

formative assessment activities were introduced incrementally which developed students over a series of deep-learning assessment activities, who could also direct their own learning and become creators of knowledge.

According to Hattie (2009), the way in which assessments have been structured has changed the assessment strategies implemented within primary schools. Hattie (2009) also suggested in his paper that this transformation would ultimately also reach the Higher Education sector. It is evident that these formative assessment processes have been implemented at tertiary level for the BEd (FPT) first-years students. The assessment of learning focuses on the systematic progress of students, a systematic process which assesses how students have progressed based on the teaching and learning of the content. All three modules (ELT 111, SXL 101 & FPM 111) have implemented a scaffolded approach to releasing content and activities to students. Hence the scaffolded approach has also allowed students to reflect on their learning over a period of time. Students have agreed during the focus group discussion that they were able to learn at a pace which was incremental, which developed over the course of their 14 weeks. They were able to reflect on each milestone of activities achieved. Planning lessons and focusing on outcomes was a particular highlight as they could share this exploratory process. For ease of discussion, I have reproduced table 4.12 here. Both lecturers and students agreed that the learning and assessment activities produced in the three modules (ELT 111, SXL 101 & FPM 111) assisted with their development as self-directed learners.

Participant	**Response**
	"Yes it has because, FPM has helped me understand the way young children's understands the mathematics concepts. SXL has made me more confident with my languages and ELT was a very practical module and i was more engaged."
	"The modules definitely helped me I learnt how to submit task online how to make use technology to help me with my atudies"
	"All activities withn the different modules required individual assessment submissions. I had to learn on my own and plan how I will do my assignments. This makes me an independent learner yes"
	"The modules definitely helped me to become an independent learner. I am able to take initiative and feel more comfortable to work on my own."
	"It definitely did because it made us to feel more responsible regarding our own work everything was given to us in form of notes and PowerPoint presentations and we could take our own notes to aid our own learning"

	"All the modules required me to learn on my own. Essays, exams, tests you need to write while knowing things and you need to also explore on your own"

Table 6.1 Independent Learners

The above quotes are reflective of students confirming that the formative assessment tasks, introduced in all three modules, helped them to learn individually and independently. Also stating that they needed to plan and become more disciplined in the completion of their assessment tasks. These comments are indicative of students being able to reflect on their own learning and development. This is proof that the formative assessment tasks implemented through a Blended Learning teaching approach were able to develop students as reflective learners aware of their development. The implementation of blended learning techniques enabled students to reflect on their own development and learning and how it contributed to their own independent learning. The active and reflective learning activities that students had to engage in, are also examples of how students developed as self-directed learners. Practical observations in the specific classes at schools, allowed them to observe specific activities that learners were engaged in. Students noted that they were able to think about certain strategies they would employ as learning activities. This is proof that a form of self-directedness developed within the students as they could see themselves as prospective teachers. These observations made by students further reflect that they were already able to assume their roles as prospective teachers and were able to reflect on their learning and teaching practices. Mentz and van Zyl (2016), Blumberg (2000); Lohman and Finkelstein (2000); Malan, Ndlovu and Engelbrecht (2014) all confirm that the teaching strategies which lecturers implement, such as problem-based learning and other collaborative teaching and learning activities that are student-directed, can foster self-directed learning.

These assessment activities further assisted students to develop as independent learners, as it enabled them to think critically, construct their responses and share their understanding with their peers and the lecturer. These activities can be attributed in part to developing students as independent and self-directed learners. Mentz and van Zyl (2016) note that well-prepared teachers are in the perfect position to help students develop as critical thinkers, self-directed and lifelong learners. Designing learning and assessment activities that allow students to think critically about concepts, engage in discussion with their peers regarding these concepts and accept the guidance of their lecturers, will develop a graduate who will engage in lifelong learning.

6.3.2. Assessment to Measure Learning and Self-directedness Accomplished

As the video recordings were an individual task, the lecturer could assess the students on more than just their own acquisition of mastering the language. The lecturer was also able to assess students on their teaching techniques and didactic approaches. Through the focus group discussions students noted that, though they were daunted by this exercise, they found it rewarding in the end as it gave them a chance to practise their teaching skills and pronunciation of the words. It led to them having more fun while engaging and completing the assessment than any other assignment.

The students and lecturer for the FPM module noted that the writing task assisted them with the development of their independent learning. The lecturer modelled the behaviour she expected of her students. An example of her own writing was shared with students, to assist them with their own research and academic writing. According to Hattie (2009), learning intentions of any assessment activity need to be clearly communicated to students before they engage in an activity. It is vital that clear guidelines through rubrics, model answers and reciprocal teaching are shared with students prior to them completing their assessment activities. If they know what success looks like, it is easier for them to be successful and gain competence (Hattie, 2009). The lecturer had provided a rubric that guided students in the preparation of their information and how they would be scored.

- One student group shared how through the use of shapes, learning can be student- centred.
- Another group shared that using different technologies such as videos, podcasts, 3D models of learning spaces can be used effectively.
- Foundation phase students also learned through touching and seeing objects.

According to Socratic philosophy, lecturing is not an effective method for teaching all students. This promotes the notion that blended learning, should be applied to accommodate more than one type of learning style. According to research conducted by Mentz and van Zyl (2016), student-centred teaching approaches can develop self-directedness for prospective teachers. Hence, the development of learners as self-directed learners is important and should be achieved through different assessment and teaching approaches. This is discussed in the section below.

6.3.3 Assessment to Measure Learning and Teaching Processes

James (2006) denotes that if teaching practices are informed by learning theories, it will direct lecturers to the methods to employ to assess learning progress. This interaction of students in

learning activities, is an important factor of learning and highlights the constructivist approach according to Heaslip, Donovan and Cullen (2014). These social interactions, language and culture are important concepts in the social constructivist theory (Vygotsky, 1962). The teaching activities included during the lectures and assessment activities can be seen as aspects which relate to the theory of social constructivism. Hence, it is the observation by the researcher that the lecturer's teaching philosophy was based on social constructivism.

A student-centred lecturer should present students with "just manageable difficulties"—that are, challenging enough to maintain engagement, but not so difficult to discourage them (National Research Council, 2004). They must understand their students' knowledge, skill levels, and interests (Duckworth, 1987). Therefore, it is important that lecturers are aware of their students' learner profiles prior to conducting their lectures with them (Perin, 2013, Palloff & Pratt, 2003). If this is not possible prior to the start of classes, it could also be conducted at the start of a course. This will give lecturers a baseline understanding of the class and the skillset of students. However, there is the contention that lecturers are not able to force learners to learn particular things. Even though they may be aware of the student's knowledge and the gaps where the course may facilitate learning. The actual learning that does take place cannot be controlled, as students all have different abilities and may focus on different aspects, which the lecturer may not have anticipated. Subban (2006) and Strong, Silver and Perini, (2001) contend that being aware of and teaching according to the student learning profile and learning style is instrumental in student development. Thus, students can be assisted to achieve better academic results that can also lead to improved learning attitudes. Student-centred teaching and learning is also consistent with the perspective of Piaget (1953) and others who say that students develop personal meaning regarding the physical world through direct experiences and dialogue with others about those experiences. This type of learning and teaching is more evident through group activities, and learning and assessment interventions introduced in the classroom setting.

Inquiry-based teaching, also known by names such as inductive teaching, problem solving, project-based teaching, discovery learning, and guided discovery is well-known within the United States since the nineteenth century, as suggested by De Boer (2002). This approach is based on the idea that students can be scientific inquirers in the classroom and generate meaning more or less independently of the teacher (De Boer, 2002). Student inquiries would teach them both the methods of science and the concepts of science. Inquiry-based approaches have traditionally emphasised the role of the learner in asking questions and investigating problems. Instructional practices that

encourage deeper student engagement are pivotal if we are to effectively use emerging instructional technologies (Henrie, Halverson & Graham, 2015).

The eTools that had stimulated students' learning was focussed on during the class observations and in the online questionnaire. Students were also asked to elaborate on the level of their understanding as a result of the lectures they had attended. Responses for each of the three modules are presented below, after each explanation

ELT 111

Another example of a student-centred assessment approach was the introduction of the group video assignment by lecturer Dr X (ELT 111). Students were tasked to engage in the discussion forum as part of a tutorial exercise. In order to prepare the students, the lecturer arranged a demonstration session to be conducted by a UIECT instructional designer. This demonstration session was done during a lecture period. The students were familiarised with the online X platform and how to access the discussion forum in order to complete their assessment task. Subsequent to the demonstration, the lecturer modelled the behaviour she expected from her students by sharing and contributing to a topic. The assessment activity was updated on the discussion forum and due to the fact that the students had a number of examples which they could emulate and draw inspiration from, they were tasked to complete the activity. This tutorial activity counted for marks. The lecturer had implemented all the necessary steps for students to be adequately prepared for this activity.

"Yes, the assessment activities did stimulate interactions within the class, for example, singing nursery rhymes using Youtube"

SXL 101

Similar activities were shared in the isiXhosa module (SXL 101). Students were required to develop a digital story based on a theme. Various themes from which they could choose a topic were shared with the students, for example: Hygiene, Weather and many more. Students were divided into groups and were tasked to develop a lesson plan on one of them. Firstly, students were shown an example of a Digital Story. They were then taken through an interactive session to develop their own digital story. In this way students were first introduced to the software and its benefits and

challenges. Furthermore, they were shown how to import, edit and export the digital story and save it in the correct format for final submission. They were also shown how to submit it to the lecturer making use of the X system. These were all learner/student-centred activities introduced by the lecturers to ensure that students are adequately prepared for their learning, teaching and assessment activities.

> "In isi-Xhosa I was introduced to the picture-story. Where we were required to record our voices only. I learnt how to pronounce these words properly instead of memorizing them for a test. It was difficult and exciting and rather funny."

FPM 111

Learner-centred approaches and activities were implemented across the three selected modules. Students were encouraged to attend a library training session which focused on developing their research skills such as finding relevant information related to the topic of their first essay assignment for Foundation Phase Mathematics (FPM 111). This was a learner-centred approach and focused on the many skills that students need to attain in order to submit their assignment, as well as to improve their academic writing skills. In order to determine the impact of blended learning practices on learning, there is a need for useful measures of student engagement (Henrie, Halverson & Graham, 2015). In order to measure greater student engagement, the lecturer had taught them how to write an academic piece after they had been taught how to conduct Internet searches. The lecturer shared an example of her own work with the students, which they could use to emulate their own academic writing.

In addition, students were also shown how to submit their academic writing piece via the X system and submit it to Turnitin (Tii). This anti-plagiarism detection tool was linked to check and develop students' academic essays. The indication provided by Turnitin reflected their referencing and writing techniques.

The only drawback was that the lecturer did not allow students to resubmit and rework their essays. If they received a high similarity index from Turnitin they could not rework and improve their offerings. This caused a lot of anxiety amongst students who received high similarity indexes. However, the lecturer was able to read the essays and then afford the students the opportunity to rewrite and resubmit them. This was one example of a student-centred learning activity in the

Foundation Phase Mathematics module. It also reflected their skills and ability to engage in academic writing.

The use of blended learning and assessment activities were highlighted through the learning and teaching activities that lecturers implemented in their three modules. Lecturers used face-to-face lectures to present their lessons and various assessment activities which required students to showcase an understanding of the content. Various hardware and software were used during the delivery of the modules which included desktop computers, data projectors, document cameras, YouTube videos, PowerPoint presentations, the X institutional LMS and its eTools to host course content, communication and assessment activities. The eTools used throughout the modules, the face-to-face lectures and activities were combined in specific order to assist students to achieve the learning goals. Dziuban, Hartman and Moskal (2005) consider blended learning to be the way eTools and learning activities are selected and combined according to criteria such as learning goals, course content, teacher experience and teaching style. "The fact that students value face-to-face classes, or hybrid teaching, more positively than fully online classes may be because it is considered a more effective modality for the resolution of doubts, the development of learning, and participation and interaction." (Lorenzo-Lledó et al., 2021, p. 1327).

The specific impact of the blended learning and assessment activities will further be unpacked in this analysis and discussion chapter. An overview which summarises the key themes identified within each of the three modules namely ELT, SXL and FPM is provided. Activities were implemented to ensure that the focus is placed on students to gain the necessary skills to develop as self-directed learners.

"Youtube and the Internet (by searching for related academic articles which provided me with a deeper insight and understanding)."

Impact of Student Learning/Engagement

This is also a notion cited by Prensky (2001), who refers to the digital natives versus the digital immigrants. Prensky (2001) stresses that educators need to think about "how to teach both Legacy and Future content in the language of the Digital Natives" (Prensky, 2001, p. 4). An important challenge raised was the difficulty for some students who had left school more than ten years ago,

to adapt to the infusion of technology in teaching practice. According to Gill (2009) learning is built and developed under certain circumstances, these may include the motivation of students, the interaction with both peers and teachers, and a "high degree of learning activity" (Gill, 2009, p. 3). Their attitude towards the use of the technology and different teaching mediums was stressed by their younger peers as a factor that might have hindered their understanding of some of the content. This refers to Prensky's term, teaching the "legacy and future content to the digital natives". Some of the younger students who had befriended the more adult learners in the class and who formed part of the focus group said that it took some time for their more mature peers to become accustomed to some of the learning and teaching techniques. It could also mean that the method of teaching for some students just did not work as well as it did for other students. However, Gill (2009) states that motivation plays an important part in all aspects of language development and that the level of a student's motivation and the context in which they find themselves will determine the level of learning and success the students will achieve. It also depends on the interaction of peers and lecturers as well as the level of learning activities. The more learning activities are implemented, the more they should motivate students to improve their ability to learn a new language (Gill, 2009).

It is important for lecturers to focus on what students are not able to do on their own and focus on supporting this learning process. The students alluded to the fact that some of the younger students were knowledgeable about some of the technology, and that they assisted the older students to use the technologies. A way in which the ZPD was addressed was through various assessment tasks the lecturers had implemented in their modules. These assessment tasks set the scene for students to gain confidence in the use of certain technologies in order to complete their learning activities. Students helped their peers, especially with those tasks that they were not confident to complete on their own. Some of these more difficult tasks were done in groups. Group activities are a valuable method to ensure that the more knowledgeable peers are able to help those students who require assistance in certain areas to gain confidence. The ZDP was evident in what some students could solve independently and where they needed assistance from a more knowledgeable peer (Vygotsky, 1962).

The role and importance of the technology implemented within the teaching and learning practice has grown exponentially and has a great impact on student learning (Mishra, Koehler and Henriksen, 2011, p. 23). This is evident from the feedback of students during the focus group interview. This notion also found resonance with the main research question this study has focused

on, which was to explore the impact of blended learning approaches on first-year students in the BEd (FPT) programme.

6.4 Summary

This chapter discussed the themes and provided an analysis in relation to the data presented. It was also aligned to the various blended learning models discussed in Chapter Two of the study. The importance of blended learning approaches and their implementation on the BEd (FPT) programme were discussed.

In order for the implementation of blended learning to be fruitful in the context of the BEd (FPT) programme in a Higher Education setting, a number of factors need to be discussed, emphasised and applied. It is important to gain a better understanding of the lecturers, and how effectively they used blended learning in their teaching practices. This can further support, motivate and influence more lecturers in their departments and disciplines to use blended learning strategies.

The next chapter elaborates on the findings and discusses related recommendations for future research. It will also discuss the main learnings and the contribution of the study to the domain of blended learning.

CHAPTER 7: REFLECTIONS AND RECOMMENDATIONS

7.1 Introduction

This study sought to gauge the use of blended learning approaches within the BEd (FPT) programme and the impact it had on the learning and development of students. In order to ascertain the impact, the main question explored the impact of blended learning on first-year students in the BEd (FPT) programme with specific focus on the Language and Mathematics modules. The sub-questions focused on investigating,

- What is the role of self-directed learning within the blended learning approach?
- Is there a focus on assessment within the blended learning approach?

In order to answer these important questions, mainly qualitative data with supporting quantitative data were collected. The qualitative data consisted of face-to-face classroom observations, online environment observations, lecturer and HOD interviews, student online questionnaire and a student-led focus group discussion. The *Statistics* eTool was used to retrieve quantitative data in relation to student engagement. The student results were also part of the quantitative data and were retrieved via the Marks Administration System (MAS).

