PERCEPTIONS OF BLENDED LEARNING

BY ACADEMIC STAFF

IN THE HEALTH SCIENCES FACULTY

AT NELSON MANDELA UNIVERSITY

J. BARRY

2021

NELSON MANDELA

UNIVERSITY

Perceptions of Blended Learning by Academic Staff in the Health Sciences Faculty at Nelson Mandela University

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Submitted in fulfilment of the requirements for the degree

MASTER OF PHARMACY

in the

FACULTY OF HEALTH SCIENCES

at the

NELSON MANDELA UNIVERSITY

APRIL 2021

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NELSON MANDELA
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DECLARATION:

In accordance with Rule G5.6.3, I hereby declare that the above-mentioned treatise is my own work and that it has not previously been submitted for assessment to another University or for another qualification.

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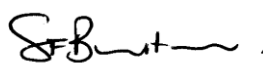a candidate for the (full description of qualification)   Master of Pharmacy

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Acknowledgements

Completion of this dissertation signifies the end of a journey which began more than five years ago, when I registered part-time for my MPharm.   My memory might let me down at times, but I will never forget those who contributed to helping me reach this point.

Firstly, to the participants of both the focus groups and the questionnaire, without whom the study would not be possible. Your enthusiasm to participate and share personal experiences has been invaluable.

To my supervisor, Teri-Lynne Fogarty, whose patience has been admirable, I could not have done this without you. Your feedback and guidance gave me the confidence to apply what I have "absorbed" for the past few years and produce something I can be proud of. To my co-supervisor, Dr Sue Burton, who we still miss every day in the Pharmacy department, for your valuable insight and review of the final dissertation. To my previous supervisors, Yakub Kadernani and Prof Shirley-Anne Boschmans, thank you! Yakub, you got me interested in this topic when nothing else was appealing to me, I do hope you enjoy reading the final product. Prof Boschmans, I won't ever forget your encouragement when I felt like I knew nothing, and you said that I was finally talking like a researcher, although I never did understand some of the APA style of writing, at least I knew what it stood for!

Special mention must go to Dr Tim Pittaway for his contribution as facilitator and reviewer for the focus group phase of the study, and for all the help with ATLAS.ti®. Dr Danie Venter for helping me with the statistical analysis, which I am still terrified of, but at least now I understand it a little better.

Abstract

Numerous studies have investigated the use of blended learning by academic staff at tertiary institutions. The purpose of this study was to examine the perceptions of blended learning by academic staff at the Faculty of Health Sciences at Nelson Mandela University. A related objective was to identify barriers and facilitators to the adoption of blended learning by academic staff. A sequential, exploratory mixed-methods design was adopted for this study whereby Phase 1 (focus groups) was used to inform Phase 2 (questionnaire) of the study. Results were analysed from both phases and organised according to strategies, support, and structure of a blended learning adoption framework. Existing support structures to assist with blended learning adoption, understanding of what blended learning is, confidence in using blended learning tools, and time to attend training were some of the findings of the study. The researcher concluded that academic staff in the Health Sciences Faculty at Nelson Mandela University are positioned in the second stage of the blended learning adoption framework, namely the early adoption stage of blended learning. These findings imply that existing strategies and support within the Faculty and the University need to be further developed, and structures put into place to move to an advanced stage of adoption of blended learning by academic staff in Health Sciences Faculty of Nelson Mandela University.

Abbreviations, Terms and Key Words

Abbreviations

BL   Blended Learning

F2F   Face-to-face

LMS   Learning Management System

IT   Information Technology

Terms

Face-to-face   An instructional method where course material is presented to students in-person.

Blended Learning   The full integration of face-to-face teaching with online learning, under academic staff instruction

Faculty   Academic staff at a university

Keywords

Blended learning, online teaching, face-to-face teaching, Health Sciences

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Chapter 1

Introduction to Study

1.1 Motivation for the Study

Blended learning (BL) is described as the integration of face-to-face (F2F) learning experiences with online learning experiences (Graham & Bonk, 2012). This study explores the use of blended learning in teaching practices at a tertiary institution and the factors affecting the implementation thereof. Large class sizes (Snowball, 2010) and high student to staff ratios (Centre for Higher Education Trust, 2016) negatively impact on outcomes (Monks & Schmidt, 2010). Evidence of the use of blended learning to improve academic outcomes (Bernard et al., 2014), communication (Dziuban et al., 2018) and student learning experiences (Frehywot et al., 2013) can be seen in the literature. However, there is limited research that has been done in Health Sciences Faculties in South Africa.

For blended learning to be successfully implemented and incorporated into current teaching at tertiary level, the goals of the institution, department and academic staff need to be considered. Furthermore, academic staff need to be equipped and comfortable to adopt blended learning in their teaching practice (Mirriahi et al., 2015). Therefore, identifying barriers, facilitators, and ways to implement blended learning are vital to understanding the use of blended learning in the local context at the Health Sciences Faculty of Nelson Mandela University. In this context, of particular interest to the researcher is the perceptions of blended learning by academic staff at the Faculty of Health Sciences of Nelson Mandela University.

1.2 Background to Study Methodology

For this study, the researcher chose pragmatism as a paradigm for a mixed-methods approach. Pragmatism was adopted so as to focus on the use of blended learning by academics in the Health Sciences Faculty at Nelson Mandela University, rather than the existing knowledge about blended learning use of academics worldwide (Coghlan & Brydon-Miller, 2014). Furthermore, a mixed-methods approach was chosen to address the primary aim and objectives, which included describing the perceptions of academic staff regarding the factors affecting the adoption of blended learning (Winit-Watjana, 2016). A sequential, exploratory mixed-methods design was adopted for this study. Exploratory sequential processes allow the researcher to gain in-depth and rich understanding and insights using qualitative methods and then to generalise, test or elaborate on these findings through the use of quantitative methods (Creswell, 2003; Greene et al., 1989). In this study, the collection and analysis of qualitative data in the first phase provided exploratory results which informed the second phase. In the second phase, quantitative methods applied to a larger sample size were used to test the generalisability of the first-phase qualitative findings to the study population. However, it needs to be noted that in this study, greater emphasis is placed on the qualitative phase of the study (QUAL), rather than the quantitative (quan) phase.

In the first phase of the study (qualitative), focus groups (along with the literature review) were used to collect data which, post analysis, guided the development of the questionnaire used for the second phase of the study (quantitative) by providing a better understanding of the sample populations perspectives. Focus group research allows researchers to gain multiple perceptions from a diverse group

of participants.   Focus groups also help to provide more depth to the results gained as a consequence of an informed design process (Liamputtong, 2011). In the second phase of the study, academic staff within the Faculty of Health Sciences at Nelson Mandela University were sent a link via e-mail to access the questionnaire. The title of the questionnaire was: Investigating the use of and experiences with blended learning. This web-based data collection approach allowed for the collection of data in a relatively short time frame (Jans, 2017).

1.3 Aim and Objectives

1.3.1 Aim

This study aimed to explore the perceptions related to the conceptualisation, utilisation and facilitation of blended learning in learning and teaching practices within the Faculty of Health Sciences by academic staff at Nelson Mandela University.

1.3.2 Objectives

In support of this aim, the study objectives included:

- Describing the perceptions of blended learning by academic staff in the Faculty of Health Sciences at the Nelson Mandela University; and
- identifying the academic staff perceptions about the factors affecting incorporation of a blended learning approach into learning and teaching practices of the Faculty of Health Sciences at the Nelson Mandela University.

1.4 Chapter Layout

Chapter One of the dissertation introduces the research study conducted and includes a background to the methodology, and a statement of the study aim and objectives.

Chapter Two is a review of literature which provides background knowledge on themes around the use of blended learning in tertiary education. In this chapter, the researcher explores the following themes: defining blended learning, benefits of blended learning, barriers to adoption of blended learning, methods employed to design blended learning activities, identifying blended learning tools available in tertiary education, blended learning in the South African context, and finally institutional blended learning adoption frameworks.

Chapter Three describes the research design used for the study and explains the reasons why this design was chosen. The chapter continues with the methodological processes followed for both phases of the study - the qualitative focus group methodology employed in phase one and the quantitative questionnaire methodology used in phase two.

Chapter Four presents the findings and outcomes of the analysis of the results of the two phases of the study, phase one - thematic analysis and phase two - statistical analysis.

Chapter Five is an integrated discussion of the results of the two phases of the study. A blended learning adoption framework was used to organise the results in a manner that builds on the existing body of knowledge and demonstrates that the objectives of the study have been achieved.

Chapter Six summarises the findings of the study, suggests the implications and limitations of the research and recommendations for further investigation.