The researcher engaged in classroom observations in order to observe the teaching and learning strategies used in the specific modules, English Home Language, IsiXhosa Second Additional Language and Foundation Phase Mathematics. In addition, the researcher was able to observe the specific eTools and learning materials which were used during the classroom lectures. Furthermore, the students were requested to complete a questionnaire which allowed them to share their understanding of blended learning and the value of using technology within the teaching and learning process. In addition to the classroom observations and student questionnaire completion, a focus group discussion was held with a sample of students to gauge their learning and development during their first-year of study. The relevant lecturers and Heads of Departments (HODs) were interviewed to get an understanding of their stance with regard to blended learning and the inclusion of eTools within their teaching strategies. Lastly, the students' results in the three modules (English Home Language, IsiXhosa Second Additional Language and Foundation Phase Mathematics) were reviewed, which enabled the researcher to assess and compare the pass rate of each module in relation to the Blended Learning approaches implemented in the modules.

7.2 Impact of Blended Learning and Teaching: Strengths and Challenges

7.2.1 English Home/First Language: Strengths and Challenges

The blended learning practices which were implemented within the English Home Language module were significant as they included a variety of interventions to assist students to develop their own learning-and-teaching methods through a series of play-based learning activities. The Curriculum Assessment Policy Statement (CAPS) focuses on learning through play, as foundation phase learners essentially learn better through a process of play. The impact can be seen through the assessment interventions introduced to the students, their interpretation of the activities and how it affected their learning. This also provided the students with an opportunity to think about their own learning-and-teaching methods as prospective teachers.

The students enrolled for the English module, noted that their learning was extensive as they explored different activities through the design of play-based learning. The groupwork activities were designed to teach various topics. One such activity included the 'Fruit and Vegetables' theme which required students to work in groups. Their lessons focused on the different ways in which they could teach learners about fruit and vegetables. The specific activities occurred during a lecture which took the form of an informal and interactive practical classroom setting. The lecturer emulated the role of a facilitator and guided students by asking specific questions as they engaged in the completion of their tasks. This was done in order to explore how students were planning and thinking about their learning and teaching methods.

During this process, students were eager to share their creativity and welcomed any questions from the lecturer. The researcher did not interfere with the teaching and learning processes, which allowed the students and the lecturer to interact freely during the face-to-face classroom session. They eagerly shared their thought processes with the lecturer and also debated with each other what and how they could implement different learning activities with learners in the classroom. As the students interacted with the lecturer, they were enthusiastic to know whether their teaching ideas were 'good' and eagerly awaited the positive feedback from the lecturer. This was just one activity that showcased the students' creativity and their spontaneity in answering the lecturer's specific questions. This type of student engagement supports the first sub-question of this study, which was to establish whether blended learning supports the development of students as self-directed learners. It also aligns to the second sub-question which supports the view that a link exists between blended learning and assessment.

For ease of discussion, I am reproducing Table 4.16 here. It reflects a percentage of ninety-five (95%) students passed the ELT 111 module. This meant that 78 students from a class of 82 students passed the module. The good results are an indication that the blended teaching methods implemented were impactful and students were able to apply their learning through teaching activities and assessments implemented. Some of the learning and teaching activities implemented across the module required students to work in groups as well as independently. The practical activities implemented, along with the application of theoretical perspectives, indicate that students were able to develop as self-directed learners.

Module Name	**Academic Year**	**Number of Passed Students**	**Pass Rate= %**
English Home/First Language (ELT 111)	2019	78	95%
A aggregate	2019	21	25.61%
B Aggregate	2019	26	31.71%
C Aggregate	2019	29	35.36%
D Aggregate	2019	2	2.44%
E Aggregate	2019	0	0
F Aggregate	2019	2	2.44%
G Aggregate	2019	2	2.44%
H Aggregate	2019	0	0
Total		82	100%

Table 7.1 ELT 111 - 2019 Overall Pass Rate

7.2.2 IsiXhosa Second Additional Language: Strengths and Challenges

Various blended learning activities were used throughout the teaching of this module. These included the creation of videos, digital stories and online tests using the institutional LMS, X. These activities were all documented online as students were required to submit their formative assessments via the online environment.

For the duration of this year-long module, students were required to engage in different blended learning activities which required individual and group work assessment activities. One such activity required students to showcase their ability through an individual task. Each student was

required to create a video lesson, which required them to verbalise and pronounce the specific clicks in the isiXhosa language. The process of video recording themselves and creating visual content enabled the students to be creative in their learning and teaching approach. They could sound the words with specific clicks, to show the lecturer that they had learnt the three key click sounds ('c', 'q' and 'x'). In addition, the same video recording could also be used as a teaching resource, in order to teach other students and learners how to pronounce certain words. The creation of these videos formed a digital repository of learning resources which can be used in future classes the prospective teachers find themselves in to showcase what was achieved during their first year at the university.

This type of blended learning activity enabled students to learn effectively and assisted them in becoming self-directed learners. The different blended assessment activities assessed students' abilities and skills. This supports the second sub-question of this study which investigated whether there is a focus on assessment during the implementation of blended learning approaches.

The above statements are further supported through the pass rate of the first-year students during the 2019 academic year. For ease of discussion, I am reproducing Table 4.17 here. It reflects a percentage of ninety-four (94%) students passed the SXL 101 module. The high pass rate in this module is evidence that student learning was impacted. This could be through the implementation of blended learning approaches during the face-to-face classroom and online environment activities. It also supports the view that a link exists between blended learning and assessment. Developing students as self-directed learners was effective as most of the assessments implemented required a level of self-discipline and focus from the prospective teachers.

Module Name	**Academic Year**	**Number of Passed Students**	**Pass Rate %**
Isi-Xhosa (SXL 101)	2019	116	94%
A aggregate	2019	22	17.9%
B Aggregate	2019	23	18.7%
C Aggregate	2019	45	36.6%
D Aggregate	2019	25	20.3%
E Aggregate	2019	2	1.6%
F Aggregate	2019	2	1.6%

G Aggregate	2019	4	3.3 %
H Aggregate	2019	0	0
Total		123	100

Table 7.2 SXL 101- 2019 Overall Pass Rate

7.2.3 Foundation Phase Mathematics: Strengths and Challenges

A wide variety and carefully thought-out learning interventions were introduced and included within the Foundation Phase Mathematics module during the 2019 academic year. During the focus group interview, the students noted that the activities implemented were relevant and helped to make their learning meaningful. They did well as they were able to see why the lecturer introduced certain activities and how these related to the way they would be required to teach.

One blended learning assessment activity introduced in this module was a short assignment to share the importance of play in teaching mathematics in the Foundation Phase. In an attempt to prepare the students to complete this assignment, the lecturer first shared an exemplar of her own academic writing to show what was expected of the students. In addition to the exemplar, the students were required to engage in a Library workshop, where they were taught how to search and retrieve good quality sources for their assignment. Thirdly, students received a demonstration of how to access and use Turnitin and X in order to submit their completed assignment. During these preparatory steps, students were taught specific skills to ensure they were able to effectively complete the assignment. In addition to engaging in the eskills workshops, the lecturer further focussed in-depth on the importance of play-based teaching in the Foundation Phase. Students were also informed about the different types of play that can be used for teaching mathematics. The inclusion of various eSkills workshops to enable students to complete their tasks was valued by students. Through the process of one assignment, tacit knowledge and skills were included and this blend of various activities to complete a major assessment activity, impacted on the value students received from this module, as well as what they had learnt. The submission and high pass-rate with regard to this specific assessment activity indicated that student learning took place. All the other assessment types enabled students to develop their independent learning enabling self-directed learning. This addresses the first sub-question of the study, which explored whether there is a focus on developing students as self-directed learners within a blended learning approach.

The second sub-question of this study sought to explore whether blended learning methods had a focus on assessment. As evidence to support this question, one can highlight the fact that the assessment activities (groupwork and individual assignment), which were included within this module consisted of various blended learning activities. Hence, it supports the view that blended learning includes and supports the inclusion of different assessment types.

For ease of discussion, I am reproducing Table 4.18 here. It reflects a percentage of ninety-six (96%) passed the FPM 111 module. This result can be attributed to a combination of the lecturer's teaching techniques adopted within class, the students' level of motivation and the various blended learning approaches included as part of the teaching strategies. This shows that student learning was impacted through the implementation of blended learning approaches. The high pass rate supports the view that the implementation and structure of blended learning teaching activities has been positive and that blended learning does have a focus on assessment.

Module Name	**Academic Year**	**Number of Students**	**Pass Rate %**
Foundation Phase Mathematics (FPM 111)	2019	149	96%
A	2019	68	44%
B	2019	36	23%
C	2019	25	16%
D	2019	0	0
E	2019	20	13%
F	2019	1	0.7%
G	2019	1	0.7%
H	2019	4	2.6%
Total	2019	155	100

Table 7.3 FPM 111- 2019 Overall Pass Rate

The next section will explore whether there is a link between blended learning and developing students as self-directed learners.

7.3 Blended Learning and the Development of Self-Directed Learning: Strengths and Challenges

According to Kicken et al. (2009), students will be better prepared for their future if they are to be developed as self-directed learners concerned with learning rather than just performance inside the classroom. Hence, it is important that these factors are addressed during the teaching and learning process when enrolled as a student at University X. According to Knowles (1975, p. 18) and Holec

(1981), self-directed learning occurs when students take responsibility to identify learning needs, develop learning goals, prepare a learning plan, locate the learning resources, implement this plan, and evaluate the results and the process. Based on this definition, it is evident that self-directed learning and developing the student as an autonomous learner is not a new concept at all. This process requires a high level of maturity, commitment and responsibility on the part of the student. However, such a process can only be developed over a lengthy period of time. This gradual process, as discussed by Cubukcu (2016), includes the involvement of both the lecturer and student and should be managed at a specific pace that both can manage (Cubukcu, 2016; Camilleri, 1997).

Hence, this process is an important commitment on the part of lecturers, facilitators and tutors and requires deep thinking on how they would structure activities for assessment purposes. As stated by Zimmerman (2002), during this process of developing students as self-directed learners, it is the behavioural characteristics of the lecturer that students are required to emulate as a starting point. Hence, the emphasis and responsibility of lecturers to be good role models is pertinent. This task is challenging for the lecturer and needs to be reinforced constantly to ensure that learning does take place. However, as students develop responsibility for their own learning, it is a task that becomes an act of intrinsically motivated individuals who value working independently and engaging in reflection (Guglielmino, 2013). Through this study, the self-directed learning and assessment activities which students engaged in across all three modules, illustrated that students were introduced and expected to take ownership of their own learning.

During the Language modules, both IsiXhosa and English students were required to create videos. The purpose for creating these videos, although on different topics, required students to think about the concepts and design of their learning activities. It further required them to become familiar with specific eTools and software in order to create their learning and teaching activity, a video. Students were introduced to the video editing software and taught how to use it in order to create these videos. However, they were able to use their own creativity to complete their videos. The isiXhosa module required that students work in groups to develop a video lesson plan (digital story). This group activity required that the students work together on a storyboard to map their lesson which would ultimately be designed as a video. The steps to create the video required students to contribute and share their own understanding and, also, share their experiences through a collaborative process as a student group. As students were able to share their individual learning, they could use it to construct new knowledge through making use of each other's diverse contributions. This process of peer interaction stimulated the collaboration of shared ideas and the videos produced by student

groups assisted with peer-learning. According to Morris (2016), the process of peer interactions during group work activities assists students to learn from each other and also helps with stimulating new ideas.

The English module required students to create a video which was an individual task, where students were responsible for this task from conceptualisation to its completion. The individual task required all students to take responsibility for their own learning as the product they produced required dedication and motivation. The general notion based on observations, was that students preferred working on their own, mainly because working in groups does not always yield positive results, especially if group members do not pull their weight and many different perspectives are not able to reconcile and decide on a consolidated way forward. Although Morris (2016) and Dobao (2012) promote collaborative learning as opposed to individual work, there is merit in both methods in preparing prospective teachers. It is important that both individual and group work is included to ensure that students' abilities and competencies are developed fully.

The Foundation Phase Mathematics lecturer continuously reminded students that they needed to reflect on the reasons for introducing certain activities and to revisit the learning outcomes to ensure that the learning and assessment activities they introduce are valuable for their learners.

> In reflective learning environments, the production of the learning process is not centralised by the teacher's role anymore, and learning is focused on the multidisciplinary nature of problems, on reflective process and peer assessment, on the development of interpersonal and communicative skills, on the process of acquiring knowledge and not only on the expected outcomes. (Boud, 1985 in Bruno & Dell'Aversana, 2018, p. 346).

This quote summarises what the lecturer reminded the students of during the class lectures. Her teaching practice was a student-centred approach with a focus more on the active and reflective engagement of students, and where the lecturer fulfilled the role of a facilitator and coach, instead of a lecturer (Deboer, 2002).

Students were constantly probed and stimulated to think beyond what is seen as cognitive engagement. The lecturer placed great emphasis on students' reflection on their own learning. According to Bruno and Dell'Aversana (2018, p. 355) the "*conditions that stimulate only cognitive engagement can have little impact or even inhibit reflective practices.*" Hence, the students' own reflection and experiences were valued and encouraged during the class.

This section illustrates how self-directed learning can be developed through the implementation of blended learning assessment activities, in both the English, isiXhosa and Foundation Phase Mathematics modules. It stresses the importance of developing students individually as well as within a group.

The next section discusses the importance of student training and development.

7.4. Student Development: Continuously Develop a Learning Culture amongst our Prospective Teachers

A learning organisation can be defined as a place where its learners and employees are able to learn in different settings through experience, workshops and mentoring. According to Serrat (2017), the learning organisation values the role that learning can play in the development of an organisation's effectiveness. The act of sharing their learning with each other and influencing the working environment is a direct spinoff of the learning and teaching process. With this definition in mind, it is apt to state that universities are learning organisations. As a learning organisation, it is our responsibility to continuously cultivate a learning culture amongst our prospective teachers. One has to be agile in creating opportunities for students to further develop this learning culture. Actively seeking to engage these prospective teachers in their quest to attain knowledge, and then finding ways to create learning and teaching moments, is a skill set that should be instilled and cultivated in itself. Seeking these moments and making them visible to the prospective teachers is, in itself, a skill that should be developed and is intrinsic to one of the graduate attributes, that of becoming lifelong learners. Once this goal has been achieved, students have the potential to thrive within their communities and the working environment they enter. Instilling a culture of continuous and lifelong learning, will develop them into change agents, always on the lookout to change their communities and societies for the better. These change agents are not just limited to prospective teachers, but all University X's graduates who seek to serve and contribute to their communities.

Being proactive in the pursuit of opportunities to create and instill positive change is crucial within any learning organisation, more significant in the Higher Education landscape. It is the responsibility of these learning organisations to assist and develop the youth to actively drive transformation. It is important to ensure that our graduates and, in this case, specifically the prospective teacher graduates, are equipped with the right skill set and networks of information to make lasting and impactful change in the sector.

Aligned to creating lasting and impactful change, South Africa's President Cyril Ramaphosa has stated that

> we should focus on collaboration for inclusive growth and shared prosperity in the 4th industrial revolution. Quantum leaps in technology and innovation present enormous opportunities for growth, development and human progress. However, unless it is approached in a collaborative manner, underpinned by a developmental agenda, rapid technological change could merely serve to entrench existing disparities within and between countries (Ramaphosa, 2018).

This could also mean entrenching existing disparities between social classes and students coming from these different communities. When students become graduates, they are placed on an equal playing field, each receiving the same education, and how they choose to share and develop it, is what will shift the level of impact they are able to have. The level of impact is also dependent on the level of preparedness with which students enter the university. Some do not have the necessary hardware equipment and software in order to engage effectively. They may also lack the level of ICT skills required to engage effectively within the blended learning environments.

According to Professor Klaus Schwab (2017) of the World Economic Forum, in his book titled *The 4th Industrial Revolution*, he states that this revolution "is characterised by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres and will impact all disciplines, economies and industries" (Schwab, 2017, p. 7). Bearing this statement in mind, as a Higher Education Institution we are faced with a tremendous responsibility and task to grow and prepare our cadre of graduates and professionals who will continue to make change waves in every area and industry of life. The 4th Industrial Revolution which has dawned upon us is a fundamental shift in the way we live, work and relate to each other in the different spheres of life (Schwab, 2017). It has and will continue to infiltrate and change life as we know it across all industries and areas. How we respond is what will make a tremendous shift in our learning process. Technology in the hands of a minute force, can become a tool of power, however, sharing this same powerful tool with the masses has the potential to increase the level at which we are able to transform our society for the better. The collective efforts introduced by lecturers, professional academic support teams and motivated students can be a tremendous force of change to combat world issues such as pandemics, hunger, poverty and many other social ills.

The next section will focus on suggestions for rethinking the academic programme to develop student learning.

7.5 Rethinking Assessment across the BEd (FPT) Programme

Dzobelova et al. (2020, p. 157) state that "the digitisation of the learning processes has the potential to change the way in which we teach and can greatly influence the process of learning." This specific quote is what this study is based on, as it sought to measure the impact of blended learning on first-year students in the BEd (FPT) programme. How the use of digital technology has impacted student learning and delivery of the specific modules within the BEd (FPT) programme links to the main research question of this study.