Chapter 2

Literature Review

2.1 Defining blended learning

Blended learning (BL) can be described as the combination of face-to-face (F2F) instruction with computer-mediated instruction (Graham & Bonk, 2012). Wherever face-to-face learning and online learning are combined in practice, the literature describes it as blended learning. However, it is an integrated approach to teaching and the design of lessons, courses, modules or programmes that goes beyond the simple adding of technology to an existing teaching approach or design (Graham & Bonk, 2012). Hrastinski (2019) suggests that when describing blended learning, more specific and descriptive terms should be used to assist in forming the most accurate description of the teaching method employed that uses online and face-to-face methods together.

If faculty understand how to integrate technology with face-to-face learning effectively, the nature and quality of education could change dramatically (Garrison & Kanuka, 2004). However, this can only be achieved with a solid understanding of technology combined with the most valuable attributes of face-to-face teaching. Also, academic staff and researchers must examine what blended learning means to them before being able to define the concept in a meaningful manner (Picciano, 2009). When adding an online activity, faculty should make sure that the activity will address a specific learning need that may be lacking in the course and they need to understand how technology should be applied to address that need (Picciano, 2009).

Blended learning is not a prescribed method of step-by-step instruction that one can follow to achieve the desired outcomes since every course has different topics and needs. An example of this might be that at times during the presentation of a course, either face-to-face or online activities might be weighted differently (Keis et al., 2017). At the beginning of a course, it is essential to have more face-to-face teaching to meet and build relationships and community with fellow students and with the lecturer. Alternatively, a more complex topic that needs some reflective thinking might be better done through an online discussion forum, where the learner has time to consider their response before contributing (Keis et al., 2017). Lecturer presence also encourages increased attentiveness when the topic is difficult. Students are motivated to prepare adequately when they fear not being able to answer questions directly in the face-to-face setting (Keis et al., 2017).

When comparing face-to-face and online activities, students at the University of Ulm in Germany expressed a preference for face-to-face activities. The students suggested that the communication or feedback with lecturers is beneficial, especially when compulsory curriculum topics, practical's, or topics with application to real-world professional activities and subject matter that is seen as very difficult are being taught. Alternatively using an online platform would be better for teaching large groups and for subjects that contain a lot of theory, or less practical relevance because explanations and demonstrations are not crucial. The students also noted that online courses could be offered as preparation for or additional to a face-to-face course. Lastly, when there is a limited number of participants in a class, online programmes could be used as an alternative to face-to-face courses to allow for more significant numbers of students to enrol. (Keis et al., 2017)

A critical factor in the success of blended learning is whether the values of traditional teaching can be maintained or improved by presenting the module material online in such a way that encourages engagement and learning (Garrison & Kanuka, 2004). To begin with the person developing learning material into a blended approach would need to understand the outcomes that are expected from teaching the material (Frehywot et al., 2013). Once this is clear, the material can be converted to various platforms to encourage engagement and not compromise the quality of traditional teaching methods. Face-to-face courses should not be replaced with online courses, as there is a need by students for interaction with their lecturers, and between students themselves, but this interaction can be limited to a minimum in the form of feedback and not traditional face-to-face lecturing (Keis et al., 2017).

Ten years ago, Mitchell and Forer (2010) investigated the perception of online learning versus traditional learning with first-year geography students at the University of Auckland. At the time, he concluded that technology could not yet provide the platforms needed to develop social skills, exercise critical thinking and enhance communication pathways for e-learning to be more than just transferring of knowledge. Today, these platforms do exist, and according to Sinatra et al.(2015), learner engagement is the "holy grail of learning". The ability to improve learner engagement in an online platform can lead to the successful blending of face-to-face and online methods (Dziuban et al., 2018). Understanding the difference between quality versus quantity of interactions is of utmost importance to this successful blend (Bernard et al., 2009). When designers of blended learning create interactions of high quality, rather than just adding activities for the sake of keeping the students busy, they encourage cognitive engagement for the student which leads to a more meaningful learning experience.

Bernard et al. (2009) identified two ways to increase the quality of interactions in a blended learning course design. Firstly, using instructional design strategies which centre around features of the specific course being presented; this would include using student-student interactions that require accountability and interdependence between students to make sure the students are truly engaged on a deeper level. In addition, courses need to be designed to allow for problem-based content interaction and not just content delivery. Instructional designs that involve quality interactions with lecturers rather than mere administrative or didactic exchanges from lecturer to student, generally facilitate higher-order thinking skills and an understanding of content. The second way to create higher quality interactions in a blended learning course is through software design, for example, interactive multimedia which encourages involvement from the student, and not just traditional one-dimensional online presentations (Bernard et al., 2009). Technologies such as Learning Management Systems (LMS) are used to allow students to have meaningful interactions with content, peers and their lecturers (Bernard et al., 2009).

The definition of blended learning evolves with every new development in learning, teaching, and technology. Hrastinski (2019) discussed blended learning definitions, concepts and models in his research and concluded that more work needs to be done to identify new models of blended learning that can address areas of research that might not yet have been explored such as - how to blend? what is being blended? and most importantly, why do we need to blend?

2.2 Benefits of blended learning

In this section benefits of blended learning are presented. Benefits range from student outcomes in a blended learning course to communication and interaction between students, lecturer, and course content. Blended learning also caters to different learning styles of students and promotes critical thinking in the learning process. For academic staff, benefits of blended learning include addressing large class size, time, flexibility, cost efficiency and staff satisfaction. Each of these benefits will be discussed below.

One of the most important factors when looking at changing the format of teaching a course is to be able to maintain or improve the student outcomes that are required for the course to be presented. Studies have claimed that the pedagogical integrity of a course is preserved in the blended learning format in terms of student results when comparing traditional face-to-face teaching and blended designed courses (Brown & Vosper, 2013). Benefits of blended learning were identified when blended learning methods have been compared with classroom instruction alone (Bernard et al., 2014). Blended learning showed an improvement of up to one-third of a standard deviation in terms of achievement outcomes, suggesting that blended learning platforms are effective at improving learner outcomes (Bernard et al., 2014). In a study including almost 1000 students, at the University of Granada in Spain, Lopez-Perez et al. (2011), showed that, over four years of exam results, blended learning reduced dropout rates of students at institutions by 9%; and improved student pass rates at institutions from 40% with traditional methods to over 60% with blended learning methods.

The benefits of blended learning from a student's perspective can be seen by assessing the effectiveness of e-learning tools. A literature review by Frehywot et al. (2013), included studies which employed both quantitative and qualitative analyses of the effectiveness of e-learning tools. The quantitative comparisons compared students test scores between traditional and e-learning teaching approaches, and most of the studies cited in this review showed either positive results or no statistically significant differences in outcomes between the different methods of teaching. Similarly, when evaluating the outcomes of courses qualitatively, studies showed that using a variety of blended teaching methods like multimedia, online lecture notes, projects, and short online tests with face-to-face lectures, helped the students and enhanced their learning experience. (Frehywot et al., 2013)

In another study conducted by Dziuban et al. (2018) at the University of Central Florida, comparing blended learning courses to face-to-face courses over two semesters, the researchers analysed student grades and success and withdrawal rates. Courses which employed a blended learning modality mostly maintained and sometimes increased student access for most of the cohort and resulted in improved success rates for all students. The researchers also analysed student ratings of the courses focused on three characteristics of learning, including achievement of course objectives, perception of the learning environment and communication. The results indicated that students ranked blended learning course higher than face-to-face courses in all three of these areas. The positive response to blended learning suggests that there is potential in learning and teaching to grow and change to suit the new generation of students entering higher education today. (Dziuban et al., 2018)

A qualitative study by Gedik et al. (2012) was conducted at a Turkish university evaluating the perceptions of ten students enrolled for an educational technology programme which had been redesigned from traditional face-to-face to a blended format. Participants preferred having no time limitations for online activities; they felt motivated and perceived that the blended format afforded them more opportunities to interact and communicate with lecturers. Also, they felt that there was a more significant reinforcement of the material when compared to a face-to-face format (Gedik, 2012).

Another benefit of providing blended learning platforms is that students get to experience learning that suits their learning style and behaviour, while still being challenged to learn in ways that they are not naturally inclined toward (Picciano, 2009). By increasing engagement between students and lecturers within the course, using multiple choice quizzes, discussion forums and peer assessments, lecturers can promote deeper thinking and accommodate different learning styles leading to a better learning experience for the students (Snowball, 2014).

Lee et al. (2016) conducted a meta-analysis of studies looking at the effects of non-traditional teaching methods on the critical thinking abilities of nursing students. They found that when new ways of teaching and learning were introduced, which were aimed at improving critical thinking, they also positively influenced a critical thinking mind frame. Examples of activities that are considered to enhance critical thinking are concept mapping and case studies (Lee et al., 2016).

Blended learning benefits not only students but also the staff. Examples of benefits for academic staff include flexibility, student self-learning, time-saving, cost efficiency, staff satisfaction and improved communication with students (Smith, 2018).