Since 2009, the UIECT started an awareness campaign to diversify the teaching and learning practices of lecturers. The diversification processes included marketing of different assessment, communication and content creation eTools to enhance the teaching and learning practices. During the awareness campaigns, various departmental showcase initiatives were organised to share best practices, ideas and learning activities with academic staff across disciplines. The adoption of different eTools was a voluntary process that lecturers undertook to enhance their own teaching practice. During the departmental visits, lecturers were also made aware of the support structures available to them in order to create interactive online courses based on sound pedagogical decisions (Stoltenkamp et al., 2007).

Through the selection of different eTools within various modules, the teaching delivery and assessment practices have been impacted. Teaching through the use of different innovative eTools has led to the redesign of teaching practices which has impacted the academic programme and the way students are taught and how they learn. As lecturers adopted new practices, various challenges and benefits were experienced. These experiences regarding their adapted teaching practices were regularly shared with the broader university staff through blogs and email communication. This was done to motivate other academics to adapt their teaching and assessment practices as well. Many lecturers adopted the blended teaching and assessment techniques to supplement their practice in some way.

One of the outcomes was that it gave way to assessing students in a different manner and also enabled students to learn differently, depending on their learning styles. As lecturers became more adept at the inclusion of different teaching, learning and assessment practices, it also created a space for lecturers to share their experiences and for them to be celebrated for their innovation. This was done through UIECT's daily blog and email communication which showcased the lecturers as

champions of innovation. As these blogs became 'the order of the day' it gave way to more and more lecturers being willing to adapt their teaching practices. This raised awareness with regard to what lecturers had introduced in their teaching, emphasising and celebrating their innovation with peers and fellow university staff. This process marketed these lecturers as innovators and champions of innovation amongst their peers. The Instructional Design team, being the front-end support, were approached by other lecturers asking for assistance in setting up their online teaching and assessment activities and to discuss new ways to be more inclusive of all students and their unique learning styles.

Creating assessment activities which have changed from the normal paper-based written essays to include more digital versions of learning assessment activities have taken place. These include the development of video assessments where students were able to reflect on their learning through a recording of themselves or others in different spaces of learning and teaching. During their teaching practice, students were able to reflect on the learning and development of learners in Grade R. Both the English and isiXhosa lecturers created opportunities for students to record and reflect their learning and development through video assessment activities. Students were able to either work in a group or individually and record their learnings. In one assessment activity, they were required to record the different isiXhosa click sounds ('c', 'q', and 'x)', some students used this as an effective teaching opportunity and created videos which taught the viewer how to pronounce the click sounds and also where to place the tongue in order to create the correct click sounds. These videos can also be used as teaching resources in the schools where the prospective teachers will eventually teach.

Importantly, Gamoran Sherin (2003) argues that video is a great way for students to review and interpret what they can improve and change independently. It also provides a lens through which students are able to gain deeper conceptual insight, develop their own communication and harness their knowledge of their own achievement. Bacchus et al. (2020) the increased value of rubrics and more specifically online rubrics which provide a clear guide to both graders and students to understand what is the standard and what is expected by providing students with clarity and transparency about what is expected in assessment tasks. It also provides the graders with specific context and clear guidance during the marking process. Using the rubrics as an assessment guide enables students to know how they will be assessed and gives them an opportunity to prepare their assessment tasks effectively.

The next section focusses on the design and development of an ePortfolio which would enable students to align their learning and assessment activities in an online space in order to reflect on their learning and progress throughout their first academic year and beyond.

7.5.1 Develop an Integrated ePortfolio across the 4-year BEd (FPT) Programme

A recommendation emanating from this research is that the design of an integrated and inclusive ePortfolio which encapsulates and captures students' acquired skills and competencies during their 4-year undergraduate programme should be included as a key outcome. It should be noted that lecturers across the BEd FP Programme have included the development of ePortfolios within the design and development of some of their modules across the BEd (FPT) programme. According to Gülbahar et al. (2006, p. 311), "E-portfolios can be defined as electronically collected works and reflections of students, which are used to show their growth and development during the learning process". The ePortfolio as an alternative assessment type is widely used for project-based learning as the components within the portfolio are the reflections of students for different periods, improvement in their progress, and prospective goals. This alternative type of assessment helps students to reflect on their progress, their milestones and achievements.

The development of ePortfolios within the BEd (FPT) programme has seen significant contributions from students across the year levels. This was showcased during an ePortfolio and Digital Storytelling Seminar hosted during November 2018. The Seminar was an initiative co-hosted by the UIECT and specific lecturers involved within the BEd (FPT) Programme. During this recorded seminar, students from first to fourth year reflected and showcased their different teaching and learning artefacts they created during the course of their respective academic years, which were reflected within their ePortfolio. Lecturers were able to select and celebrate those students who had really excelled through the academic year. Their work reflected their significant progress during specific assessment activities throughout the academic year. Both the students and lecturers celebrated both students' and lecturers' development and progress with regard to the inclusion of blended assessment activities, more specifically those activities which included the development of Digital Stories highlighting the lesson development process. They also focussed on how the development of these different learning and assessment artefacts were included within a carefully planned and developed ePortfolio.

Lorenzo and Ittelson (2005, p. 2) describe an electronic portfolio or ePortfolio as a "digitized collection of artifacts, including demonstrations, resources, and accomplishments that represent an individual, group, community, or organization". Furthermore, Buente et al. (2015) state that an ePortfolio based assessment enables students to integrate their learning and make connections between modules in an authentic and meaningful way. During the showcase session, students were able to reflect on key areas which assessed a specific concept or two which were indicated within an ePortfolio. This was a great reflection of the learning that was achieved, and students shared how they would be able to include some of the technologies they were taught within the classroom. These presentations further reflected the competencies students have achieved in terms of applying the emerging technologies within their assessment processes. It also demonstrates the skills they obtained, in addition to the application of the pedagogical approaches they were taught.

Throughout the process, it was clear that some lecturers were able to collaborate and share like-minded ideas around the use and application of the ePortfolio tool specifically. What the presentations also illustrated is the fragmented manner in which the ePortfolio tool as an assessment method was being implemented. In some instances, students were required to create an individual ePortfolio for each module they were registered. This created an increased workload for students. The suggestion would be that all first-year lecturers teaching in the BEd (FPT) programme should collaborate and allow students to create one portfolio reflecting on their development for all first-year modules. As online and blended learning continues to gain popularity in terms of the numbers of students online, the ePortfolio is part of the digital ecosystem. The ePortfolio is a comprehensive process which displays some of the learners' records and is exported by graduates to demonstrate their learning (Chief et al., 2020).

Lecturers and prospective teachers can seize the opportunity to make use of the technologies that students are already familiar with during their spare time. In fact, they are urged to use the technologies which students are already accustomed to in order to make learning fun and applicable. It can be used as an advantage and, what many interpret as a disruption, can be used as a productive learning tool. If students have their smartphones constantly glued to their hands and face, use the device effectively to promote and include learning activities. Making learning fun is important especially within the Foundation Phase, as most learning takes place through play.

The next section will discuss the importance of an interactive online environment for student learning for full engagement.

7.5.2 A Need to Create an Interactive Online Environment for Effective Design of Teaching, Learning and Assessment Activities

The impact of the online environments created by all three lecturers was significant. The significantly high pass rate for all three modules, can be attributed to the blended learning approaches implemented. This was a direct question posed to students who agreed that the blended approach made the teaching and assessments more interesting. The combination of both face-to-face classes, and online learning activities reflects the positive impact of a blended learning approach. The lectures, coupled with an array of online assessment and communication activities are evidence of the teaching practices of all three lecturers. The high pass rate within all three modules can also be a combination of teaching practices, student motivation (both intrinsic and extrinsic) and lecturers appealing to students' different learning styles. Across all three modules, various eTools were carefully selected, which benefitted the learning process for students. These included the use of the institutional LMS, X which hosts an array of eTools. The *Lessons, Course Resources, Discussion Forum, Assignment, Tests and Quizzes and Announcement* eTools were used across the three modules. These eTools were used in different ways across these modules and were selected based on their pedagogical value which was indicated through the different learning and assessment activities lecturers created.

However, there is always room for further development and improvement. Lecturers and students would benefit from a more integrated online environment with effective use of specific eTools which includes *Blogs, Tests and Quizzes, Turnitin, Rubric, Gradebook, Dropbox and Syllabus* to name a few. Various suggestions can be made to include a more holistic approach when teaching these modules specifically. However, one must also guard against overwhelming students with too many eTools. Hence, the use of these mentioned eTools is listed to assist in deepening the students' learning opportunities in specific assessment activities. For example: the blog eTool can be used as a reflective writing tool within the English module. Students could be asked to share their learnings during their observation periods in schools. This can be a private tool between the lecturer and student and can be used as a journal in which students can list and share their expectations, their observations and specific methods they could apply during their time within the classroom setting. Another eTool that can be used more effectively is the Lessons tool which hosts within itself the ability to scaffold the learning and teaching content for students. Once students show the level of competence required, the next level of content linked to specific learning outcomes is unlocked for further engagement. This is an interactive learning tool which, if used effectively, can engage

students in their learning appropriately. Their Zone of Proximal Development (ZPD) as cited by Vygotsky (1978), can be assessed appropriately and lecturers would be able to focus on those specific areas the students are struggling with. These can be dealt with during smaller tutorial classes and one-on-one online sessions with tutors.

It would also be beneficial for those students who are struggling to be assisted, based on their individual needs. Including specific evaluation feedback links within the course at specific points would assist lecturers to adjust their focus of teaching to specific areas of need. These can be included by making use of the tests and quizzes eTool which hosts functionality to include anonymous feedback. Students will not be identified and will be able to share their input and understanding in a non-threatening manner. This information can assist the lecturers with a way to prepare for specific classes based on the need and feedback of authentic student experiences.

Introducing surveys as little hotspots just before a lecture is a way to integrate and include the opinions and feedback of those students who are not always eager to speak during the face-to-face classes. Introducing these anonymous feedback sessions to actively improve lectures can be beneficial for lecturers, tutors and students engaged in the modules.

Introducing more opportunities for authentic reflective pieces by both students and tutors is also a good way of developing module delivery, which can give way to the introduction of experiential learning which leads to more effective research topics and contributions within the specific discipline and departments. Research output can be measured in different ways and not just through the publication of peer-reviewed articles in established journals. Introducing new methods and activities through student perspectives can be seen as research contributions which can give way to a more inclusive module which considers the perspectives of the students taught. In an attempt to develop our students/learners as knowledge contributors and co-creators of knowledge it is only apt that the input of students who have shared information of value should be heard and, in some way, contribute to the delivery of the knowledge they have shared. Although what content is shared and used is a matter of subjectivity on the part of the lecturer, it would depend on how well the students are able to articulate their argument.

7.5.3 Assessment Designed to Develop Student Learning and Increase Autonomous Learning

> "Take-home exams can provide positive learning experiences and simultaneously facilitate assessment and evaluation of students' ability to apply science knowledge and skills collaboratively to authentic, real-world tasks. Students can practice cooperative skills and perform discipline-relevant tasks, and many come to view the exams as a positive learning experience" (Johnson et al., 2015, pp. 68-70).

Researchers seem to agree that there are two major advantages associated with Take-home exams: they reduce students' anxiety and they are an excellent tool when it comes to testing students' higher-order thinking skills. The general opinion that take-home exams favour higher-order cognitive skills also indicates that they should be appropriately assessing students' skills on higher levels of Bloom's taxonomy scale (evaluate, create) (Bengtsson, 2019).

I am reproducing Table 4.19 below for ease of discussion with regard to student results. The high pass rate indicates that the method of teaching, learning and assessment has been effective. It showcases that the students have reached a level of competence within these specific modules, which sets a good foundation for the first-year of study. This can only bode well for the years that are left as part of their degree programme. Lecturers in second and third year have a good foundation to build further upon. Furthermore, it also indicates the positive impact of the different blended learning methods that students have been exposed to during these modules. Lecturers have been advised regarding the selection of specific eTools which complement the specific activity and its pedagogical value. During the process of consultation, lecturers were carefully advised around the value and use of specific eTools based on the assessment and teaching activities. This impacted the use of the eTools, and how it has been introduced to the students and in the modules generally.

Module Name	Academic Year	Number of students	Pass Rate %
English Home/First Language (ELT 111)	2019	82	95%
isiXhosa (SXL 101)	2019	123	94%
Foundation Phase Mathematics (FPM 111)	2019	155	96%

Table 7.4 Overall Student Numbers and Pass Rate for the Three Modules (ELT, SXL & FPM) in the BEd (FPT) programme

7.6 Conclusion

This study sought to investigate the impact of blended learning on first-year students enrolled in BEd (FPT) programme, with a particular focus on the Language and Mathematics modules:

- English Home Language (ELT 111),

- IsiXhosa Second Additional Language (SXL101), and
- Foundation Phase Mathematics (FPM 111).

This research was conducted within the Education Faculty at a Public Higher Education Institution. The results reflect the blended learning used within the modules, the impact on student development generally and student development as independent and self-directed learners. It describes the strategies that lecturers included in their teaching practices and how it affected the learning of students engaged in the different modules.

The study also sought to explore whether there is a focus on assessment within the blended learning approach. The results yielded that assessment and learning are closely tied. If students have developed their learning and progressed, it will be visible through completion and active engagement in activities of assessment.

The purpose and reasoning for the inclusion of blended learning within any module is dependent on the learning outcomes that the lecturer seeks to achieve. There should be a clear purpose and goal for the inclusion of blended learning approaches. The inclusion of any blended activities should be selected based on the purpose of the learning outcomes and what students are expected to achieve by the end of the module through a means of assessment. Hence there should be a constructive alignment between learning activities, assessment and the outcomes (Hattie, 2009).

Recommendations based on the research findings are suggested to improve the teaching and delivery of the BEd (FPT) programme as a whole and to develop prospective teachers effectively for the classroom. A suggestion for further research is to redesign the curriculum to be more effective within the schooling system. This would assist students to transition from the schooling system to the University more easily. Higher Education, more specifically University X, has increasingly introduced the inclusion of effective technology for teaching, learning and assessment purposes. From the onset, first-year students have been introduced to various blended learning techniques and eTools across disciplines within their first year and throughout the span of their four-year degree programme. The inclusion of blended learning is also aligned with University X's Graduate Attributes which are the key high-level qualities and skills students should gain as part of their learning at the university. These important qualities are also aligned to the teaching and learning activities lecturers design as part of their teaching practice. These attributes are important and are a key focus point during the teaching process, as the assessment and teaching processes are

important for the development of students as lifelong learners and social agents of change who need to implement their learnings within the communities in which they seek to serve.

This is an important study within the context of the BEd (FPT) programme and it has shown that the use of blended learning can play a positive role in the delivery of the programme and the development of prospective teachers. The implementation of blended learning at the start of the programme has supported the development of students as self-directed learners who are able to think for themselves. The prospective teacher educators have also shown that they are able to reflect on their learning and how the inclusion of different blended learning techniques has prepared them to develop lesson plans, reflect on their selection and use of specific eTools and techniques within their own classrooms in order to develop their learners.

This process of self-reflection on the part of the prospective teachers, being able to provide feedback regarding their own learning, and sharing their own thoughts on the use of blended learning and its impact, is an indication that the inclusion of blended learning across the three modules has made a positive impact. It has started the process of developing students as confident reflective practitioners, who are able to share and express their unique views on their own learning, development and their teaching practice. More importantly, they are able to reflect and share how they can contribute and apply their learning within the teaching domain.

8. REFERENCES

Akat, M., & Karatas, K. (2020). Psychological Effects of COVID-19 Pandemic on Society and Its Reflections on Education. *Electronic Turkish Studies, 15(4).*

Alenezi, M. (2021). Deep Dive into Digital Transformation in Higher Education Institutions *Higher Education Institutions. Educ. Sci. 11 (770*) https://doi.org/10.3390/educsci11120770

Alexander, P. A., Schallert, D. L., & Reynolds, R. E. (2009). What is learning anyway? A topographical perspective considered. *Educational Psychologist, 44 (3), 176-192.*

Alshenqeeti, H. (2014). Interviewing as a data collection method: A critical review. *English Linguistics Research,* 3 (1), 39-45.

Ambrose, S. A., Bridges, M. W., Lovett, M. C., DiPietro, M. & Norman, M. K. (2010). *How learning works.7 research-based principles for smart teaching*. John Wiley Bass.