Porter et al. (2016) analysed the results of interviews with 39 academic staff at a United States (US) university that was in the early implementation stages of blended learning adoption. Participating faculty stated that essential benefits of using blended learning in their teaching included, improved student interaction, interest and learning, and ease of use when compared with traditional face-to-face methods.

Using blended learning to address increasing class size in higher education is a worldwide phenomenon and research is showing that it is proving to be useful. Snowball (2014) conducted a case study at a South African university with a sizeable first-year economics class being taught in a blended format. The researcher hypothesised that combining online resources and platforms with a traditional face-to-face course would address problems that were experienced with large class sizes in face-to-face teaching. Furthermore, posting slides, preparatory readings, audio lectures and podcasts online before or after face-to-face sessions helped to accommodate diverse student learning styles and learning pace (Snowball, 2014). It also assisted the students who were not studying in their home language as they could replay and go over the work slowly at a speed that was more manageable and helped with a better understanding of the content. Communicating individually with a lecturer in large classes is not always possible, and online platforms such as "feedback" and "chatrooms" allowed for communication between lecturer/student and student/student that is targeted and well thought out. Snowball (2014) cautioned that combining online learning with face-to-face teaching had to be very well planned and incorporated together to allow for meaningful learner experiences and outcomes. Activities such as automatically marked multiple-choice quizzes and interactive exercises were more beneficial than just posting slides and resources for the students online and may have impacted the student's final grades. Review activities such as YouTube links and short

tutorials also assisted the students who were struggling with language and had different learning styles to keep up in the face-to-face large class settings where more interactive discussions could occur instead of didactic teaching.

To improve learning and teaching in large classes effectively, a range of activities that allow for learning to happen should be provided. Based on Bloom's levels of taxonomy, if students can "understand, apply, analyse, evaluate and create", they will be more involved and motivated to learn (De George-Walker & Keeffe, 2010).

Garrison and Kanuka (2004), suggest that new pedagogic practices made possible through blended learning help achieve the principles of higher education that have become compromised and are not always easy to attain with larger class sizes.

2.3 Barriers to Adoption of blended learning

Although the benefits of blended learning are evident, there are many barriers to implementation and incorporation into courses and modules at the tertiary level (Alammary et al., 2014). Examples of barriers that exist at the start of changing a course to a blended learning design have been identified as limited technical knowledge of academic staff; students viewing the added activities as a burden; and an increase of academic staff workload (Alammary et al., 2014). Many traditional universities provide some form of technology-mediated education in modules for selected groups of students based on academic staff interest. However, these are usually managed and run by the academic staff responsible for the module and do not need the backing or support of university policy because the numbers of students involved are usually small. If technology-mediated modules were to be applied to significant numbers of students, university policies would need to support blended

learning approaches, making sure that interactive learning experiences for large numbers of students are cost-effective and accessible. (Garrison & Kanuka, 2004)

According to Garrison & Kanuka (2004), implementation and sustainability of blended learning courses are dependent on financial, human and technical resources. Each of these three resources can influence the success of a blended learning course. Financial resources relate to the ability to provide support for both students and academic staff. When limited or not available, this becomes a barrier to the start-up of a blended learning course. Most universities provide adequate technical support for students, but support for teaching staff is often not in place (Garrison & Kanuka, 2004). Teaching staff require help to develop courses, time to work on the development of blended learning resources, as well as technical assistance, depending on their level of knowledge of programmes that are available to use for blended learning, all of these requiring financial backing. Addressing these barriers at a higher management level is essential, as it will allow academic staff to apply blended learning to existing modules within a programme and only then can the potential of blended learning begin to be explored. (Garrison & Kanuka, 2004)

Technical resources need to be in place as developing blended learning teaching material is not simple and straightforward; it requires many hours of specialised application using a variety of technologies not always familiar to the user. Frustration and anxiety come hand in hand with technical difficulties using these technologies (Gedik et al., 2012). Other research has identified similar barriers relating to academic's skills and confidence using technology (Mirriahi et al., 2015). Most academics use online technology for administrative and management purposes only and not for facilitating a more in-depth learning experience for the students which

would require a higher level of technical knowledge of the online platforms (Palak &

Walls, 2014). Lack of skills means that academics do not effectively integrate online

platforms with their teaching material, resulting in less effective interaction with

students (Torrisi-Steele & Drew, 2013).

Human resource barriers such as limited staff capacity, result in academics not

having the time to cope with the workload required to fully integrate blended learning

into their curriculum (Mirriahi et al., 2015). In a survey of 348 academic staff at the

University of West Georgia regarding factors which facilitate or obstruct technology

incorporation into teaching, participants cited lack of time, equipment, and training as

the most significant barriers. Interestingly all three of these were also listed as positive

facilitators on the opposite side of the spectrum (Lea & Beggs, 2000). Similarly,

Humbert (2007) surveyed 37 academic staff at a university in France, who indicated

lack of time, difficulty using online technology and a drop in quality of interaction with

the students as their primary barriers to adoption of blended learning in teaching.

Other barriers noted by 133 academic staff surveyed in Korea included heavy

workloads, and a lack of motivation and financial support (Oh & Park, 2009). All of the

factors cited fall within the human resource barriers described by Garrison and Kanuka

(2004).

However even though researchers have identified financial, human, and

technical resources as barriers to successful implementation of blended learning

courses, understanding exactly what blended learning is, should be the first step in

achieving these goals. According to Mirriahi et al. (2015), another barrier to using

blended learning is the inconsistency related to the understanding of precisely what

blended learning is. There is no one definition of the concept, and academic staff have

their own ideas about what it means to them and this lack of clarity results in many variations in the application of blended learning. These variations include differences in the ratio of online activities to face to face time, design of modules, application of technology, teaching approaches and the aims of blending (Hinrichsen & Coombs, 2013). Furthermore, researchers differ in their view of how blended learning can improve teaching practices, for example, Procter (2003) reports that blended learning is different to full distance learning, focussing on the quality of learning and teaching experience of the students. On the other hand, Garrison and Kanuka (2004) focus on combining the most positive and effective attributes of online with those of face to face teaching.

Evaluating blended learning course design is challenging to standardise; although frameworks are available, they are not always clear and consistent in standards, criteria, and design (Smythe, 2012). When the criteria and standards are not clear, academics own perception of various levels of the Likert scales built into the evaluation frameworks can vary (Smythe, 2012). Some studies focus on face to face teaching benchmarks and do not include updated criteria for blended learning instruction (Oliver, 2003). If criteria and standards to measure the effectiveness of blended learning are better formulated, frameworks will facilitate more effective learning experiences (Reed, 2014).

Besides the barriers experienced by academic staff, there are social problems for which education through blended learning still needs to find creative solutions. Costs, accessibility, quality of course content and student dropout stand in the way of creating education systems that are successful in including all students no matter what social barriers exist (Castro, 2019). A research study comparing face-to-face and

online formats of an electrocardiogram course at the University of Ulm in Germany was conducted. In interviews with ten students, eleven negative factors with regards to the face-to-face design were noted. In comparison, only one negative aspect of the face-to-face format was reported. Online teaching lacked opportunities to interact with the lecturer, especially when difficult to understand topics were presented, and the online form required self-discipline from the students. The students also reported that the online format was more time-consuming. The only disadvantage that the students identified for the face to face format were to do with travelling to class, location not being flexible and classes that clashed with other activities. (Keis et al., 2017)

Barriers to the successful implementation of a sustainable and quality blended learning course have been listed. While financial and technical support is important, human resources remain the most challenging barrier to overcome when developing blended learning courses. While universities might be able to offer financial and technical support, academic staff do not always receive backing needed to plan, develop and provide evidence-based models that allow for successful conversion to blended learning formats (Porter et al., 2016). The Faculty of Arts and Science at a Canadian university launched a Course Redesign Project in 2011 to address growing enrolment numbers and fewer resources by enhancing student learning quality and improving engagement in large class sizes (Ravenscroft, 2018). Their main aim was to support academics to convert modules to blended learning. In a case study of this project, Ravenscroft (2018) reported that the most successful driver of the project was the necessity for departments to sign a memorandum of agreement. This agreement included details of the role of the lecturer, the department and the instructional designer that was assigned to assist with the blended learning conversions. Timelines for development and implementation were also included in the agreement. The

agreement provided the required accountability and motivation to develop blended learning within various courses (Ravenscroft, 2018). Similarly, Porter et al, (2016) concluded that universities need to provide appropriate infrastructure, IT (Information Technology) support and be able to evaluate blended learning models appropriately.

If steps taken to address the barriers to blended learning conversion include the *why* and *when* then, perhaps once these are dealt with, academics will be more able to focus on the *how*. In the next section methods employed to design blended learning courses will be discussed.