Anderson, E. E., Solomon, S., Heitman, E., DuBois, J. M., Fisher, C. B., Kost, R. G., Lawless, M. E., Ramsey, C., Jones, B., Ammerman, A., & Ross, L. F. (2012). Research Ethics Education for Community-Engaged Research: A Review and Research Agenda. *Journal of Empirical Research on Human Research ethics*. https://doi.org/10.1525/jer.2012.7.2.3

Anderson, K. M. (2007). Tips for teaching differentiated instruction to include all students. *Preventing School Failure, 51*(3), 41–54.

Antwi-Boampong, A. (2020). Towards a faculty blended learning adoption model for higher education. *Education and Information Technologies, 25*(3), 1639-1662.

Arabasz, P., & Baker, M. (2003). ECAR Respondent Summary: Evolving Campus Support Models for elearning Courses. http://www.educause.edu/ir/library/pdf/ERS0303/ekf0303.pdf

Archer, M. (1995). Realist Social Theory: The Morphogenetic Approach. Cambridge: Cambridge University Press.

Arpaci, I., Karataş, K., & Baloğlu, M. (2020). The development and initial tests for the psychometric properties of the COVID-19 Phobia Scale (C19P-S). *Personality and individual differences, 164*, 110108.

Aspden, L., & Helm, P. (2004). Making the connection in a blended learning environment. *Educational Media International*, 41(3), 245–252. https://doi.org/10.1080/09523980410001680851

Austin R, Rickard A and Reilly J (2017) Face-to-face contact in blended learning for intercultural education: the role of teachers. *Irish Educational Studies* 36(3): 323–340.

Babbie, E. R. (2013). The practice of social research. Wadsworth Cengage.

Babbie, E., & Mouton.J. (2001). *The Practice of Social Research*. Oxford University Press, Cape Town.

Bacchus, R., Colvin, E., Knight, E. B., & Ritter, L. (2020). When rubrics aren't enough: Exploring exemplars and student rubric co-construction. *Journal of Curriculum and Pedagogy, 17*(1), 48-61.

Bain, K. (2014). *Becoming a reflective practitioner: The reflective ethical facilitator's guide*. Ontario Canada: BGC Publishing

Bargh, J.A., & Chartand, T.L. (1999). The unbearable automaticity of being. *American Psychologist, 54,* 462-479.

Barrios, M., González-Teruel, A., Cosculluela, A., Fornieles, A., & Turbany, J. (2014). Structure and performance assessment in traditional face-to-face and blended learning statistics courses. *Procedia-Social and Behavioral* Sciences, *141,* 1259-1262.

Baron, J., & Maier, H. (2005). The challenges of keeping the momentum. Proceedings of ascilite 2005: *Balance, Fidelity, Mobility: Maintaining the momentum*? 57-66.

Bath, D., & Bourke, J. (2010). *Getting started with blended learning*. Griffith Institute for Higher Education. www.dkit.ie/system/files/Getting%20started%20with%20blended%20learning%20Griffith%20University%20AU_0.pdf

Bedeck, K. (2015). *Children's bullying and victimization on school engagement: The influence of teacher support* [Unpublished undergraduate honors dissertation]. King's University College at Western University].

Beichner, R. J., & Saul, J. M. (2003). Introduction to the SCALE-UP (student-centered activities for large enrollment undergraduate programs) project. *Proceedings of the International School of Physics* ''Enrico Fermi,''Varenna, Italy. http://www. ncsu. edu/per/scaleup. html

Bell, J., & Waters, S. (2018). *Ebook: doing your research project: a guide for first-time researchers*. McGraw-hill education.

Benfield, G., Roberts, G., & Francis, R. (2006). *The undergraduate experience of blended e-learning: A review of UK literature and practice*. London: Higher Education Academy.

Bengtsson, L. (2019). Take-Home Exams in Higher Education: A Systematic Review. *Education Sciences*, *9*(4), 267. http://doi:10.3390/educsci9040267

Biggs, J. (2003). Aligning teaching for constructing learning. *Higher Education Academy, 1*(4).

Biggs, J. B. (2011). *Teaching for quality learning at university: What the student does*. McGraw-hill education (UK).

Bjorklund, D.F., & Pellegrini, A.D. (2002). *The origins of human nature: Evolutionary developmental psychology.* Washington, DC: American Psychological Association.

Bless, C., Higson-Smith, C., & Sithole, S. L. (2004). The types of research. *Kondlo, KM Fundamentals of Research Methods: An African Perspective*, *3*.

Bloom, B.S. (1956) Taxonomy of Educational Objectives, Handbook: The Cognitive Domain. David McKay, New York.

Boelens, R., De Wever, B., & Voet, M. (2017). Four key challenges to the design of blended learning: A systematic literature review. *Educational Research Review*, *22*, 1-18.

Bonwell, C.C. (2000). *Active learning: creating excitement in the classroom*. http://www.ydae.purdue.edu/lct/hbcu/documents/active_learning_creating_excitement_in_the_classroom.pdf

Bosch, C., & Pool, J. (2019). Establishing a learning presence: Cooperative learning, blended learning, and self-directed learning. In *Technology-supported teaching and research methods for educators* (pp. 51-74). IGI Global.

Böstrum, L., & Lassen, L.V. (2006). Unravelling learning, learning styles, learning strategies and meta-cognition. *Education + Training*, 48:2/3.

Bowen, G.A. (2009). 'Document analysis as a qualitative research method', *Qualitative Research Journal* 9(2), 27– 40. http://dx.doi.org/10.3316/QRJ0902027

Bozkurt, A., & Sharma, R. C. (2020). Emergency remote teaching in a time of global crisis due to Corona virus pandemic. Asian Journal of Distance Education, 15 (1), i-vi. https://www.asianjde.org/ojs/index.php/AsianJDE/article/view/447

Bransford, J.D., Brown, A.L, & Cocking, R.R. (1999). *How People Learn: Brain, Mind, Experience and School.* Washington DC: National Academy Press.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Braun, V., & Clarke, V. (2012). Thematic analysis. In H. Cooper (Ed.), APA handbook of research methods in psychology Vol 2: Research designs (Vol. 2, pp. 57–71). American Psychological Association. https://doi.org/10.1037/13620-004

Brighouse, H. (2004). *Justice.* Polity.

Brooks, J. G. (2004). To see beyond the lesson. Educational Leadership, 62(1), 8-12.

Brophy, J. (1999). Perspectives of classroom management: Yesterday, today, and tomorrow. In H. J. Freiberg (Ed.), *Beyond behaviorism: Changing the class management paradigm* (pp. 43–56). Allyn and Bacon.

Brown, S., & Race, P. (2013). Using effective assessment to promote learning in Chalmers, D., & Hunt, L. (eds) *University Teaching in Focus: A Learning-Centred Approach*. Routledge 74-91.

Bruno, A., & Dell'Aversana, G. (2018) Reflective practicum in higher education: the influence of the learning environment on the quality of learning. *Assessment & Evaluation in Higher Education*, *43*(3), 345-358.

Bryman, A., & Bell, E. (2007). Business Research Methods (2nd ed.). Oxford university press.

Bryman, A., & Bell, E. (2007). Business Research Methods (2nd ed.). Oxford: Oxford university press.

Buente, W., Winter, J. S., Kramer, H., Dalisay, F., Hill, Y. Z. & Buskirk, P. A. (2015). Program-Based Assessment of Capstone ePortfolios for a Communication BA Curriculum. *International Journal of ePortfolio*, *5*(2), 169-179.

Bybee, R., & Landes, N. M. (1990). Science for life and living: An elementary school science program from Biological Sciences Improvement Study (BSCS). *The American Biology Teacher*, 52(2), 92-98.

Calderón, A., Scanlon, D., MacPhail, A., & Moody, B. (2021). An integrated blended learning approach for physical education teacher education programmes: teacher educators' and pre-service teachers' experiences. *Physical Education and Sport Pedagogy*, *26*(6), 562-577.

Camilleri, G. (1997). Learner autonomy: The teachers' views. Retrieved January 29, 2015. From www.ecml.at/documents/pubCamilleriG_E.pdf

Casey, S. (2016). Advantages and Disadvantages of Station Rotation. https://techinclass1416.wordpress.com/2016/06/02/advantages-and-disadvantages-of-stationrotation/

Casner-Lotto, J., & Barrington, L. (2006). Are they really ready to work? Employers' perspectives on the basic knowledge and applied skills of new entrants to the 21st century US workforce. Partnership for 21st Century Skills.

Castleberry, A., & Nolen, A. (2018). Thematic analysis of qualitative research data: Is it as easy as it sounds?. *Currents in pharmacy teaching and learning*, *10*(6), 807-815.

Centre for Digital Education (2012). *Realizing the Full Potential of Blended Learning*, A Strategy Paper. www.centerdigitaled.com

Chickering, A.W. & Gamson, Z. F. (1987) Seven Principles for Good Practice in Undergraduate Education. *AAHE Bulletin*, 3-7.

Chief, I. Y. & Moeava, P. (2020). Supporting flexible assessment of competencies with eportfolios. *with Technology*, 109.

Christensen, C. M., Horn, M. B., & Staker, H. (2013). Is K-12 Blended Learning Disruptive? An Introduction to the Theory of Hybrids. *Clayton Christensen Institute for Disruptive Innovation*.

Christiansen, I., Bertram, C., & Mukeredzi, T. (2018). Contexts and concepts: Analysing learning tasks in a foundation phase teacher education programme in South Africa. *Asia-Pacific Journal of Teacher Education*, *46*(5), 511-526.

Cindy, H. (2018). The Power of Positive Meaningful Feedback on Student Success. Curios Neuron

Clapper, T. C. (2009). Moving away from teaching and becoming a facilitator of learning. *PAILAL*. 2

Clare, J. (2015). The Difference in Cooperative Learning & Collaborative Learning. http://www. teacherswithapps.com/

Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education (eight edition).* Abingdon, Oxon.

Conole, G., Dyke, M., Olivier, M. & Seale, J. (2004). Mapping pedagogy and tools for effective learning design. *Computers & Education, 43(1-2),* 17-33

Council on Higher Education (CHE) (2014). Distance higher education programmes in a digital era: good practice guide. CHE.

Crawford, R. (2016). Rethinking teaching and learning pedagogy for education in the twenty-first century: blended learning in music education. *Music Education Research*, 1-19. https://doi.org/10.1080/14613808.2016.1202223

Crespo, R. M., Najjar, J., Derntl, M., Leony, D., Neumann, S., Oberhuemer, P., & Kloos, C. D. (2010). Aligning assessment with learning outcomes in outcome-based education. In *IEEE EDUCON 2010 Conference* (pp. 1239-1246). IEEE.

Creswell, J. W. (2003). Research design qualitative, quantitative and mixed methods Approaches (2nd ed.). Thousand Oaks: CA: Sage.

Creswell, J. W. (2014). Research design: qualitative, quantitative, and mixed methods approaches (4th ed.). SAGE.

Creswell, J. W., Shope, R., Plano Clark, V. L., & Green, D. O. (2006). How interpretive qualitative research extends mixed methods research. *Research in the Schools*, *13*(1), 1-11.

Cronje, J. (2020). Towards a new definition of blended learning. *Electronic journal of e-Learning*, *18*(2), pp 114-121.

Cross, N. (2004). Expertise in design: an overview. *Design studies*, *25*(5), 427-441.

Cubukcu, F. (2016). The Correlation between Teacher Trainers and Pre-service Teachers Perceptions of Autonomy, Procedia - Social and Behavioral Sciences 232 (12-17) https://doi.org/10.1016/j.sbspro.2016.10.004.(http://www.sciencedirect.com/science/article/pii/S1877042816312356)

Dakhi, O., Jama, J., & Irfan, D. (2020). Blended learning: a 21st century learning model at college. *International Journal of Multi Science*, *1*(08), 50-65.

Dam, L. (2014). How to engage learners in authentic target language use – Examples from the autonomy classroom. In A. Burkert, L. Dam, & C. Ludwig (Eds.), *The answer is learner autonomy: Issues in language teaching and learning* (pp. 81-98). Faversham, United Kingdom: IATEFL.

Davidson, C.N. (2012). *Now you see it: how technology and brain science will transform schools and business for the 21st century*. New York, NY: Penguin Books.

Davis, B., Sumara, D., and Luce-Kapler, R. (2000). Engaging Minds: Learning and Teaching in a Complex World. Mahwah: Lawrence Erlbaum Associates, Publishers.

Deboer, G. E. (2002). Student-Centered Teaching in a Standards-Based World: Finding a Sensible Balance. *Science and Education*, *11*(4), 405–417. https://doi.org/10.1023/A:1016075805155

De Jager, T. (2017). Perspectives of teachers on differentiated teaching in multi-cultural South African secondary schools. *Studies in Educational Evaluation*. https://doi.org/10.1016/j.stueduc.2016.08.004

Demiray, U.E. (2010). Cases on Challenges Facing E-Learning and National Development: Institutional Studies and Practices. *e-Learning Practices*

Department of Higher Education and Training (DHET) (2017). Open Learning Policy Framework for Post-School Education and Training. Government Gazette, 358-410

Desai, Z. (2004). Starting a research project: some lessons to be learnt. In Brock-Utne, B., Desai, Z., & Qorro, M. (eds) (2012). *Researching the language of instruction in Tanzania and South Africa (LOITASA)*. African minds (pp 117-130).

De Vos, A. S., Delport, C. S. L., Fouche, C., & Strydom, H. (2011). *Research at grass roots: A primer for the social science and human professions*. Van Schaik Publishers.

Dhawan, S. (2020). *Online Learning: A Panacea in the Time of COVID-19 Crisis* in Journal of Educational Technology Systems 2020, Vol. 49(1) 5–22

DiCicco-Bloom, B., & Crabtree, B. F. (2006). The qualitative research interview. Medical education, 40(4), 314-321.

Dicker, A. (2015). Teaching Mathematics in Foundation Phase Multilingual Classrooms: Teachers' Challenges and Innovations. International Journal of Education and Science, 8(1-i): 65-73

Dickfos, J., Cameron, C., & Hodgson, C. (2014). Blended learning: making an impact on assessment and self-reflection in accounting education. *Education Training*.

Dobao, A. F. (2012). Collaborative writing tasks in the L2 classroom: Comparing group, pair, and individual work. *Journal of second language writing*, *21*(1), 40-58.

Donitsa-Schmidt, S., & Ramot, R. (2020). Opportunities and challenges: teacher education in Israel in the COVID-19 pandemic. *Journal of Education for Teaching*, *46*(4), 586-595. https://doi.org/10.1080/02607476.2020.1799708

Driscoll, M. (2002) Blended Learning: let's get beyond the hype, E-learning. http://elearningmag.com/ltimagazine

Duckworth, E. (1987; 1996). *'The having of wonderful ideas" and other essays on teaching and learning, first & second editions*. New York: Teachers College Press.

Du Toit, A. & Pool, J. (2016). Pre-service teacher students' expectations of self-directed learning in an under- graduate blended-learning course. In E. Mentz & I. Oosthuizen (eds.), *Self directed learning research*. Cape Town: AOSIS. pp. 213-238. http://dx.doi.org/10.4102/aosis.2016.sdlr14.08

Dzobelova, V. B., Aguzarova, L. A., Olisaeva, A. V., & Kornilova, E. E. (2020, March). Digital Technologies in Education and their Influence on Modern Society. In *"New Silk Road: Business Cooperation and Prospective of Economic Development"(NSRBCPED 2019)* (pp. 157-161). Atlantis Press.

Edwards, R., & Holland, J. (2013). *What is qualitative interviewing?*. A&C Black.

Ertmer, P. A., & Newby, T. J. (2013). Behaviorism, cognitivism, constructivism: Comparing critical features from an instructional design perspective. *Performance improvement quarterly*, *26*(2), 43-71.

European Shoolnet. (2006). The ICT Report: A review of studies of ICT Impact on schools in Europe. Belgium: European Commission

Faulconer, E., Griffith, J., & Gruss, A. (2022). The impact of positive feedback on student outcomes and perceptions. *Assessment & Evaluation in Higher Education, 47(2),* 259-268.

Febriani, I., & Abdullah, M. I. (2018). A systematic review of formative assessment tools in the blended learning environment. *International Journal. Engineering and Technology*, *7*(4.11), 33-39.

Fellows, R. F., & Liu, A. M. (2021). *Research methods for construction*. John Wiley & Sons.

Fetters, M. L., & Duby, T. G. (2011). Faculty development: A stage model matched to blended learning maturation. *Journal of Asynchronous Learning Networks*, *15*(1), 77–86.

Fitzmaurice, M. (2010). Considering teaching in higher education as practice. *Teaching in Higher Education*, 15 (1): 45-55.

Foddy, W. (1993): Constructing Questions for Interviews and Questionnaires: Theory and Practice in Social Research. Cambridge: Cambridge University Press.