2.4 Methods employed to design blended learning activities

When selecting methods to employ blended learning in course design, many factors should be considered to assist academic staff in deciding how to approach the conversion of traditional face-to-face to a more blended approach. In a literature review study, Alammary et al. (2014) classified various approaches academics could apply when designing a blended learning course. They identified three primary blended learning design approaches in their review: Low-impact, medium-impact, and high-impact blend.

In a low-impact design, extra online activities are merely added to a face-to-face course. In a study by Kaleta et al. (2007), it was shown that many academics who were developing a blended learning course, began with a traditional course and added online components. The number of face-to-face activities that students had to do was, however, not reduced, and students became overloaded with more work. The researchers coined the phrase "course-and-a-half-symptom" (p127). Yet, adding an online activity could add to the pedagogical value of the course. For example,

McCarthy (2010) demonstrated that by adding a peer interaction activity online, students face-to-face engagement improved, which led to a better course experience for them.

In the second blended learning design approach, medium-impact blend, activities in the face-to-face course are replaced with online activities. An example of an academic using this approach is of a second-year political science course in which the lecturer decided to replace one of the three weekly lectures with an online discussion (Garrison & Vaughan, 2008). Students were divided into small groups for the discussion which was monitored by the lecturer. A mark was assigned to the discussion based on time, nature, and frequency of the activity. Researchers saw that this change facilitated student discussion and helped to resolve issues and questions related to course material. (Garrison & Vaughan, 2008)

The third and final design approach discussed by Alammary et al. (2014) is a high-impact blend and involves the development of an entirely new blended learning course. Hofmann (2006) described this approach whereby the academic commences the design of a blended learning course by identifying specific course outcomes. After that, the academic decides on the best way to achieve each outcome by developing or using a mix of blended learning activities. Hoffman's view is in line with curriculum development models, where assessments are designed according to learning outcomes (Biggs, 1996). The researcher suggests that it does not necessarily take longer to develop a new course and proposes that academics should consider this option rather than redesigning traditional courses. (Hofmann, 2006)

Alammary et al. (2014) expanded on the three approaches and provided lists for future researchers to be able to classify where in the process the academic is when it comes to blended learning adoption. Being aware of the various levels of the understanding of academic staff of technology and what support will be provided from the institution before starting, can increase the success of conversion from face-to-face to blended learning and encourage colleagues to adopt this approach as well. The literature review concluded that to progress from a low to medium or high impact design approach requires a high level of commitment from academic staff as well as several interventions. Interventions that may be necessary include the training of academic staff on the use of e-learning tools and developing technological knowledge. It was also suggested that academic staff need to spend more time and effort improving their skills and confidence before they are able to successfully change to a truly blended learning course design. (Alammary et al., 2014)

Other research exploring the approaches used to design blended learning courses suggests that although academic staff are experts in course content, they are not always experts in using blended learning technology (Garrison & Kanuka, 2004). Academic staff developing blended learning teaching modules need to be able to use blended learning resources adequately to be able to successfully present components of a module online (Garrison & Kanuka, 2004). Being able to effectively combine online technology with the most critical facets of face-to-face learning experiences requires a high level of understanding of the online technology being used to convert modules to blended learning (Garrison & Kanuka, 2004).

In conjunction with technological knowledge, academic staff must understand the extrinsic and intrinsic motivational factors involved in students adapting to this new way of teaching. Extrinsic motivation entails completing an activity to achieve an outcome that is not related directly to the activity itself; perceived usefulness is classed as an extrinsic motivator (Davis et al., 1992). Intrinsic motivation is defined as performing the activity for no use other than performing the activity itself, so perceived enjoyment would be an intrinsic motivator (Davis et al., 1992).

In their qualitative research study including medical students at the University of Ulm in Germany, Keis et al. (2017) identified that with regards to blended learning, extrinsic factors such as external support programmes are necessary to maintain the students' effort and motivation when working online. The researchers further suggested that is also important to have deadlines for completion of tasks or lessons and consequences of automatic exclusion if the deadlines are not met. Instead of leaving the material available indefinitely and at any location, they suggested using fixed time frames for the availability of learning material. Also, the researchers concluded that students need intrinsic motivation as well, which could be lost in changing from traditional to online platforms. Feedback to students is critical in their success to partake in, and complete online modules. Basic ways to do this include building in assignments that are corrected and returned to the students as well as have multiple choice quizzes embedded in learning material at the start or the end of a section which can help to keep the students interested and motivated. (Keis et al., 2017)

Student attitudes toward blended learning activities are closely linked to previous experiences and assumptions about blended learning technology being applied. In a study involving first-year geography students at the University of Auckland, Mitchell and Forer (2010) asked participants to compare the blended learning course for which they were enrolled with traditional learning methods. The participants were also asked to identify how blended learning changed their learning habits and why some blended learning activities were preferred over others. Participants who had previous experience with blended learning platforms that were being used in this first-year geography blended learning course said that they didn't notice a change in their learning habits because the platforms were not new to them. Participants used text messaging as an example of a blended learning tool they preferred. They said they related well to this platform as an ideal form of communication when given the opportunity in the course to send questions to their lecturer via text message. Still, they acknowledged the limits of bandwidth and informality when communicating with their lecturers. Participants also liked the range of learning platforms offered by blended learning as it gave them flexibility and more choice compared to traditional face-to-face courses. To positively affect the way students perceive their university experience, methods used to employ blended learning needs to incorporate students learning styles and attitudes. (Mitchell & Forer, 2010)

Students with certain types of learning styles may not be comfortable using online material, and this will influence their learning outcomes (Weng et al., 2019). In a study of 119 students enrolled in a course using blended learning methods, undertaken at a Malaysian private university, the blended learning design, material, and ease of use were analysed. The participants were categorised into Kolb's four

learning style groups: accommodators, assimilators, convergents and divergents (Kolb, 2015). According to Kolb's classification accommodators are practical and prefer doing rather than thinking things through. Assimilators prefer to be organised and structured, and like working individually. Convergent learners are deep thinkers and problem solvers who are happy to work independently while divergent learners are open to new learning experiences and are enthusiastic about receiving feedback (Kolb, 2015). Weng et al. (2019) identified that participants with a convergent learning style were the most positive about blended learning. Accommodators were the second most positive group, followed by divergents, while assimilators were the least positive. It makes sense that convergents learners had the most positive perception of blended learning since they prefer working independently and experimenting with new ideas. At the same time, assimilators might not like the blended approach as compared to traditional methods since they prefer readings, lectures, and having time to think things through (Weng et al., 2019).

Researchers have found no significant difference between participants learning styles and their actual scores of blended learning, and the open-ended questions recorded in the study were all mostly positive regardless of the learning style the learner aligned with (Shamsuddin & Kaur, 2020). These findings are similar to outcomes in a study conducted by Keskin & Yurdugul (2020) that showed participants learning strategies and styles were independent of their learning environment. These researchers explained that this could be due to the availability of a variety of teaching materials with blended learning such as formative assessment, hypertext, and video. Through these teaching materials the students could chose to apply their individual learning strategies or styles in the blended learning designed environment (Keskin & Yurdugül, 2020).

Online delivery of materials improves module coordination but does not encourage the learner to take an active role in learning necessarily (Snowball, 2014). Interactive online resources (e.g., discussion forums, multiple-choice quizzes, and peer assessments) need to be included to promote active student participation and stimulate deeper learning from the student (Snowball, 2014). Snowball (2014) concluded that a combination of online components needs to be integrated for an online module to be effective.

Using computer-mediated conferencing as a blended learning tool has been found to allow for flexibility, teamwork, and reflection. Students benefit from a deeper and more meaningful understanding of the subject matter, and a community of enquiry is developed. Students can be more critical of questionable ideas and thinking when they use a collaborative online platform since they will be thinking reflectively and more objectively than in a text-based internet environment (Garrison & Kanuka, 2004). Other examples of blended learning applications like a live virtual classroom, self-paced instruction, streaming video, audio, and text can be used to achieve the learning outcomes academics intended for the material presented, and at the same time enhance the traditional campus experience (Alammary et al., 2014).

Perhaps most importantly is to relate the design features of a blended learning course and student characteristics or background to the outcomes for blended learning effectiveness. Using a questionnaire distributed at the end of a semester, to 238 participants, Kintu et al. (2017) investigated the learning outcomes of face-to-face and online sessions of a blended learning course design. The questionnaire included questions about student characteristics, design features and learning outcomes. Findings from the study showed that students have a high potential to take on more

blended learning. Their ability to assess and evaluate information from various sources can lead to them becoming more innovative graduates, able to meet employment demands by being inventive and creative. The study also highlighted that students today are comfortable with technology, and this allows for greater use of blended learning. The researchers concluded that institutions of higher education should highlight blended learning design approaches by using LMS along with reliable and robust internet to enable students effective learning using technology, especially in developing countries.

This section considered various approaches used to design blended learning courses, while the next section focuses on identifying the blended learning tools that are available in tertiary education.