Fosnot, C. T., & Perry, R. S. (2005). Constructivism: A Psychological Theory of Learning. In Fosnot, C. T. (Ed.) *Constructivism: Theory, Perspectives, and Practice*. New York: Teachers College Press. Pp 8-33.

Fowler, C., & Mays, T. (2005). *Stage 2: Mapping theory to practice and practice to tool functionality based on the practitioner's' perspective*. JISC e-Learning Models Desk Study (1).

Francom, G.M. (2010). Teach me how to learn: principles for fostering students' self-directed learning skills. *International journal of self-directed learning, 7(1),* Spring.

Freeman, M., & McKenzie, J. (2002). SPARK, a confidential web–based template for self and peer assessment of student teamwork: benefits of evaluating across different subjects. *British journal of educational technology*, *33*(5), 551-569.

Gachago, D., Ivala, E., Backhouse, J., Bosman, J.P., Bozalek, V. and Ng'ambi, D. (2013) Towards a Shared Understanding of Emerging Technologies: Experiences in a Collaborative Research Project in South Africa. *The African Journal of Information Systems*: 5 (3), Article 4. http://digitalcommons.kennesaw.edu/ajis/vol5/iss3/4

Gagne, R. M. (1965). *The conditions of learning*. Holt, Rinehart & Winston.

Gamoran Sherin, M. (2003). New Perspectives On The Role Of Video In J. Brophy (Ed.) *Teacher Education Using Video in Teacher Education* (*Advances in Research on Teaching, Vol. 10*), Emerald Group Publishing Limited, pp. 1-27. https://doi.org/10.1016/S1479-3687(03)10001-6

Garrison, D. R., & Kanuka, H. (2004). Blended learning: uncovering its transformative potential in higher education. *The Internet and Higher Education, 7(2),* 95–105.

Garton, L., Haythornthwaite, C., & Wellman, B. (1999). Studying on-line social networks. In S. Jones (Ed.), Doing Internet Research: Critical Issues and Methods for Examining the Net (pp. 75–105). Thousand Oaks, CA: Sage.

Geduld, B. (2014). Re-thinking the value of learning theories to develop self-directedness in open-distance students. *Journal of Educational Social Research 4(6),* 11–18.

Gill, D. (2009). Effective blended learning techniques. *Journal of College Teaching & Learning (TLC)*, *6*(2).

Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Methods of data collection in qualitative research: interviews and focus groups. *British Dental Journal*, *204*(6), 291-295.

Gimeno-Sanz, A. (2010). Intermediate online English: An attempt to increase learner autonomy. Teaching English with technology – *Developing online teaching skills special issue*, 10, 35-49.

Gleason, B. (2013). #Occupy Wall Street. *American Behavioral Scientist*, *57*(7), 966–982. https://doi.org/10.1177/0002764213479372

Gonier, D.E. (1999): The emperor gets new clothes. In: Towards Validation. Online Research Day. An ARF Emerging Issue Workshop. Advertising Research Foundation, New York City, New York, 8-13. http://www.dmsdallas.com/emporere/emporer.html

González, C. (2012). The relationship between approaches to teaching, approaches to e-teaching and perceptions of the teaching situation in relation to e-learning among higher

Graham, C.R. (2006). Blended Learning Systems. In C.J. Bonk, & C.R. Grahams (Eds.), *The Handbook of Blended Learning: Global Perspectives*. Local Designs: Pfeiffer.

Graham, C. R., & Robison, R. (2007). Realizing the transformational potential of blended learning: Comparing cases of transforming blends and enhancing blends in higher education. In A.

G. Picciano & C. D. Dziuban (Eds.) *Blended learning: Research perspectives* (pp. 83–110). Needham, MA: The Sloan Consortium.

Graue, C. (2015). Qualitative data analysis. *International Journal of Sales, Retailing & Marketing, 4(9)*, 5-14.).

Guangying, C. (2014). An experimental research on blended learning in the development of listening and speaking skills in China. *Southern African Linguistics and Applied Language Studies*, 32(4), 447-460.

Guglielmino, L. M. (1978). Development of the self-directed learning readiness scale. (Doctoral dissertation, University of Georgia, 1977). *Dissertation Abstracts International,* 38, 6467A.

Guglielmino, L.M. (2013). The case for promoting self-directed learning in Formal Educational Institutions. *SA-eDUC Journal* 10(2), 10–13.

Gülbahar, Y., & Tinmaz, H. (2006). Implementing project-based learning and e-portfolio assessment in an undergraduate course. International Society for Technology in Education, 309-327.

Gutlig, J. (1999) *Globalisation and the idea of the university in post-apartheid South Africa*. Paper presented at the Kenton Conference, South Africa.

Hadar, L. L., Ergas, O., Alpert, B., & Ariav, T. (2020). Rethinking teacher education in a VUCA world: student teachers' social-emotional competencies during the COVID-19 crisis. European Journal of Teacher Education, 1-14. https://doi.org/10.1080/02619768.2020.1807513

Hadjerrouit, S. (2007). *A Blended Learning Model in Java Programming: A design-based approach.* Paper presented at the Computer Science & IT Education Conference, Montreal, Canada.

Halili, S. H., & Zainuddin, Z. (2015). Flipping the classroom: What we know and what we don't. *The online Journal of Distance Education and E-learning*, *3*(1), 15-22.

Hall, T. (2002). *Differentiated instruction. effective classroom practices report.* National Centre on Accessing the General Curriculum. CAST, U.S. Office of Special Education Programs.

Hammarlund, C. S., Nilsson, M. H., & Gummesson, C. (2015). External and internal factors influencing self-directed online learning of physiotherapy undergraduate students in Sweden: A qualitative study. *Journal of Educational Evaluation for Health Professions*, **12**, 33. https://doi.org/10.3352/jeehp.2015.12.33

Han, F., Pardo, A., & Ellis, R. A. (2020). Students' self-report and observed learning orientations in blended university course design: How are they related to each other and to academic performance*? Journal of Computer Assisted Learning*, 36(6), 969-980.

Hancock, J. T., Curry, L. E., Goorha, S., & Woodworth, M. (2007). On lying and being lied to: A linguistic analysis of deception in computer-mediated communication. *Discourse Processes, 45*(1), 1-23.

Hardman, J. (2015) Pedagogical variation with computers in mathematics classrooms: A Cultural Historical Activity Theory analysis. *Psychology in Society* (PINS) 48: pp 47 – 76, http://dx.doi.org/10.17159/2309-8708/2015/n48a3

Harper, S. R., & Quaye, S. J. (2009). (Eds.). *Student engagement in higher education: Theoretical perspectives and practical approaches for diverse populations*. Routledge.

Harrell, M. C., & Bradley, M. A. (2009). *Data collection methods. Semi-structured interviews and focus groups*. Rand National Defense Research Inst

Hattie, J., & Brown, G. (2008). Assessment and evaluation. Presentation at *Speaking of Quality: An Educational Psychology Forum*, Auckland, New Zealand.

Hattie, J. A. C., & Clinton, J. (2008). Identifying accomplished teachers: A validation study. In L. Ingvarson & J. A. C. Hattie (Eds.), *Assessing teachers for professional certification: The first decade of the National Board for Professional Teaching Standards* (pp. 313–344). Oxford: Elsevier.10.1016/S1474-7863(07)11011-5

Healy, M., & Perry, C. (2000). Comprehensive criteria to judge validity and reliability of qualitative research within the realism paradigm. *Qualitative market research: An international journal*.

Heaslip, G., Donovan, P., & Cullen, J.G. (2014). Student response systems and student engagement in large classes. *Active Learning in Higher Education*, Vol. 15(1) 11 –24

Heift, T. (2003). Multiple learner errors and meaningful feedback: A challenge for ICALL systems. *CALICO journal*, 533-548.

Henrie, C.R., Halverson, L.R., & Graham, C.R. (2015). Measuring student engagement in technology-mediated learning: A review in Computers and Education (90): 36-53

Herrington, J., McKenney, S., Reeves, T.C., & Oliver, R. (2007). Design-based research and doctoral students: Guidelines for preparing a dissertation proposal. In C. Montgomerie& J. Seale (Eds.), *Proceedings of EdMedia 2007: World Conference on Educational Multimedia, Hypermedia& Telecommunications* (pp. 4089-4097). Chesapeake, VA:

Hofmann, J. (2001) Blended Learning Case Study. www.learningcircuits.org/2001/apr2001/hofmann.html

Holec, H. (1981). *Autonomy and foreign language learning*. Oxford, England: Pergamon.

Horn, M. B., & Staker, H. (2011). The rise of K-12 blended learning. *Innosight institute*, *5*(1), 1-17.

Howard-Jones, P. A. (2014). Neuroscience and education: Myths and messages. *Nature Reviews Neuroscience*, *15*, 817–824. http//: doi:10. 1038/nrn3817

Howie, S., Van Staden, S., Tshele, M., Dowse, C., & Zimmerman, L. (2017). *Progress in international reading literacy study 2016. South African children's reading literacy achievement*. Summary Report. Centre for Evaluation and Assessment, Pretoria.

Hrastinski, S. (2008). Asynchronous and synchronous E-learning. *Educause Quarterly*, 4, 51–55. https://er.educause.edu/articles/2008/11/asynchronous-and-synchronous-elearning

Hua, Z., & David, A. (2008). Study design: Cross-sectional, longitudinal, case, and group. In L. Wei & M.G. Moyer (Eds.), *The Blackwell Guide to Research Methods in Bilingualism and Multilingualism* (pp. 88 – 107). Blackwell.

Ibrahim, M. M., & Nat, M. (2019). Blended learning motivation model for instructors in higher education institutions. *International Journal of Educational Technology in Higher Education, 16(1),* 1-21.

ICEF Monitor (2015*). Blended learning moving to centre stage in higher education*, http://monitor.icef.com/2015/07/blended-learning-moving-to-centre-stage-in-higher-education/

Irvine, N., & Carmichael, P. (2009). Threshold concepts. *Active Learning in Higher Education,10* (2), 103–119. https://doi.org/10.1177/1469787409104785

Islam, M. K., Sarker, M. F. H., & Islam, M. S. (2022). Promoting student-centred blended learning in higher education: *A model. E-Learning and Digital Media, 19(1),* 36-54.

Jagals, D., 2020, 'Defining research focus in self-directed learning: An autoethnographic reflection', in E. Mentz & R. Bailey (eds.), *Self-directed learning research and its impact on educational practice* (NWU Self-Directed Learning Series Volume 3), pp. 1–25, AOSIS, Cape Town. https://doi.org/10.4102/aosis.2020.BK206.01

James, M. (2006). Assessment, teaching and learning theories in MS of Chapter 3 in J. Gardner (Ed) (2006) *Assessment and Learning (1st Edition).* Sage. 47-60.

Jenkins, A., Breen, R., Lindsay, R. and Brew, A. (2005). *Reshaping Teaching in Higher Education: Linking Teaching with Research*. Kogan Page.

Jessica, K,B., Brittan, H., Lucas, W., (2014). *Blended learning: Defining Models and Examining Conditions to Support Implementation*. Philadelphia Education Research Consortium (PERC)

Johnson, C. M., Green, K. A., Galbraith, B. J. & Anelli, C. M. (2015). Assessing and refining group take-home exams as authentic, effective learning experiences. *Journal of College Science Teaching*, *44*(5), 61-71.

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of mixed methods research*, *1*(2), 112-133.

Jonassen, D. H. (1991). Evaluating constructivist learning. *Educational Technology*, *31*(9), 28-33.

Julie, C., Holtman, L., & Mbekwa, M. (2011). Rasch modelling of Mathematics and Science teachers' preferences of real-life situations to be used in Mathematical Literacy. *Pythagoras,* 32(1), 13, http://dx.doi.org/10.4102/pythagoras.v32i1.13

Kalantzis, M., & Cope, W. (2010). The Teacher as Designer: Pedagogy in the New Media Age in *E–Learning and Digital Media Volume 7(3*), www.wwwords.co.uk/ELEA

Kannan, K., & Narayanan, K. (2015). A structural equation modelling approach for massive blended synchronous teacher training. *Journal of Educational Technology & Society, 18(3),* 1-15.

Karatas, K., & Arpaci, I. (2021). The role of self-directed learning, metacognition, and 21st century skills predicting the readiness for online learning. *Contemporary Educational Technology, 13*(3).

Kemmis, S. (2011). What is professional practice? Recognizing and respecting diversity in understandings of practice. In: Kanes C (ed.), *Elaborating professionalism: Studies in practice and theory.* New York: Springer. pp 139–165.

Kennedy, D.M. (2014). M-learning to support learning English in a Hong Kong University. *Journal of Online Learning and Teaching (JOLT),* 10 (4), 640-656. http://jolt.merlot.org/vol10no4/Kennedy_1214.pdf

Kerres, M., & De Witt, C. (2003). A Didactical Framework for the Design of Blended Learning Arrangements, Journal of Educational Media, 28(2-3), pp. 101-113.

Khechine, H., Lakhal, S., Pascot, D., & Bytha, A. (2014). UTAUT model for blended learning: The role of gender and age in the intention to use webinars. *Interdisciplinary Journal of e-Skills and Lifelong Learning*, 10, 33–52. https://doi.org/10.28945/1994

Khine, M. S., & Lourdusamy, A. (2003). Blended learning approach in teacher education: combining face-to-face instruction, multimedia viewing and online discussion. *British Journal of Educational Technology, 34(5),* 671-675.

Kicken, W., Brand-Gruwel, S., Van Merriënboer, J. & Slot, W. (2009). Design and evaluation of a development portfolio: How to improve students' self-directed learning skills. *Instructional Science, 37*(5), 453-473.

Kim, J. (2020). Learning and teaching online during COVID-19: Experiences of student teachers in an early childhood education practicum. *International Journal of Early Childhood*, 52 (2), 145-158. https://doi.org/10.1007/s13158-020-00272-6

Kirkpatrick, M. (2010). Google CEO Eric Schmidt: "People aren't ready for the technology revolution." ReadWriteWeb https://readwrite.com/google_ceo_schmidt_people_arent_ready_for_the_tech/

Knowles, M. S. (1975). Self-directed learning: A guide for learners and teachers.

Kok, L., & van Schoor, R. (2014). A science-technology-society approach to teacher education for the foundation phase: Students' empiricist views. South African Journal of Childhood Education, 4(1), 95-110.

Kosar, G. (2016). A Study of EFL Instructors' Perceptions of Blended Learning. *Procedia Social and Behavioral Sciences*, 232, 736 – 744. www.sciencedirect.com

Kose, U. (2010). A blended learning model supported by Web 2.0 technologies. *Procedia and Social and Behavioural Sciences, 2*, 2794-2802

Kozma, R. B., & Anderson, R. E. (2002) Qualitative case studies of innovative pedagogical practices using ICT. Journal of Computer Assisted Learning, 18, 387-394.

Krause, K. (2007). *Blended learning strategy. Getting started with blended learning*. Griffith University. www.griffith.edu.au/__data/assets/pdf_file/0004/267178/Getting_started_with_blended_learning_guide.pdf

Kreber, C., & Kanuka, H. (2006). The scholarship of teaching and learning and the online classroom. *Canadian Journal of University Continuing Education*, 32(2), 109–131.

Kymlicka, W. (1989). *Liberalism, community, and culture*. Clarendon Press

Lasagabaster, D. (2001). The effect of knowledge about the L1 on foreign language skills and grammar. *International Journal of Bilingual Education and Bilingualism*, *4*(5), 310-331.

Lawson, C. (2019). Designing engaging online assessments to reduce contract cheating in higher education. In *EDULEARN19 Proceedings* (pp. 4631-4634). IATED.

Lebrun, K.M & Rice, M.L. (2013). Logging off: Attrition in online community college courses. *International Journal of Instructional Technology and Distance Learning 10 (6)*, 3- 22.

Lee, S. J., Srinivasan, S., Trail, T., Lewis, D., & Lopez, S. (2011). Examining the relationship among student perception of support, course satisfaction, and learning outcomes in online learning. *The Internet and Higher Education*, 14(3), 158–163. https://doi.org/10.1016/j.iheduc.2011.04.001

Leonard, L., Mokwele, T., Siebrits, A., & Stoltenkamp, J. (2016). 'Digital Natives' Require Basic Digital Literacy. *The IAFOR International Conference on Technology in the Classroom Hawaii 2016 Official Conference Proceedings Abstract*, (January), 19–35.

Lim, D. H., & Morris, M. L. (2009). Learner and instructional factors influencing learning outcomes within a blended learning environment. *Educational Technology & Society*, *12*, 282–293.

Lincoln, Y. S., & Guba, E. G. (1985). Naturalistic inquiry. Newberry Park. CA: Sage.

Littlejohn, A., & Pegler C. (2007). Preparing for Blended e-Learning. Routledge.

Lodico, M., Spaulding, D., & Voegtle, K. (2010). *Methods in Educational Research: from Theory to Practice, 2nd Edition*. Jossey-Bass.

Lopez-Perez, M., Perez-Lopez, M., & Rodriguez-Ariza, L. (2011). Blended learning in higher education: Teacher candidates' perceptions and their relation to outcomes. *Computers & Education*, 56, 818–826.

Lorenzo, G., & Ittelson, J. (2005). An overview of eportfolios. In D. Oblinger (Ed.), ELI Paper 1. Boulder, CO: EDUCAUSE Learning Initiative. Retrieved from http://net.educause.edu/ir/library/pdf/ELI3001.pdf

Lorenzo-Lledó, A., Lledó, A., Gilabert-Cerdá, A., & Lorenzo, G. (2021). The Pedagogical Model of Hybrid Teaching: Difficulties of University Students in the Context of COVID-19. European Journal of Investigation in Health, Psychology and Education, 11(4), 1320-1332.

Lujan, H. L., & DiCarlo, S. E. (2006). Too much teaching, not enough learning: what is the solution? *Advances in physiology education*, *30*(1), 17-22.

Lungu, I. (2013). The increasing need for blended learning models in courses of English for specific courses in Romanian universities. Procedia - Social and Behavioral Sciences, 76, 470–475. https://doi.org/10.1016/j.sbspro.2013.04.148

Lynch, K., & Baker, J. (2005). Equality in education: An equality of condition perspective. *Theory and Research in Education*, 3(2), 131–164.

Makonye, J.P. (2016). The enactment of problem-based approaches in pre-service mathematics and the levels of performance of teacher students in problem projects, in E. Mentz & I. Oosthuizen (eds.), *Self-directed learning research.* AOSIS. pp. 184-212. http://dx.doi.org/10.4102/aosis.2016.sdlr14.07

Martin, F., Parker, M. A., & Deale, D. F. (2012). Examining interactivity in synchronous virtual classrooms. The International Review of Research in Open and Distance Learning, 13(3), 227-261. Retrieved from http://files.eric.ed.gov/fulltext/EJ1001021.pdf

Mason, R., & Rennie, F. (2006). E-learning: The key concepts. London: Routledge.

Maulana, R., Helms-Lorenz, M., & Van de Grift, W. (2017) Validating a model of effective teaching behaviour of pre-service teachers, Teachers and Teaching, 23:4,471-493, http//:doi: 10.1080/13540602.2016.1211102

Mayes, T. & de Freitas, S. (2004). *Review of e-learning theories, frameworks and models. JISC e-learning models study report.* The Joint Information Systems Committee, London, UK.

Mbekwa, M. (2008). Translating Mathematical text for mother tongue teaching and learning of mathematics in Qorro, M., Desai, Z. & Brock-Utne, B. (eds.). *LOITASA: Reflecting on phase 1 and entering phase 11*. Dar es Salaam: Vision Publishing

McKenzie, J., Pelliccione, L. & Parker, N. (2008). *Developing peer review of teaching in blended learning environments: Frameworks and challenges.* In Hello

McKnight, C. (2016, August 26). *Digital Learning.* http://bisdblended.blogspot.com.eg/2016/08/birdvilleblended-station-rotations_26.html

McLeod, J., Fisher, J., & Hoover, G. (2003). *The key elements of classroom management: Managing time and space, student behavior, and instructional strategies*. ASCD.

Mcleod, S. (2007). *Maslow's Hierarchy of Needs*. https://www.simplypsychology.org/maslow.html

McMillan, J. H., & Schumacher, S. (2006). *Research in education: Evidence-based inquiry*. Boston: Pearson Education.

Mebane, M., Porcelli, R., Iannone, A., Attanasio, C., & Francescato, D. (2008). Evaluation of the efficacy of affective education online training in promoting academic and professional learning and social capital. *International Journal of Human-Computer Interaction, 24 (1),* 68-86.

Mehall, S. (2020). Purposeful interpersonal interaction in online learning: What is it and how is it measured? *Online Learning, 24(1),* 182-204. https://doi.org/10.24059/olj.v24i1.2002

Melnikovas, A. (2018). Towards an explicit research methodology: Adapting research onion model for futures studies. *Journal of Futures Studies, 23*(2), 29-44.

Mentz, E. & van Zyl, S. (2016). Introducing cooperative learning: students' attitudes towards learning and the implications for self-directed learning *Journal of Education, No. 64 (80-110)*

Merriam, S., Caffarella, R., & Baumgartner, L. (2007). Learning in adulthood (3rd ed.) San Francisco: Jossey-Bass.

Middlehurst, R. (2003). *Competition, Collaboration and ICT: Challenges and Choices for Higher Education Institutions*. University of Surrey, UK (Unpublished).

Mills, A. J., Durepos, G., & Wiebe, E. (2010). Credibility. Encyclopedia of case study research pp. 243-244. SAGE Publications. https://dx.doi.org/10.4135/9781412957397.n91

Milman, N. B. (2012). The flipped classroom strategy: What is it and how can it best be used? *Distance Learning,* 9(3), 85-87.

Milner, P., & Endo, H. (2005). Journey to becoming a teacher: The experiences of students of color. *Multicultural Education, 13*(1), 2–9.

Minhas, W., White, T., Daleure, G., Solovieva, N., & Hanfy, H. (2021). Establishing an effective blended learning model: Teacher perceptions from the United Arab Emirates. *SAGE Open*, *11*(4), 21582440211061538.

Mishra, P., Koehler, M.J. & Henriksen, D. (2011). The 7 trans-disciplinary habits of mind: Extending the TPACK framework towards the 21st Century Learning. *Educational Technology, 11 (2): 22-28*

Mlitwa, N. B. (2005). Global Perspectives on Higher Education & the Role of ICT.

Mlitwa, N. B. (2005). Higher Education and ICT in the Information Society: A Case of the University of the Western Cape

Mogalakwe, M. (2006). The Use of Documentary Research Methods in Social Research. *African Sociological Review / Revue Africaine de Sociologie*, *10*(1), 221–230. http://www.jstor.org/stable/afrisocirevi.10.1.221

Moskal, P., Dziuban, C., & Hartman, J. (2013). Internet and Higher Education Blended learning: A dangerous idea? *The Internet and Higher Education*, *18*, 15–23. https://doi.org/10.1016/j.iheduc.2012.12.001

Mouton, J. (2001). *How to succeed in your master's and doctoral studies: A South African guide and resource book*. Van Schaik.

Mulroy, H., & Eddinger, K. (2003). *Differentiation and literacy*. Paper presented at the Institute on Inclusive Education, Rochester.

Mwinsheikhe, H.M. (2003). Instructional approaches in Science" A case study of two Grade 4 classes in the Western Cape, South Africa in Brock- Utne, B., Desai, Z., Qorro, M. (eds.) in *LOITASA Language of instruction in Tanzania and South Africa*. Dar es Salaam: E&D Limited

Myers, M. D., & Newman, M. (2007). The qualitative interview in IS research: Examining the craft. *Information and organization*, *17*(1), 2-26.

Nagy, N. M. A. H. (2018). The Effect of Using the Station Rotation Model on Preparatory Students' Writing Performance. *Online Submission*.

Nantz, K. & Klaf, S. (2012). *Putting the spotlight on learning: cultivating self-directed students by design*. Paper presented at the 9th Annual Teaching Professor Conference, Washington, D.C.

Natsis, A., Papadopoulos, P. M., & Obwegeser, N. (2018). Research integration in information systems education: Students' perceptions on learning strategies, skill development, and performance. *Journal of Information Technology Education. Research*, 17, 345.

Neuman, W. L. (2000). *Social Research Methods: Qualitative And Quantitative Approaches*, 4th edn, Allyn and Bacon, Boston, MA.

Nganji, J. (2019). Designing Disability-Aware E-Learning Systems: Disabled Students' Recommendations. *International Journal of Advanced Science and Technology*, [Online]. 48, 61-70. https://www.semanticscholar.org/paper/Designing-Disability-Aware-E-Learning-Systems-%3A-%E2%80%99-Nganji/ddbe26b8a1ec6c8471dc8412013495a5dc90e64f

Ngqondi, T.and Mauwa, H. (2019). "A Review of Digital Integration for High School Curriculum," *2019 International Conference on Advances in Big Data, Computing and Data Communication Systems (icABCD)*, Winterton, South Africa, 2019, pp. 1-6, http//:doi: 10.1109/ICABCD.2019.8851034.

Nicholson, P. (2007). A history of e-learning. In *Computers and education* (pp. 1-11). Springer, Dordrecht.

Nomlomo, V. (2008). IsiXhosa as a Medium of Instruction in Science Teaching in Primary Education in South Africa: Challenges and Prospects in Qorro, M., Desai, Z. & Brock-Utne, B.(eds.) *LOITASA Reflecting on phase 1 and entering Phase 11*. Dar es Salaam: Vision Publishing.

Nomlomo, V., & Desai, Z. (2015). Reflections on the development of a pre-service language curriculum for the BEd (Foundation Phase). *South African Journal of Childhood Education | 2014 4(3): 87-102*

O'Donovan, B. (2017). How student beliefs about knowledge and knowing influence their satisfaction with assessment and feedback. *High Educ* 74, 617–633. https://doi.org/10.1007/s10734-016-0068-y

Oliver, M., & Trigwell, K. (2005). Can 'blended learning' be redeemed? *E-learning and Digital Media, 2*(1), 17-26.

Oliver, P. (2010). *The student's guide to research ethics*. McGraw-Hill Education (UK).

Olivier, J. (2011). *Accommodating and promoting multilingualism through blended learning*. Ph.D. thesis, North-West University, Vanderbijlpark, South Africa. Retrieved December 18, 2022 from https://www.learntechlib.org/p/37551/.

Olivier, J. (2022) Preparing education students for self-directed multimodal learning for the 4IR. in F. Maringe & O. Chiramba (eds.), *The 4IR and teacher education in South Africa: contemporary discourses and empirical evidence* (Disruptions in higher education: Impact and implication Volume 2), pp. 35–51, AOSIS. https://doi.org/10.4102/aosis.2022.BK306.03

Oriol, X., Mendoza, M., Covarrubias, C. G., & Molina, V. (2017). Positive emotions, autonomy support and academic performance of university students: The mediating role of academic engagement and self-efficacy. *Revista de Psicodidactica*, 22(1), 45–53. https://doi.org/10.1387/RevPsicodidact.14280

Osguthorpe, T. R., & Graham, R. C. (2003). Blended learning environments. *Quarterly Review of Distance Education, 4* 227–233.

Owen-Smith, M. (2010). The language challenge in the classroom: A serious shift in thinking and action is needed. *Focus*, *56*(7).

Owston, R., Lupshenyuk, D., & Wideman, H. (2011). Lecture capture in large undergraduate classes: Student perceptions and academic performance. *The Internet and Higher Education*, *14*(4), 262-268.

Paavola, S., & Hakkarainen, K. (2005). The knowledge creation metaphor: An emergent epistemological approach to learning. Science & Education, 14, 535-557.

Padayachee, P., Wagner-Welsh, S., & Johannes, H. (2018). Online assessment in Moodle: A framework for supporting our students. *South African Journal of Higher Education, 32(5),* 211-235.

Pappas, I. O., Giannakos, M. N., & Sampson, D. G. (2019). Fuzzy set analysis as a means to understand users of 21st-century learning systems: The case of mobile learning and reflections on learning analytics research. *Computers in Human Behavior*, *92*, 646-659.

Park, E. L., Choi, B. K. (2014). Transformation of classroom spaces: traditional versus active learning classroom in colleges. *High Educ 68*, 749–771. https://doi.org/10.1007/s10734-014-9742-0

Parker, J., & Heywood, D. (2001). Exploring the relationship between subject knowledge and pedagogic content knowledge in primary teachers' learning about forces. *International Journal of Science Education, 22 (1),* 89-111.

Parsons, S. A., and Ward, A. E. (2011). The case for authentic tasks in content literacy. *The Reading Teacher, 64(6),* 462–465.

Patton, M. Q., & Cochran, M. (2002). A guide to using qualitative research methodology: Medicins sans Frontieres.

Pellegrino, J.W., Chudowsky, N., and Glaser, R. (2001). *Knowing What Students Know: The science and design of educational assessment.* National Academy Press.

Perin, D. (2013). Literacy skills among academically underprepared students. *Community College Review, 41*(2), 118-136.

Piaget, J. (1953). *The origins of intelligence in children.* Basic books

Picciano, A. G. (2017). Theories and frameworks for online education: Seeking an integrated model. *Online Learning, 21*(3), 166-190. http//:doi:10.24059/olj.v21i3.1225

Pinto, M., & Leite, C. (2020). Digital technologies in support of students learning in Higher Education: literature review. *Digital Education Review, (37),* 343-360.

Pitcon, I. (2019). *Teachers' use of technology to support literacy in 2018*. A National Literacy Trust research report.

Porter, W. W., Graham, C. R., Bodily, R. G., & Sandberg, D. S. (2016). *A qualitative analysis of institutional drivers and barriers to blended learning adoption in higher education,* 28, 17–27.

Powell, A., Roberts, V., & Patrick, S. (2015). Using Online Learning for Credit Recovery: Getting Back on Track to Graduation. Promising Practices in Blended and Online Learning Series. NACOL, *The International Association for K–12 Online Learning*.

Powell, K.C. & Kalina, C.J. (2009). Cognitive and Social Constructivism: Developing tools for an effective classroom. *Education, 130 (2),* 241-250.

Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon 9(5*), 1-15.

Prifti, R. (2020). Self–efficacy and student satisfaction in the context of blended learning courses. *Open Learning: The Journal of Open, Distance and e-Learning*: 1–15. http//:doi: 10.1080/02680513.2020.1755642.

Raidal, S. L., Violet, S. E. (2009). Preclinical students' predispositions towards social forms of instruction and self-directed learning: A challenge for the development of autonomous and collaborative learners. *Higher Eduation* 57, 577–596.

Raithatha, Y. (2017). *Understanding the economic impact terrorism has on the destination decision making: Northern Irish tourists.* Doctoral dissertation. Dublin Business School

Rajaratnam, D., & Shivananda, C. S. (2002). Impact of Using Blended Learning in the Early Years Foundation Stage.

Ramaphosa, C. (2018). Statement by His Excellency President Cyril Ramaphosa during the Open Session of the 10th BRICS Summit, Sandton International Convention Centre at the https://www.gov.za/speeches/president-cyril-ramaphosa-open-session-10th-brics-summit-26-jul-2018-0000

Ranaweera, A.M. (1976). Sri Lanka: Science Teaching in the National Languages. *Prospects 6(3),* 416-423.

Rao, V. (2019). Blended Learning: A New Hybrid Teaching Methodology. *Online Submission*, *3*(13).

Rawls, J. (2001). Justice as fairness: A restatement. Cambridge, MA: Belknap Press of Harvard University Press.

Reeves, T., Herrington, J. & Oliver, R. (2004). A development research agenda for online collaborative learning. *Educational Technology, Research and Development,* 52(4), 53-65.

Reich, R. (2002). Bridging liberalism and multiculturalism in American education. Chicago: University of Chicago Press.

Reja, U., Manfreda, K. L., Hlebec, V., and Vehovar1, V. (2003). Open-ended vs. Close-ended Questions in Web Questionnaires. *Developments in Applied Statistics, (19),*159-177.

Research Project in South Africa," *The African Journal of Information Systems*: 5 (3), Article 4. http://digitalcommons.kennesaw.edu/ajis/vol5/iss3/4

Rienties, B., Brouwer, N., & Lygo-Baker, S. (2013). The effects of online professional development on higher education teachers' beliefs and intentions towards learning facilitation and technology. *Teaching and teacher education*, *29*, 122-131.

Rowley, J. (2014). Designing and using research questionnaires. *Management research review*.

Rugemalira, J.M., Rubagumya, C.M., Kapinga, M.K., Lwaitama, A.F. & Tetlow, J.G. (1990). Reflections on Recent Development in Language Policy in Tanzania. In: Rubagumya, C.M. (ed), *Language in Education in Africa: A Tanzanian Perspective.* Multilingual

Rusman. (2011). Model-model pembelajaran: Mengembangkan profesionalisme guru. Rajawali Pers/PT Raja Grafindo Persada.

Ruzmetova, M. (2018). Applying Gilly Salmon's Five Stage Model for Designing Blended Courses. *Dil ve Edebiyat Araştırmaları, 17(17),* 271-290. http//:doi: 10.30767/diledeara.418085

Saboowala, R., & Manghirmalani Mishra, P. (2021). Readiness of in-service teachers toward a blended learning approach as a learning pedagogy in the post-COVID-19 Era. *Journal of Educational Technology Systems, 50(1),* 9-23.