2.5 Identifying blended learning tools available in tertiary education

Across the world, many different online platforms and tools are available and being used for blended learning in tertiary institutions. In this section, the researcher delves into the identification and role of online tools in promoting blended learning practices.

The development and adoption of blended learning in the education sector are enhanced by the current technological expansion being experienced, providing many systems of teaching and communicating that can feed into the needs of higher education (Al-Samarraie & Saeed, 2018). In a systematic review of cloud computing tools for collaborative learning, researchers analysed 29 studies to answer two research questions addressing cloud computing tools and the opportunities and challenges of using these tools for online learning (Al-Samarraie & Saeed, 2018). The

definition of cloud computing is the computing infrastructure that is available as a service on the internet, for example, Amazon, Google and Microsoft (Yu et al., 2010). Al-Samarraie & Saeed (2018) categorise cloud computing tools into three categories, namely, synchronised tools, LMS and social networking tools. For each of the three categories, the researchers investigated and identified specific functionalities and services that could be applied to a variety of collaborative activities in the university environment (Al-Samarraie & Saeed, 2018).

The first category identified by Al-Samarraie and Saeed (2018) was synchronised tools. These are systems available freely to the public, such as Google Applications, Microsoft, and Dropbox. The tools are used to support the editing and sharing of documents and ideas online. Google Workspace offers an interactive technological platform including several applications such as Google Drive, Sites, Docs, Calendar, Gmail, Talk and Video and allows students to communicate and participate in collaborations (Liu et al., 2014). In a study by Stevenson and Hedberg (2013), Google Docs was seen to be dominant in its ability to make students feel part of the learning and teaching process. By creating, uploading, and sharing files, students showed improvement in self-efficacy and perceptions (Schneckenberg, 2014). The comments and feedback functions of Google Drive develop critical attitudes towards knowledge by allowing students to download and share files and folders and to list file edits in the collaborative environment. Other studies reviewed by Al-Samarraie And Saeed (2018) also highlighted the importance of cloud-based email systems like Microsoft Outlook Live, Windows Live Messenger and Windows Live SkyDrive in initiating collaborative group discussions for learning purposes. The researchers concluded that synchronised tools could improve students online learning

skills by supporting online collaborations of sharing and editing functions (Al-Samarraie & Saeed, 2018).

The second category of online tools identified by Al-Samarraie and Saeed (2018) was LMS tools which are systems used as a repository for course work material and to document, conduct, track and report on activities, examples are Moodle® and Blackboard®. An LMS can facilitate communication between students and also between students and academic staff (Griffiths, 2011). Through these tools, students can receive course material and announcements from academic staff about lectures, assignments, and other tasks. In their study of Blackboard®, Hershey and Wood (2011) found that the function of chat sessions through the LMS tool, which could be saved and shared with other students, was perceived as the most useful feature when dealing with difficult topics. Open forum discussions are also helpful to increase student interest in participating in reflective communications. Al-Sammarraie and Saeed (2018) concluded that LMS tools are the most ideal for engaging students in activities that encourage collaborative learning when the physical presence of academic staff and fellow students is not an option.

The third category of cloud computing tools that were identified by Al-Samarraie and Saeed (2018) were the tools used for social networking for educational purposes. This category includes systems used for communication and sharing personal views such as Facebook, Twitter, Skype, and WhatsApp. These tools have been promoted by institutions of higher learning to enhance collaborative learning between students and have shown positive results (Kirchner & Razmerita, 2015). Besides being a platform to build relationships with other students as well as lecturers, social networking tools can help students share knowledge amongst classmates which allow

developing skills of constructive reasoning and innovative thinking (Rambe, 2012). Al-Samarraie & Saeed (2018) identified the most popular social networking tools for collaborative learning to be Facebook, Twitter, Skype and WhatsApp. The primary role of social networking tools is communication and sharing of resources between students, allowing users to view, like, share and comment about learning topics. Information sharing functionalities on Facebook like Groups, Questions and Slide Share, can foster critical thinking amongst students (Barczyk & Duncan, 2013). Twitter allows students to share their views with many followers as a tweet, linking quotes and other resources to the message. Students can use the free text option included in Twitter to give feedback on other student's postings. As the most advanced and modern tool, social networking has the potential to help students attain a high degree of self-esteem and performance (Al-Samarraie & Saeed, 2018).

All three categories of cloud computing tools discussed promote student's reflective ability and critical thinking skills. Still, over the last few years, there has been a move toward increased use of synchronised tools, improving collaborative learning by stimulating active conversations and discussions, sharing, and editing course material and other resources (Al-Samarraie & Saeed, 2018).

Castro (2019) conducted a systematic review of forty-five peer-reviewed journal articles to identify trends and capabilities of blended learning in higher education. According to the researcher, most of the literature reviewed was centred on specific e-learning tools and platforms rather than on the technology's ability to align with teaching and learning. Castro surmises that "it is not the technology, but instead how it is used that drives the transformational process in blended learning implementation" (Castro, 2019, p. 2525). Technology trends identified in the research included

interactive and functional online textbooks, digital device ownership and mobile learning, learning spaces, next generation of LMS, and adaptive learning technology. Castro (2019) concludes that while there is a trend to more progressive and interactive systems, most existing blended learning platforms are not used to their full potential. For example, an LMS is often used for content delivery such as lecture notes and slides, without truly changing the course pedagogically. (Castro, 2019). This observation by Castro (2019) is in agreement with the *Blending with Purpose Model* designed by Picciano (2009) which suggests that while LMS allow for content delivery, instruction in higher education also needs to allow for social and emotional support to the students through direct interactions with lecturers and their peers.

In her research, Castro (2019) analysed technology by concentrating on attributes and ability of the technology to produce specific capabilities when used in learning and teaching. The researcher identified five capabilities: datafication, human-to-human technology-enabled interactions, human-to-machine technology-enabled interactions, -immersive experience, and scalability. Datafication is using automated tools and technologies to collect and analyse data to improve the design of learning activities. Castro (2019) describes human-to-human technology-enabled interactions as tools that facilitate collaboration between students such as peer review, online discussion forums, instant messaging, chatrooms, email tools, social networking systems and conferencing tools. These human-to-human tools provide collaborating and communicating opportunities. However, despite several searches in various databases, there was little evidence to support considerable transformation in current teaching practice using peer review, online discussion forums, instant messaging, chatrooms, email tools, social networking systems and conferencing tools. The next capability of tools identified by Castro (2019) in the review was human-to-machine

technology-enabled interactions. This includes tools providing interactive systems with artificial intelligence components, which can facilitate alternative learning activities for intensive assessment and feedback, especially in large classes such as intelligent tutoring systems (Khawaja et al., 2013), wearable devices and mobile technologies. Tools identified by Castro (2019) as providing an immersive experience, combine attributes of physical and simulated digital worlds. Students learn and develop competencies from peers and collaborative activities provided to them by using technologies such as augmented reality, virtual worlds, and virtual reality systems (Chang & -Ch'iang Liu, 2013). The final capability is scalability. Using adaptive learning systems like LMS and Massive Open Online Courses (MOOCs) students and academic staff can work at their own pace to access the course work. Still, the disadvantage of this is the reduced peer support and absence of academic staff (Castro, 2019).

As described in the last two sections, the methods and tools used in blended learning are an integral part of the development and implementation of quality blended learning platform's in tertiary institutions. Researchers believe that by having a better understanding of the relationship between technology and pedagogy, and using technology capabilities as a framework to analyse and improve blended learning systems being used, a more refined blended learning implementation can be achieved (Castro, 2019). The majority of the studies and work that has been explored and described thus far has been global. However, since this study is being conducted in South Africa, the researcher explores blended learning in the South African context in the next section.

2.6 Blended learning in the South African context

To adequately describe the role of blended learning in the South African higher education context, one must understand where the country has come since 1994. At that time, South Africa's newly elected democratic leadership committed to transforming higher education to address the education gap created by apartheid (Badat, 2010). The ministry had a vision "of a transformed, democratic, non-racial and non-sexist system of higher education" (Department of Education, 1997, sec. 1.14), to be achieved through equitable access to higher education for all, including black, female, disabled and mature South Africans (Department of Education, 1997, sec. 1.13). Since then, there have been many changes in programmes, laws, policies, restructuring and funding of South African higher education that have affected institutional transformation. Ramoroka (2019) argues that blended learning in a developing country like South Africa can only succeed if local governments provide the planning and oversight of technological shifts in learning and teaching. By developing plans and implementing strategies in local regions and not following a national program, the divide between rural and urban education systems can be addressed (Ramoroka, 2019).