Sahay, A. (2016). Peeling Saunder's Research Onion. *Research Gate, Art,* 1-5.

Salmon, G. (2002). *E-tivities: The Key to Active Online Learning*. London; Sterling, VA: Kogan Page Limited.

Sarem, S. N., & Shirzadi, Y. (2014). A critical review of the interactionist approach to second language acquisition. *Journal of Applied Linguistics and Language Research, 1(1),* 62-74.

Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research Methods for Business Students*. Pearson Education Limited.

Schechter R. L., Kazakoff, E. R., Bundschuh, K. (2017). Exploring the impact of engaged teachers on implementation fidelity and reading skill gains in a blended learning reading program. *Reading Psychology, 38(6), 553–579.*

Scheuer, O., McLaren, B. M., Weinberger, A., & Niebuhr, S. (2014). Promoting critical, elaborative discussions through a collaboration script and argument diagrams. *Instructional Science, 42*(2), 127-157.

Schwab, K. (2017). *The fourth industrial revolution*. Portfolio Penguin.

Seale, C. (1999). The quality of qualitative research. *The Quality of Qualitative Research*, 1-224.

Sejdiu, S. (2014). English language teaching and assessment in blended learning. *Journal of Teaching and Learning with Technology*, 67-82.

Selinger, M. (2001). Can ICT improve the recruitment, retention and morale of teachers? In Selinger, M and Yapp, C, *ICT Teachers*, IPPR, pp8-17.

Seltzer, K. & Bentley, T. (1999). *The Creative Age: Knowledge and Skills for the New Economy*. London, UK: Demos.

Serrano, D. R., Dea-Ayuela, M. A., Gonzalez-Burgos, E., Serrano-Gil, A., & Lalatsa, A. (2019). Technology-enhanced learning in higher education: How to enhance student engagement through blended learning. *European Journal of Education, 54(2),* 273-286.

Serrat, O. (2017). *Knowledge solutions: Tools, methods, and approaches to drive organizational performance* (p. 1140). Springer Nature.

Setati, M., & Adler, J. (2001). Between languages and discourses: Language practices in primary multilingual mathematics classrooms in South Africa. *Educational Studies in Mathematics, 43(3),* 243-269.

Shandomo, H. M., (2010). The role of critical reflection in teacher education. *School-University Partnerships, 4(1),* 101-113.

Sheard, J., & Lynch, J. (2003). Accommodating learner diversity in web-based learning environments: Imperatives for future developments. *International Journal of Computer Processing of Oriental Languages*, *16*(04), 243-260.

Shu, H., & Gu, X. (2018). Determining the differences between online and face-to-face student-group interactions in a blended learning course. *The Internet and Higher Education, 39, 13–21.*

Silén, C., & Uhlin, L. (2008). Self-directed learning–a learning issue for students and faculty!. *Teaching in higher education, 13(4),* 461-475.

Silberman, M. (1996). *Active Learning: 101 Strategies To Teach Any Subject*. Prentice-Hall, PO Box 11071, Des Moines, IA 50336-1071.

Silverman, David (2005). *Doing Qualitative Research: A Practical Handbook (second edition)*. London: Sage.

Silverman, D. (2000). Analyzing talk and text. In N.K. Denzin and Y.S. Lincoln (eds). *Handbook of qualitative research*. California: Sage

Skinner, B.F. (1953). *Science and human behavior*. Free Press.

Slavin, R. (1996). *Education for all*. Swets & Zeitlinger.

Smith, T. W., Baker, W. K., Hattie, J. A. C., & Bond, L. (2008). A validity study of the certification system of the National Board for Professional Teaching Standards. In L. Ingvarson & J. A. C. Hattie (Eds.), *Assessing teachers for professional certification: The first decade of the National Board for Professional Teaching Standards* (pp. 345–378). Oxford: Elsevier.10.1016/S1474-7863(07)11012-7

Snelbecker, G. E. (1983). *Learning theory, instructional theory, and psychoeducational design.* New York: McGraw-Hill.

So, L. (2015). L2 writing instruction in blended learning for the development of fluency, complexity, and accuracy in higher education. *Multimedia-Assisted Language Learning, 18(4),* 121–147.

Solso, R. L., Maclin, M. K., & Otto, H. M. (2007). *Cognitive Psychology Seventh Edition.* Pearson

Spaull, N., & Pretorius, E. (2019). Still falling at the first hurdle: Examining early grade Reading in South Africa. In Spaull, N., & Jansen, J. (Eds), South African schooling: The enigma on inequality. Springer Nature. https//doi.org/10.1007/978-3-030-18811-5_1

Stahl, S. A. (1999). Different strokes for different folks? A critique of learning styles. *American Educator, 23,* 1–5.

Staker, H., & Horn, M. B. (2012). Classifying K–12 blended learning.

Steinhoff, P. G. (2012). Japan: Student Activism in An Emerging Democracy', in M. L. Weiss, & E. Aspinall (Eds), *Student Activism in Asia: Between Protest and Powerlessness* (pp:57-78). https://doi.org/10.5749/minnesota/9780816679683.003.0003

Stenger, M. (2014). 5 Research-Based Tips for Providing Students with Meaningful Feedback. https://www.edutopia.org

Stoltenkamp, J., Kies, C., & Njenga, J. (2007). Institutionalising the eLearning Division at the University of the Western Cape (UWC): Lessons Learnt. *International Journal of Education and Development using Information and Communication Technology (IJEDICT), 3(4),* 143-152.

Stoltenkamp, J., & Siebrits, A. (2015). The infusion of emerging technologies in complex higher education settings. In International Conference on e-Learning (p. 296). Academic Conferences International Limited.

Strong, R. W., Silver, H. F., & Perini, M. J. (2001). Teaching what matters most: Standards and strategies for raising student achievement. Association for Supervision and Curriculum Development, 1703 North Beauregard Street, Alexandria, VA 22311-1714.

Suartama, I. K., Setyosari, P., & Ulfa, S. (2019). Development of an instructional design model for mobile blended learning in higher education. *International Journal of Emerging Technologies in Learning*, *14*(16).

Subban, P. (2006). Differentiated instruction: A research basis, *7(7)*, 935–947.

Sumuer, E. (2018). Factors related to college students' self-directed learning with technology. *Australasian Journal of Educational Technology*, *34*(4), 29-43.

Sun, P. C., Tsai, R. J., Finger, G., Chen, Y. Y., & Yeh, D. (2008). What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. *Computers & education*, *50(4)*, 1183-1202.

Taras, V., & Rowney, J. (2007). Effects of cultural diversity on in-class communication and student project team dynamics: Creating synergy in the diverse classroom. ISEA, 35(2), 66-81.

Tashakkori A., & Teddlie, C. (Eds.) (2010) *Handbook of mixed methods in social and behavioral research. (2nd edn)*. Thousand Oaks, CA: Sage.

Tashakkori, A., & Teddlie, C. (2008). *Quality of inferences in mixed methods research: Calling for an integrative framework*. Advances in mixed methods research, Sage, Thousand Oaks, CA, pp. 101-119.

Thomas, D. R. (2006). A General Inductive Approach for Analyzing Qualitative Evaluation Data. *American Journal of Evaluation*, *27*(2), 237-246. https://doi.org/10.1177/1098214005283748

Thornton, K., & Yoong, P. (2011). The role of the blended action learning facilitator: An enabler of learning and a trusted inquisitor. *Action Learning: Research and Practice*, 8(2), 129–146. https://doi.org/10.1080/14767333.2011.581021

Tickle, S. (2001). What have we learnt about student learning? A review of the research on study approach and style, *Kybernetes, 30(7/8)*, 955-969. https://doi.org/10.1108/EUM0000000005918

Tlili, A., Burgos, D., Olivier, J., & Huang, R. (2022). Self-directed learning and assessment in a crisis context: the COVID-19 pandemic as a case study. *Journal of e-Learning and Knowledge Society*, *18*(2), 1-10.

Tronto, J. C. (1993). Beyond gender difference to a theory of care: Feminist and interdisciplinary perspectives. In *An Ethics of Care: Feminist and Interdisciplinary Perspectives* (pp. 240-257). Routledge.

Underwood, J. D. M., & Underwood, G. (1999). Task effects on collaborative learning, in Littleton, P & Light, S (eds) Learning with computers: Analysing productive interaction. London: Routledge.

UNESCO. (2005). Information Communication Technologies in schools: a handbook for teachers or how to use ICT Can Create New, Open Learning Environments.

University of Sussex (n.d.) Me2 U Project: www.sussex.ac.uk/elearning/audioandvideo/me2u

UNIVERSITY X Institutional Operating Plan, (2016-2020). White Paper, University X

Uys, W.F. & Citanda, W.C. (2020). Evaluating undergraduate students' selfdirected learning experiences during research-based learning', in E. Mentz & R. Bailey (eds.), Self-directed learning research and its impact on educational practice (NWU SelfDirected Learning Series Volume 3), pp. 27–66, AOSIS. https://doi.org/10.4102/aosis.2020.BK206.02

Valiathan, P. (2002). Blended Learning Models. www.learningcircuits.com/2002/aug2002/ valiathan.html.

Van der Merwe, A., Bozalek, V., Ivala, E., Peté, M., & Vanker, C. (2015). Blended learning with technology. Universities South Africa.

Van Laer, S., & Elen, J. (2016). In search of attributes that support self-regulation in blended learning environments. Education and Information Technologies. http://doi.org/10.1007/s10639-016-9505-x.

Vasantha Raju, N., & Harinarayana, N. S. (2016). Online survey tools: A case study of Google Forms. In *National Conference on Scientific, Computational & Information Research Trends in Engineering, GSSS-IETW, Mysore*.

Venketsamy, R., Smart, L., & Zijing, H. U. (2021). Creating and leading a learning environment in diverse Foundation Phase classrooms in a South African school. *Journal for the Education of Gifted Young Scientists*, *9*(4), 359-376.

Venketsamy, R., & Zijing, H. U. (2022). Exploring challenges experienced by foundation phase teachers in using technology for teaching and learning: a South African case study. *Journal for the Education of Gifted Young Scientists*, *10*(2), 221-237.

Vercellotti, M. L. (2018). Do interactive learning spaces increase student achievement? A comparison of classroom context. *Active Learning in Higher Education*, *19*(3), 197-210.

Vygotsky, L.S. (1962). *Thought and language.* MIT Press (original work published in 1934).

Walther, J. B., & Parks, M. R. (2002). Cues filtered out, cues filtered in: Computer-mediated communication and relationships. In G. R. Miller (Ed.) *Handbook of interpersonal communication.* SAGE. *(pp. 529–563).*

Weddikkarage, L.K. (2009). Science Education and English Medium: The Sri Lankan Experience: In: B. Brock- Utne & G. Garbo, (eds), *Language is Power: The Implications of Language for Peace and Development.* Dar es Salaam: Mkuki na Nyota.

Wei, Y., Shi, Y., MacLeod, J., & Yang, H. H. (2022). Exploring the factors that influence college students' academic self-efficacy in blended learning: a study from the personal, interpersonal, and environmental perspectives. *SAGE Open*, *12*(2), 21582440221104815.

White Paper for Post-School Education and Training. (2013). Building an expanded, effective and integrated Post-School System. Department of Higher Education and Training (DHET). Republic of South Africa

White, S. S., & Locke, E. A. (2000). Problems with the Pygmalion effect and some proposed solutions. *The Leadership Quarterly*, *11*(3), 389-415.

Whitelock, D. & Jelfs, A. (2003). Editorial: Journal of Educational Media Special Issue on Blended *Learning, Journal of Educational Media, 28*(2-3), 99-100.

Widodo, A., Nursaptini, N., Novitasari, S., Sutisna, D., & Umar, U. (2020). From face-to-face learning to web based learning: How are student readiness? Premiere Educandum: *Journal Pendidikan Dasar dan Pembelajaran, 10*(2), 149-160. http//:doi.org/10.25273/pe.v10i2.6801

William, D. (2011). What is assessment for learning? *Studies in Educational Evaluation*, *37*(1), 3-14.

Williams, C. (2002). Learning on-line: A review of recent literature in a rapidly expanding field. *Journal of Further and Higher Education*, 26(3), 263-272.

Willingham, D.T., Hughes, E. M., & Dobolyi, D. G. (2015). The scientific status of learning styles theories. *Teaching of Psychology 42*(3), 266–271.

Win, N. L., & Wynn, S. D. (2015). Introducing blended learning practices in our classrooms. *Journal of Institutional Research South East Asia*, *13*(2), 17-27.

Wright, K.B. (2005). Researching Internet-Based Populations: Advantages and Disadvantages of Online Survey Research, Online Questionnaire Authoring Software Packages, and Web Survey Services, *Journal of Computer-Mediated Communication, 10* (3) JCMC1034, https://doi.org/10.1111/j.1083-6101.2005.tb00259.x

Yan, Y. (2019). The Practical Exploration of Interactive Classroom in College English Teaching. *Journal of Social Sciences Studies,3,* 510-513.

Yang, Y. (2012). Blended learning for college students with English reading difficulties. *Computer Assisted Language Learning*, *25*(5), 393-410. http//:doi:10.1080/09588221.2011.597767

Zimmerman, B. J. (2002). Becoming a self-regulated student: An overview. *Theory into Practice 41*(2), 64–70. http://dx.doi.org/10.1207/s15430421tip4102_2

Zygadlo, P. (2007). *Computer assisted language learning: Effectiveness of vocabulary learning with the help of the authorial on-line application Catch'n'Practice v1.0*. Warsaw: University of Warsaw.

9. APPENDICES

Appendix 1: Ethical Clearance Renewed Approval

28 May 2020

Ms C Kies

Faculty of Education

Ethics Reference Number: HS18/3/6

Project Title: Blended learning approaches in the BEd Foundation Phase Programme: Strengths and challenges.

Approval Period: 24 April 2020 – 24 April 2023

I hereby certify that the Humanities and Social Science Research Ethics Committee of the University of the Western Cape approved the methodology and ethics of the above mentioned research project.

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval. Please remember to submit a progress report by 30 November each year for the duration of the project.

The permission to conduct the study must be submitted to HSSREC for record keeping purposes.

The Committee must be informed of any serious adverse event and/or termination of the study.

Ms Patricia Josias
Research Ethics Committee
Officer University X

NHREC Registration Number: HSSREC-130416-049

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Appendix 2: Information Sheet

INFORMATION SHEET

PROJECT TITLE: Blended learning approaches in the BEd Foundation Phase Programme: Strengths and Challenges.

Registration number: HS18/3/6

PURPOSE OF THE STUDY

This study will focus on blended learning within the BEd Foundation Phase Programme, a new programme implemented for the first time in 2015 at University X. As the Programme is still in its infancy, there may be more adeptness by lecturers to explore different teaching strategies to address the learning and teaching needs of students. There are three goals that form the basis of this study. The first goal is to observe the impact of blended learning on first-year students enrolled in the BEd Foundation Phase Teaching, with a particular focus on the Language and Mathematics disciplines. The focus of this approach will take cognisance of three specific modules namely, Foundation Phase Mathematics (FPM 111), English Home Language (ELT 111) and isi-Xhosa Second Additional Language (SXL101). The second goal is to ascertain whether blended learning has any impact on student learning and their development as self-directed learners. The third goal is to explore whether there is a focus on assessment within the blended learning approach?

WHEN AND HOW WILL THE STUDY BE CONDUCTED?

This study will be conducted during the 2019 academic year. During this time, the research data will be collected through classroom observations, questionnaires and interviews. Classroom observations will be carried out in all three modules, English home language, isi-Xhosa second additional language and Foundation Phase Mathematics modules during the first and second semesters. The questionnaires and interviews will be dealt with in May 2019 close to the end of the first semester and again in October close to the end of the second semester.

Participant students and lecturers in the study will be required to:

- Complete a consent form;

- Answer a questionnaire; and
- Participate in interviews.

CAN PARTICIPANTS BE SUBJECT TO ANY HARM IN THE COURSE OF THE STUDY?

The researcher will not conduct any procedures that may harm the participants physically or morally.

BENEFITS THAT PARTICIPANTS MAY RECEIVE AS A RESULT OF THEIR PARTICIPATION IN THE RESEARCH

Participants will have the right to request feedback from the findings of the study after the completion of the thesis. They could, then, benefit from the recommendations provided and adopt proposed learning strategies, which may help to improve their learning benefit.

STUDENTS' RIGHTS

Students' participation in the study is voluntary, so they are free to take part or not. Those who have agreed to participate in the study can also withdraw any time they wish without any negative consequences.

CONFIDENTIALITY, PRIVACY AND ANONYMITY OF PARTICIPANTS WILL BE ENSURED

The information obtained from the participants will be treated confidentially. Their anonymity and privacy will also be protected. The data collected will be coded and not associated with any names of participants and will be used for research purposes only.