The significant change in higher education since 1997 relating to this study is increased student enrolment leading to large class sizes. In 2018 the South African Department of Higher Education reported that student enrolment in Public Higher Education and Training Institutions (HEIs) had grown from 473 000 in 1993, to 1 085 568 in 2018 (Department of Higher Education and Training, 2018) achieving the government's vision of better access to all South Africans. Along with this growth in student numbers came the trade-off of quality and achievement of learning outcomes

with student dropout rates increasing and students taking longer than expected to graduate (Tewari & Ilesanmi, 2020). This could be attributed to the student-staff ratio, which is very high across most South African universities. In 2013, the University of South Africa (UNISA) had the highest ratio of 78 students to one staff member and Nelson Mandela University had a ratio of 28:1. The average of all South African universities was 27:1, but, the national target is 20:1 (Centre for Higher Education Trust, 2016). Studies have shown that large class sizes and high student-staff ratios negatively impact on outcomes for students relating to lecturer evaluation, grades, and knowledge gained. Students enrolled for modules with large class sizes report that they don't always understand class presentations, leading to rating the lecturers as less competent and not keeping their attention (Monks & Schmidt, 2010). Large classes can lead to students being less capable of relating theory to real-world problems, and lower performance and motivation to do well (Gunn & Harper, 2007).

In their Handbook of Blended Learning, Bonk and Graham (2012) state that using blended learning in large classes allows for online group work that supports the student and helps them understand the course material. Other researchers agree that students are afforded better access and flexibility in their learning by using blended learning in large classes without forfeiting face-to-face benefits in lectures (Choy et al., 2002). In a case study at Rhodes University in the Eastern Cape, Snowball (2010), previously discussed in Section 2.2, collected data from a questionnaire based on students experiences with online activities. Most students reported that interactive online activities improved their knowledge and learning. The interaction online between students and lecturers helped to address the problem of students not being able to keep up with the pace of teaching in large classes (Snowball, 2014).

According to Tshabablala et al. (2014), when implementing blended learning approaches in South African universities, one needs to fully understand at what stage the university is at when it comes to adopting blended learning. In section 2.7, the researcher of this dissertation reviews an adoption framework by Graham et al. (2013) that speaks to various adoption stages of blended learning. Tshabalala et al. (2014) interviewed sixteen lecturers from a traditional university in South Africa to understand their perceptions and rate of adopting blended learning. They found that although the university was encouraging the use of LMS (Moodle), many of the participants did not understand what blended learning was. Furthermore, they were not trained to use the tools and felt anxious to attempt any course conversions because of a fear of failure. Participants also mentioned the lack of computer technology resources as a significant challenge for changing to blended learning models (Tshabalala et al., 2014).

Wang et al. (2014) explain that mobile phones have developed into smartphones over time, which are fully functional computers. A national survey conducted in 2012 showed that 72% of 15 to 24-year-olds have a mobile phone (Beger & Sinha, 2012). Tshabalala et al (2014) proposed that students could use their mobile phones for blended learning applications to facilitate learning, allow for collaboration, and improve learning experiences while providing a solution to a lack of access to computer technology in some of the developing universities in South Africa (Tshabalala et al., 2014). Tshabalala et al. (2014) suggested using mobile phones for blended learning applications because South Africa has 100.48% mobile phone subscription penetration (some users having multiple subscriptions). The generation of South African's currently entering higher education is familiar with the use of mobile technology. Tshabalala refers to mobile phones, with there being little differentiation between a mobile phone and a smartphone at the time of the study.

Another factor to consider when it comes to students using mobile phones for learning purposes is the opportunity to use informal online learning platforms such as WhatsApp. In a case study of twenty-five first-year students using Moodle for Physical Science education modules at a South African university, Mpungose (2020) looked at how WhatsApp could be used with Moodle to facilitate learning. Most South African universities have policies driving the use of LMS platforms like Moodle for formal teaching and learning purposes; however, they do not consider the students' communication and social needs that exist through platforms such as WhatsApp. If students do not relate as well to the formal platforms as they do to informal platforms, they may be reluctant to adopt formal platforms. Mpungose (2020) concluded by recommending that universities adopt WhatsApp and other informal online learning platforms to accompany the more formal platforms already in use such as Moodle and Blackboard, to suit individual students' learning preferences and needs better.

Even with adequate computer technology being available and students using blended learning tools correctly, Tshabalala et al. (2014) suggest that universities' management needs to plan and implement policies accordingly to bring about a change to a blended learning approach. Constant monitoring and evaluation of the newly blended modules are also required. While this is ideal, gaps have been identified in understanding South African E-education policies by district and provincial stakeholders resulting in implementation problems (Vandeyar, 2015).

In this section, the researcher has discussed adoption of blended learning in South African tertiary institutions. In the next section, frameworks for institutional adoption of blended learning are explored. While they may be based on international

research, the researcher believes they can provide a valuable knowledge contribution to this study.

2.7 Institutional Blended Learning Adoption Framework

2.7.1 Introduction

In the last section, the researcher reviewed blended learning in the South African context. This section explores institutional blended learning adoption frameworks and will provide a framework for the discussion chapter. The researcher explores two frameworks for the adoption of blended learning in higher education. The first is based on the RASE learning design model, and the second is developed from a study analysing six university programmes at different stages of blended learning adoption.

2.7.2 RASE Framework

Adopting blended learning is slower than expected, considering the impact of technology on teaching and learning (Mirriahi et al., 2015). This could be due to various issues such as the confusion over blended learning definitions and views by multiple academics, the technological ability of academic staff, and the tools available to guide and review online educational practice. The framework proposed by Mirriahi et al. (2015) uses criteria indicating the ability of academics to design and present a blended learning course, and standards that indicate the quality of the teaching offered. These criteria and standards are based on the RASE learning design model developed by Churchill et al. (2013).

Four elements make up the RASE model: Resources, Activities, Support and Evaluation (Figure 1). These elements can be applied in most programmes and are considered essential for quality learning and teaching.

Figure 1

RASE pedagogical model – used with permission (Churchill et al., 2013)
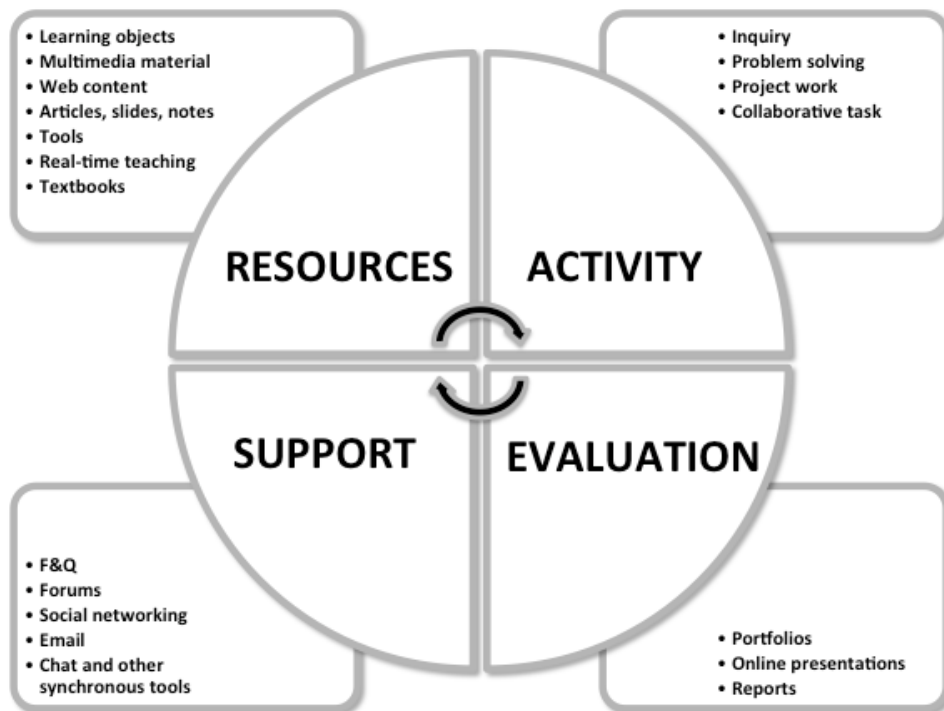
The RASE model understands that to achieve desired learning outcomes, resources and materials alone are insufficient, lecturers need the other three aspects of the model for success: activities, support, and evaluation. Each of these aspects must include specific features to be considered adequate within the RASE model.

Activities should be student-centred and facilitated by lecturers, focused on learning, and not just memorising. They should require the student to access online or paper-based resources and learning materials and then produce artefacts that support the learning process and achieve the learning outcome of the activity. Timely

feedback from the lecturer is necessary to ensure that the learning process is meaningful and complete.

Pedagogical support should be provided to students to enable them to develop new skills and independence in their studies. Churchill et al. (2013) described support in the learning environment to be three-fold in nature - teacher-student, student-student and student-artefact. Examples of support in the learning environment include discussion forums, social networking platforms, and an LMS. Another vital way to provide support is by providing clear rules and boundaries for student work; this encourages students to achieve independence in their learning. For example, a student should be supported to use online resources, rubrics, and forums to solve problems that exist on LMS before asking the lecturer for help (Churchill et al., 2013).

The on-going evaluation of student activities is essential for the student as well as the lecturer. Besides traditional lecturer-driven evaluations of activities completed and then marked; rubrics and peer reviews are examples of evaluation activities that the student can conduct themselves. Rubrics are used in teaching and learning to promote objectivity, consistency, reliability and validity in assessment (Crusan, 2015). Peer review is based on collaboration, where peers meet and evaluate each other's work, the most important advantage of this form of evaluation is that the writer can see the possible reaction in the reader, and negotiate the meaning of the writing with his/her peer (Philippakos, 2017). Evaluation needs to identify areas to improve and help students be more motivated and independent in their learning (Churchill et al., 2013).

Using the RASE model and literature focused on blended learning frameworks and tools available, as a basis for the framework they were developing, Mirriahi et al. (2015) conducted two focus groups with academic staff in a university in New South Wales, Australia. The focus groups' findings supported the identification of criteria and standards that allow the RASE framework to be valid and reliable. From this, the researchers produced a standards-based framework. This framework provides for quality blended learning across the university based on course design. The researchers also recommend using the framework by academics as a self-assessment tool to identify strengths and weaknesses in their course design. The framework can also be applied in the training of staff to develop their blended learning knowledge. (Mirriahi et al., 2015)

While this framework for blended learning would be advantageous in an institution where academics are all actively converting to blended learning, for the purposes of this study, and in the opinion of the researcher writing this dissertation, it does not address the main aim and objectives, to explore the use of blended learning by academic staff and the factors affecting incorporation of a blended learning approach into teaching practices.

2.7.3 Three-stage Graham Framework

According to Graham et al. (2013), despite the growth in blended learning practices and research focused on learner outcomes, there is a shortage of research relating to institutional policies and adoption of blended learning by academic staff. The second framework that has been identified is based on research by Graham et al. (2013) at Brighton Young University in the US. Graham et al. (2013) conducted semi-structured telephonic interviews with administrators at six institutions of higher

education. The institutions were at various stages of blended learning adoption, from those with mature and well-known programmes to those that were still developing blended learning. The researchers categorised the institutions chosen for the study to be at the awareness/exploration stage, the adoption/early implementation stage, or at the mature implementation/growth stage of blended learning. By interviewing a participant from each of the six selected institutions, the researchers gathered data relating to understanding and attitudes toward blended learning. They also obtained documents relating to the institutional policies, guidelines and websites from the interviewees which helped the researchers form a more precise picture of where the institution was in terms of blended learning adoption (Graham et al., 2013).

Three categories were used to organise the data collected from the case studies: strategy, structure, and support. The category strategy incorporated issues regarding overall design of blended learning courses, the aim of blended learning, the definition of blended learning, level of application and institutional policies related to blended learning. The structure was more about the facilitation of the blended learning domain, including, technology, pedagogy, and administration issues. Support encompassed how the institution aided in implementing and maintaining the blended learning courses for the academic staff through technical and pedagogical support and ways used to motivate academics to use or continue using blended learning (Graham et al., 2013).

Table 1

Blended learning adoption framework – used with permission

Category	Stage 1—Awareness/Exploration	Stage 2—Adoption/Early implementation	Stage 3—Mature implementation/growth
Strategy			
Purpose	Individual faculty/administrators informally identify specific BL benefits	Administrators identify purposes to motivate institutional adoption of BL	Administrative refinement of purposes for continued promotion and funding of BL
Advocacy	Individual faculty and administrators informally advocate	BL formally approved and advocated by university administrators	Formal BL advocacy by university administrators and departments/colleges
Implementation	Individual faculty members implementing BL	Administrators target implementation in high impact areas and among willing faculty	Departments/colleges strategically facilitate wide-spread faculty implementation
Definition	No uniform definition of BL proposed	Initial definition of BL formally proposed	Refined definition of BL formally adopted
Policy	No uniform BL policy in place	Tentative policies adopted and communicated to stakeholders, policies revised as needed	Robust policies in place with little need for revision, high level of community awareness
Structure			
Governance	No official approval or implementation system	Emerging structures primarily to regulate and approve BL courses	Robust structures involving academic unit leaders for strategic decision making
Models	No institutional models established	Identifying and exploring BL Models	General BL models encouraged not enforced
Scheduling	No designation of BL courses as such in course registration/catalog system	Efforts to designate BL courses in registration/catalog system	BL designations or modality metadata available in registration/catalog system
Evaluation	No formal evaluations in place addressing BL learning outcomes	Limited institutional evaluations addressing BL learning outcomes	Evaluation data addressing BL learning outcomes systematically reviewed
Support			
Technical	Primary focus on traditional classroom technological support	Increased focus on BL/online technological support for faculty and students	Well established technological support to address BL/online needs of all stakeholders
Pedagogical	No course development process in place	Experimentation and building of a formal course development process	Robust course development process established and systematically promoted
Incentives	No identified faculty incentive structure for implementation	Exploration of faculty incentive structure for faculty training and course development	Well-established faculty incentive structure for systematic training and implementation

Source: Graham, et al., 2013, p. 7

Themes identified within these categories were organised across the three stages of adoption to demonstrate the progression from initial exposure and interest in blended learning to the formal institutionalisation of blended learning teaching practice. In Stage one, academic staff and the institution know about blended learning. Still, there are no standard institutional guidelines for blended learning; individuals investigating ways to use blended learning in their courses are the only evidence of blended learning in the institution. Stage two is reached once the institution introduces policies and practices to support blended learning application in teaching. Stage three is achieved when blended learning strategies, structure, and support are deep-rooted and part of the institutional performance (Graham et al., 2013).

The researchers define institutions at stage one, the awareness/exploration stage, as those who have not entirely adopted blended learning yet, although they have platforms for online education. The *strategy* at this stage is that academics implement blended learning in their own way and at their own pace. *Structure* is lacking for the implementation of blended learning in the form of policies to guide the implementing of blended learning. The institution has established LMS and sound technology infrastructure to offer blended learning even though its structures are not in place yet. Providing *support* to academics wanting to convert to blended learning is available but limited to using the technology in the lecture rooms, support for designing blended learning courses is lacking. Academics wishing to learn how to do it need to be highly motivated toward the goal of converting to blended learning, and the reasons for adopting blended learning are usually for themselves. (Graham et al., 2013)

Institutions at the adoption/early implementation, stage two have formally adopted blended learning. These institutions had experienced significant enrolment growth and have to find ways to accommodate the extra numbers without adding physical facilities. The researchers identified one of the institutional *strategies* to actively recruit academics to develop blended learning courses to reduce face-to-face sessions by 50%. Another approach was to change evening courses to a blended learning format. Policies guiding the conversion to blended learning were evident, but academic departments remained in full control of these conversion decisions. *Structures* were in place to oversee all of the blended learning initiatives. However, the institutions still did not have any formal systems in place to evaluate the blended learning courses that were being designed or to compare student outcomes before and after blending. *Support* at stage two is increased both technologically and

pedagogically. An example described by the researchers was hiring teaching assistants to support academics in designing and maintaining the more technical side of blended learning adoption. Incentives in the form of stipends to develop blended learning or reduced workload were also useful to motivate academics to change to blended learning. (Graham et al., 2013)

Stage three of blended learning adoption, the mature implementation/growth stage, involve institutions that have been formally using blended learning for more than ten years. Strategy, structure, and support show some variances with Stage two. Stage three *strategies* are well established, based on the true blended learning definition, and involve policies and purpose. One of the institutions' strategic moves was to reduce seat time and replace it with online activities. While these strategies might have started on the departmental or faculty level, blended learning is strongly promoted by the institution's highest office. At this stage, *structures* in place involve committees of Deans and department chairs meeting to discuss issues related to online and blended learning. Although academics are still allowed freedom when converting or not converting to blended learning, they have prototype models available for faculty. These models describe how many face-to-face and online sessions each module should have per week, which allows the administration to organise timetabling schedules to include the face-to-face sessions. Evaluation of blended courses is one of the main distinguishing characteristics of Stage three adoption of blended learning. As Stage three institutions have formally adopted blended learning for many years, the institutions have a large body of data regarding student outcomes and academic workloads and satisfaction and success upon which they can base decisions. *Support* is well established, especially for technology, with dedicated training centres to support academics designing blended learning courses or students needing training on using

blended learning tools. Another example is that an academic who wants to create a blended approach first must attend a mandatory 8-week faculty development workshop (80hrs of work) (Graham et al., 2013)

Details of the themes within each category and stage are summarised in Table 1, which is provided with permission. The work of Graham et al. (2013) provides a useful framework for institutions to evaluate their progress toward the adoption of blended learning, as well as a guide on how to move to the next stage (Graham et al., 2013).