CONTACT DETAILS

Researcher: Carolynne Kies

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Email: ckies@uwc.ac.za

Supervisor: Professor Zubeida Desai

Email: zdesai@uwc.ac.za

Appendix 3a: Letter of Permission HOD, Language Education

Language Education
Faculty of Education
University X

Dear Dr A,

Letter of Permission (for the Head of Department in Language Education):

I am engaged in a doctoral study in the Department of Language Education, Faculty of Education at University X. I require your official consent to conduct my study in two modules within the Language Education Department, specifically the first-year students enrolled in the BEd Foundation Phase Teaching Programme.

Request access to two (2) modules:

1. Isi-Xhosa Second Additional Language (SXL 101)
2. English Home Language (ELT 111)

You are kindly requested to read the study information, in annex, and provide your signature in the provided space below if you do not have any objection to the project being carried out in the two modules.

POSITION at University X: ……

SIGNATURE: ……

Thank you.

Carolynne C Kies
Doctoral student at the University of the Western Cape
Faculty of Education

Department of Language Education

Student Number: 3405237

Supervisor: Professor Zubeida Desai

Email: zdesai@uwc.ac.za

Appendix 3b: Letter of Permission HOD, School of Science and Mathematics

Language Education
Faculty of Education
University X

Dear Prof B,

Letter of Permission for the Head of Department in School of Science and Mathematics Education (SMME):

I am engaged in a doctoral study in the Department of Language Education, Faculty of Education at University X. I require your official consent to conduct my study in one module within the School of Science and Mathematics Education (SSME), specifically the first-year students enrolled in the BEd Foundation Phase Teaching Programme.

Request access to the module:

1. Foundation Phase Mathematics (FPM) 111

You are kindly requested to read the study information, in annex, and provide your signature in the provided space below if you do not have any objection to the project being carried out in this module.

POSITION at University X: ……

SIGNATURE: ……..

Thank you.

Carolynne C Kies
Doctoral student at the University of the Western Cape
Faculty of Education
Department of Language Education
Student Number: 3405237
Supervisor: Professor Zubeida Desai
Email: zdesai@uwc.ac.za

Appendix 4: Lecturer Consent Form

PROJECT TITLE

Blended learning approaches in the BEd (FPT) programme: Strengths and Challenges

I, _____ hereby agree to participate in the above-mentioned research project carried out by a doctoral student from the University of the Western Cape (UWC). The nature and the purpose of the project have been thoroughly explained to me and I have read the Information Sheet and understood it. I am informed that by accepting to take part in the project, I commit myself to:

- engage in interviews conducted by the researcher;
- complete a possible questionnaire; and
- allow observations by the researcher in my classes and with students

I note that information provided during the study will be strictly confidential and will be used for research purposes only. I also understand that the privacy of participants will be respected and their anonymity protected either by coding or disguising their names.

I, therefore, acknowledge that my participation is voluntary and that I am free to participate in or withdraw from the study at any time without any negative or undesirable consequences to me.

NAME: _____

SIGNATURE: _____

DATE: _____

Appendix 5a: Interview Questions for Lecturers

[Academics responded to the interview requests; and others preferred to complete the questionnaire paper-based]

Interview Questions for Lecturers

1. How would you describe learning?
2. How would you describe blended learning?
3. What is your teaching philosophy?
4. What learning theories do you link your teaching practice to?
5. Do you plan your lessons/teaching in collaboration with other lecturers and/or with a specific learning theory in mind?
    a. If yes, how have you done this?
    b. If no, please explain why?
6. Is there any correlation between blended learning and assessment?
7. Are you familiar with your student learner profile, prior to the start of your module?
8. Do you know what the computer literacy rate of your students is when they enter your class?
9. What type of teaching materials do you make use of to teach your module?
10. Which blended strategies have you implemented to ensure that your students are able to engage in the classroom/module?
11. The blended learning strategies that you have implemented, have they assisted with the learning retention of students? If yes. Please provide an example.
12. Do you think collaboration between students is essential as they prepare to become educators themselves?
    - If yes, why is it important?
    - If no, why do you think it is not important?
13. When did you first implement blended learning in your module?
14. Have you observed a difference in student performance linked to blended learning?
15. In your role as lecturer, teaching prospective teachers, what activities have you implemented to allow students to work independently?
16. Does your teaching allow or leave room for self-directed learning?
    a. If yes, elaborate on your answer
    b. If not, please explain why?

Appendix 5b: Interview Questions for HODs

1. How would you describe blended learning?
2. Do you support Blended Learning within the Department?

Appendix 6: Student Consent Forms

Consent Form for Students

PROJECT TITLE

Blended learning approaches in the BEd Foundation Phase Programme: Strengths and Challenges

I, _____ hereby agree to participate in the above-mentioned research project carried out by a doctoral student from the University of the Western Cape (UWC). The nature and the purpose of the project have been thoroughly explained to me and I have read the Information Sheet and understood it. I am informed that by accepting to take part in the project, I commit myself to:

- completing a questionnaire; and
- Participating in focus group discussion conducted by the researcher.

I note that information provided during the study will be strictly confidential and will be used for research purposes only. I also understand that the privacy of participants will be respected and their anonymity protected either by coding or disguising their names.

I, therefore, acknowledge that my participation is voluntary and that I am free to participate in or withdraw from the study at any time without any negative or undesirable consequences to me.

NAME: _____

SIGNATURE: _____

DATE: _____

MODULE NAME:_____

Appendix 7: Student Questionnaire

Questionnaire

Name: _____

Module: _____

Date: _____

A. Yes/No (close-ended) questions

1. Have you used a computer or a computer programme at school?____
2. Do you know what blended learning is?_____
3. Do you think that technology can help you with your learning?____
4. Do you think it would be beneficial if lectures and/or some course material were also audio or video-recorded?_____
5. The learning activities that you were introduced to during lectures, did these help you to understand the tasks better?_____
6. Do you think the blended learning approach/learning with technology that was implemented in this module was valuable to your learning? _____
7. Do you actively participate in face-to-face classroom group discussions? _____
8. Do you feel comfortable using technology in your learning activities?_____
9. Did the eTools/technology that the lecturer implemented in this module aid in your understanding?_____
10. Did you engage in any online discussions with your lecturer or peers?_____
11. If you could choose any of the following, how would you describe your learning process:

    I learn best through: (you may select more than one option)

    a. watching others demonstrate and then do it myself,
    b. visual displays (images, videos, charts)
    c. doing it on my own (independent)
    d. engaging in a group
    e. listening to a lecture,
    f. making notes
    g. All of the above
    h. None of the above
    i. Other, please explain

12. Did you use any technology to engage with your peers around the module content and assessments activities? Please list the tools you made use of.

_____

_____

_____

_____

B. Open-ended questions

1. Explain your understanding of blended learning.

2. Identify any eTool of learning activities that helped you to understand and apply concepts within the Language module (English and or isiXhosa) better?

3. Identify any eTool or learning activities that helped you to understand any concept or topic within Foundation Phase Mathematics (FPM) better,

4. As a prospective teacher, will you make use of any eTools/ technology in your teaching practice, when you teach one day? Please elaborate on your answer.

5. Please list the eTools/technology you were exposed to during the learning activities for FPM 111, SXL 101, ELT 111 for ex: X, Turnitin, Discussion Forum, Google Drive, Youtube etc How would you describe your learning style?

6. Do you think the eTools the lecturer included in this module helped you in your learning process?

7. Were your learning needs and expectations addressed through this module? Please use an example to explain your answer.

_____

_____

_____

8. Do you think the modules (FPM 111, ELT 111 & SXL 101) prepared you adequately to teach this subject at a school level? Explain your answer by using an example.

_____

_____

9. Explain which eTool/technology used by ELT 111 lecturer (Dr X) was helpful for your learning?

_____

_____

10. Explain which eTool/technology used by SXL101 lecturer (Ms B & Ms B) was helpful for your learning?

_____

_____

11. Explain which eTool/technology used by FPM 111 lecturer (Dr Y) was helpful for your learning?

_____

_____

12. Explain whether the modules helped you to develop as independent learners?

_____

_____

Appendix 8: Focus Group Discussion Questions

Focus Group Discussion Questions for Students

From the questionnaire, most students answered that they learned through a combination of activities which included, lecture notes, readings, videos, audio recordings and through practical hands-on experiences and demonstrations. These responses in my view already support the notion that blended learning would have an impact on student learning and development. Students engaged in the BEd (FPT) programme, through their responses have indicated that the value of making use of blended learning techniques is evident in their learning process. Hence, blended learning has an impact on the learning of these students and would contribute to their development. The following questions were designed to get deeper insight into the students' general views of the blended learning activities that they were exposed to during their first-year BEd (FPT) programme.

Kindly note that you must respond individually to each module (ELT 111, SXL 101, FPM 111) for each question.

4.6.1 What level of computer literacy did you have prior to starting this programme at the university?

4.6.2 What technology used within the modules was most beneficial for your learning?

4.6.3 Highlight the module that affected or impacted your learning most?

Appendix 9: Classroom Observation Checklist

Lecturer's Name:	*Date:*
Observer:	*Module:*

General Comments (Strengths)

What Technology is used during Classroom Lectures		Not Included	Evidence of use is visible
1	Use of PowerPoint Presentations		
2	Use of Video Lessons/YouTube Clips		
3	Use of Narrated PowerPoints		
4	Use of Communication eTools for student engagement, reading assignment and thematic discussions.		
5	Use of Lessons eTools within X		
6	Use of 'Course Resources' eTool to structure learning material		
7	Use of the Overhead Projector and Document Camera		
8	Use of Online Assessment tools, 'Assignments', 'Tests and Quizzes', Turnitin (Tii)		
Teaching Philosophy of Lecturers			
7	Student- centred structured lessons OR lecture-centred lessons		
8	Lecturer is secure in her subject knowledge and structures learning content for student engagement		
9	Lecturer is clear about lesson content and what students need to learn/achieve		
10	Lecture time is organised and scaffolded to assist with self-directed learning activities for students		
11	Lecture time is organised, well-paced and manages to balance direct teaching with student enquiry and demonstration of knowledge. (Lecturer input: student output = 20:80)		
12	Lecturer planned and selected appropriate resources aligned to teaching and assessment activities		

Teaching and Learning: Student Engagement			
12	The physical learning environment is organised to encourage and motivate student learning		
13	The online learning environment is organised to encourage and motivate student engagement		
14	The lecture plan reflects cognitive engagement, intellectual challenge and stimulating activities		
15	The lecture activities are planned to cater for all students		
16	Use of technology is planned to effectively enhance and consolidate student's understanding of concepts used		
17	The lecture plan reflects a clear understanding of students' diverse and individual abilities by scaffolding teaching and learning content		
18	Opportunities for collaborative and cooperative learning that promote a more enquiry-based teaching and learning style are actively planned for student engagement		
19	Technology is used or referenced to enhance students' literacy/numeracy skills		

Appendix 10: List of eTools and its pedagogical value (embedded within X)

Unit for Innovative Education & Communication Technologies (UIECT)

Contribution and Affordances of niche eTools Workshops

The UIECT Team conducts various eTools workshops. These workshops enable participants to create structured online environments for blended and distance teaching-and-learning practices. Furthermore, participants design relevant assessment activities related to their specific discipline. Refer to the Table: Affordance of eTools within the Sakai Platform [X]. ****Content Creation, Assessment and Communication eTools**

Content Creation eTools		
eTool	**Tool description/ Functionality**	**Pedagogical use**
Home	Description of the project, recent announcements, discussion, and chat items.	Lecturers are able to share a brief introduction and course outcomes with the students. Both text and multimedia components can be inserted to appeal to student's audio-visual needs.
Lessons	Create content modules and sequences; can be organised by week, unit, module, topic or any other grouping that makes sense for the site.	This tool allows lecturers to structure their learning material into manageable units. The learning material can further be enhanced with relevant resources, text, multi-media and linked to specific discussions and assessments. This becomes an interactive online environment.
Course Resources	This tool is used for posting documents, URLs to other websites, etc.	The eTool allows users to upload files online and share these with users/students within the course. It allows for different file types to be uploaded (these include, PowerPoint, Word Documents, Images and video files), as well as create and post HTML (web) pages, simple text documents and library citations. Users can structure the

		uploaded files into specific folders. These files can be previewed, downloaded, archived and/or deleted. Files can also be shared with specific groups by setting per-missions to the specific folder.
Class list	For viewing the student registered for the specific course	Lecturers are able to download the class list. It also enables students to view their peers in the class.

Assessment eTools		
eTool	**Tool description/ Functionality**	**Pedagogical use**
Assignments	For posting, submitting and grading assignment(s) online, (now with Turnitin integration). This enables assignments to be checked via (Tii) automatically	An assignment is a particular task that is assigned to learners. The type of assignment that you use will be dependent on your objective. Is your aim to assess, review and help the students to gain factual information? OR Is the assignment meant to help the students to reflect, analyse or extend learning?
Tests and Quizzes	For creating and taking online tests and quizzes.	The tests and quizzes are used to create various online assessments. Various assessment types include: 'true or false, multiple choice questions (MCQ) 'fill in the blank', short answer essay', matching, numeric response, calculated questions, audio recording and surveys. Lecturers can set tests for formative and self-assessment purposes.
Statistics	The Statistics tool allows authorised users (typically lecturers or site owners) to view site usage statistics and user activity events.	The statistics tool reflects the use of the selected eTools with-in a site. This allows lecturers to view how students have engaged within the site during a specific time period. Therefore, this can be used as an action research tool for online teaching-and-learning purposes. Summary reports can be generated which presents a quick overview of site usage.

Communication eTools		
eTool	**Tool description/ Functionality**	**Pedagogical use**
Announcements	The announcement tool within the X platform is used to share time-critical information with students.	The eTool is used to notify students regarding updated content, discussions and due dates related to assessments. The added advantage of this eTool is that it is linked to the students email account. The announcement tool allows users to attach related course documents and refer students to external web resources
Discussion Forums	It is used as an asynchronous communication tool which enables effective communication between lecturers/facilitators and students through specific forums and topics.	Lecturers create specific topics related to their subject matter. This allows students to view and reflect on the topic. They are able to construct a coherent response with-in a certain time frame. This allows lecturers to release discussion topics through a scaffolded approach as students can discuss and debate in a timeous manner. Lecturers and students can attach relevant articles and other resources.

Appendix 11: Institute X's Graduate Attributes

Institute X's Charter of Graduate Attributes

GRADUATE ATTRIBUTE 1: SCHOLARSHIP

A critical attitude towards knowledge: Institute X graduates should be able to demonstrate a scholarly attitude to knowledge and understanding within the context of a rapidly changing environment. Institute X graduates should have the ability to actively engage in the generation of innovative and relevant knowledge and understanding through inquiry, critique and synthesis. They should be able to apply their knowledge to solve diverse problems and communicate their knowledge confidently and effectively

GRADUATE ATTRIBUTE 2: CRITICAL CITIZENSHIP AND THE SOCIAL GOOD

A relationship and interaction with local and global communities and the environment Institute X graduates should be engaged, committed and accountable agents of social good. They must aspire to contribute to social justice and care, appreciative of the complexity of historical contexts and societal conditions through their roles as professionals and members of local and global communities. They should demonstrate leadership and responsibility with regard to environmental sustainability.

GRADUATE ATTRIBUTE 3: LIFELONG LEARNING

An attitude or stance towards themselves Institute X graduates should be confident lifelong learners, committed to and capable of continuous collaborative and individual learning and critical reflection for the purpose of furthering their understanding of the world and their place in it.

GRADUATE ATTRIBUTES: 4-6

Inquiry-focused and knowledgeable: Institute X graduates will be able to create new knowledge and understanding through the process of research and inquiry. Critically and relevantly literate: Institute X graduates will be able to seek, discern, use and apply information effectively in a range of contexts. Autonomous and collaborative: Institute X graduates will be able to work independently and in collaboration with others, in a way that is informed by openness, curiosity and a desire to meet new challenges.

GRADUATE ATTRIBUTES: 7-8

Ethically, environmentally and socially aware and active: Should be critical and responsible members of local, national, international and professional communities. They should demonstrate a knowledge of ethical, social, cultural and environmental issues relating to their disciplines. Skilled communicators: Should recognise and value communication as a tool for negotiating and creating new understanding, interacting with others, and furthering their own learning.

GRADUATE ATTRIBUTE: 9

Interpersonal flexibility and confidence to engage across differences: Institute X graduates should be able to interact with people from a variety of backgrounds and have the emotional insight and imagination to understand the viewpoints of others. They should be able to work in a productive team, to lead where necessary and to contribute their skills as required to solving complex problems.