The two frameworks detailed in this section focus on different aspects of blended learning adoption. While Graham et al. (2013) look at the overall picture at an institutional level, Mirriahi et al. (2015) consider the student level in their framework, giving details of the blended learning activities, support and evaluation course being presented. Both frameworks could be used to assist researchers in identifying at what level an institution, faculty or department is in terms of adoption of blended learning. For the purposes of this study, the researcher will use the second framework to organise the data collected from focus groups and questionnaires into Strategy, Structure and Support related to adoption of blended learning within the Faculty of Health Sciences at Nelson Mandela University. The framework can also organise data shared by participants about barriers, facilitators and methods currently being used to employ blended learning.

Chapter 3

Research Design and Methodology

3.1 Introduction

The previous chapter presented literature on various aspects of blended learning, including defining the term blended learning, barriers and facilitators of a blended learning approach, and identifying methods and tools used in blended learning development and presentation. In the final section of Chapter 2 (Section 2.7) the researcher reviewed the framework developed by Graham et al. (2013) for institutional blended learning adoption. This conceptual framework will be used in this study to organise the data collected from participants about barriers, facilitators and methods currently being used to employ blended learning within the Faculty of Health Sciences at Nelson Mandela University. In this chapter, the researcher discusses the research design and methodology used to achieve the study's main aim, which is to explore the perceptions related to the conceptualisation, utilisation, and facilitation of blended learning in learning and teaching practices within the Faculty of Health Sciences by academic staff at Nelson Mandela University The framework will also be used to describe and categorise the factors affecting and influencing the use of blended learning by academic staff in the Faculty. The researcher has chosen a mixed-methods sequential explanatory design, consisting of two different phases, namely a qualitative phase followed by a quantitative phase (Creswell & Plano Clark, 2011).

The chapter begins with a discussion of pragmatism as a paradigm (Section 3.2). A discussion on the research design of the study follows (Section 3.3). The research procedures such as sampling, instruments, ethical considerations,

trustworthiness and process of data analysis, validity, and reliability per phase (Section 3.4 - phase one focus groups and Section 3.5 - phase two questionnaire) will then be presented.

3.2 Pragmatism as Paradigm

Coghlan and Brydon-Miller (2014, p. 2) define pragmatism as "a method of determining the meaning of concepts to show that there is no meaning without practical consequences. All concepts are, therefore, contextual by nature and have different meanings for different people in different situations. Thus, pragmatism is based on the idea that the researcher uses the best philosophical and methodological approaches available to address the research problem under investigation. This paradigm is the foundation for mixed-method research studies, where researchers use both quantitative and qualitative research approaches to collect and analyse data when undertaking studies (Tashakkori & Teddlie, 2015). Creswell (2003) suggests that pragmatism creates a platform to make specific knowledge claims using a mixed-method design. Pragmatism draws from and incorporates different philosophical systems, as a result of this, researchers can gain information from both qualitative and quantitative data when they conduct studies (Creswell, 2003). Mixed-method research design can be tailored according to the individual researchers needs to answer the research question. Like pragmatists, mixed methods researchers use various approaches to gather their data, and address and answer the research question, guided by where they want to go with the research (Creswell, 2003). The reason mixed-method researchers collect and use both qualitative and quantitative data is to gain and deepen their knowledge of a subject. Therefore, using pragmatism

as a paradigm for mixed-methods research allows the researcher to apply qualitative and quantitative research methodology in their study.

Pragmatism is adopted as a paradigm for this mixed-method study so as to focus on the use of blended learning by academics in the Health Sciences Faculty at Nelson Mandela University, rather than the existing knowledge about blended learning use of academics worldwide (Coghlan & Brydon-Miller, 2014). In the next section, the overarching research design - mixed-methods, will be discussed and motivations for adopting it for this study will be provided.

3.3 Mixed Methods Research Design

In addressing the primary aim and objectives of this study, a mixed-method research design was employed. This design's choice was based on pragmatism, exploring the perceptions of academic staff regarding the factors affecting the adoption of blended learning (Winit-Watjana, 2016). The mixed-method design adopted for this study was a sequential exploratory design, where the data collected using the first method employed (qualitative) assists in informing the second method (quantitative) (Greene et al., 1989). Sequential processes allowed the researcher to understand better the data collected and analysed during the qualitative phase by using a second quantitative method to elaborate on the findings (Creswell, 2003). This study commenced using a qualitative approach – Phase 1 focus groups to collect and analyse exploratory data. In Phase 2, the first phase's findings were then applied using a quantitative questionnaire method applied to larger sample size to test the generalisability of the data to the study population. Figure 2 shows the visualisation of this process, where priority is given to the qualitative phase of the study (QUAL), rather than the quantitative (quan).

Figure 2

Exploratory design (adapted from Creswell, 2006)
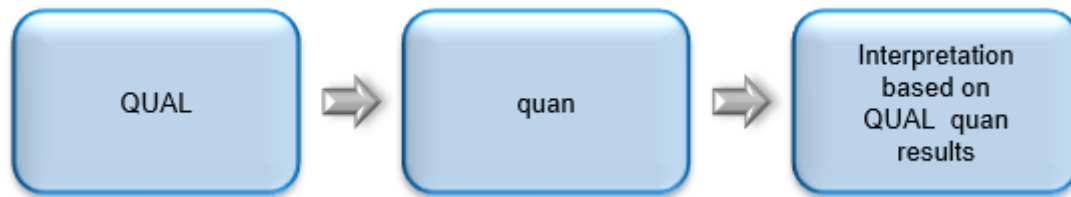
The mixed-method approach model selected by the researcher for this study is summarized in the flow diagram below (Figure 3), adapted from Johnson and Onwuegbuzie (2004).

Figure 3

Exploratory Design: Taxonomy Development Model (QUAL emphasized) (Adapted from Johnson and Onwuegbuzie (2004)
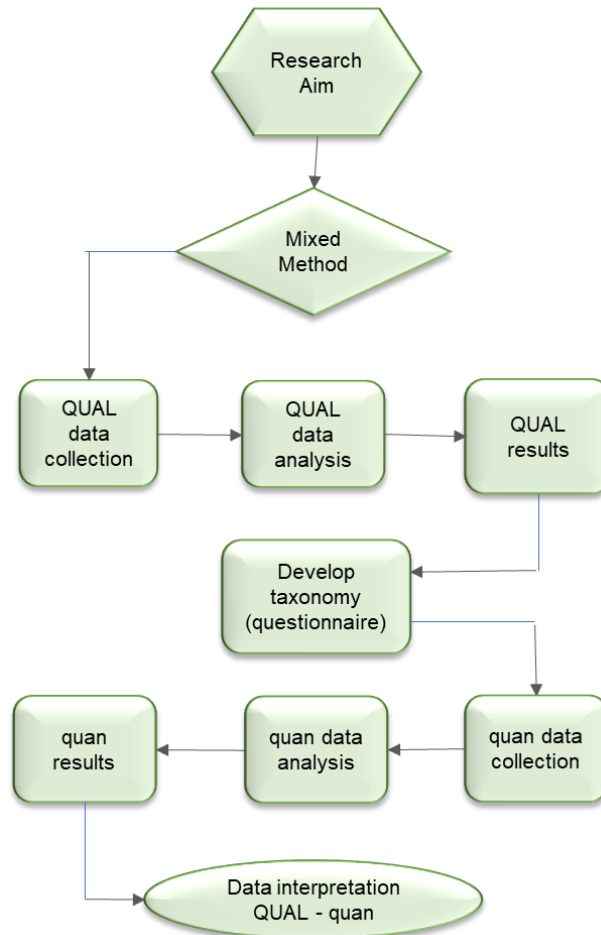
For ease of reference, the study's methodology phases are discussed separately with respect to research procedures in the next two sections: Phase one, focus groups (section 3.4), and Phase two, questionnaire (section 3.5).

3.4 Focus Group Methodology - (Phase 1)

3.4.1 Introduction

Phase one of this study employed a focus group approach. Focus group interviews allow a researcher to gain multiple perceptions from a diverse group of participants. Focus groups can also help to provide more depth to the results gained as a consequence of an informed design process (Liamputtong, 2011).

The research objectives which the focus group phase attempted to address were:

- Describing the perceptions of blended learning by academic staff in the Faculty of Health Sciences at the Nelson Mandela University; and
- identifying the academic staff perceptions about the factors affecting incorporation of a blended learning approach into learning and teaching practices of the Faculty of Health Sciences at the Nelson Mandela University.

3.4.2 Focus Group Study Design

Powell and Single (1996) describe a focus group as several individuals gathered together by a researcher to discuss, through personal experience, the subject of the research. For many years, focus groups have been used to understand community viewpoints (Laws et al., 2003). These are group-based discussions between six to eight participants and can last for anything from 15 minutes to three hours (Laws et al., 2003). A focus group would have a researcher or other independent person facilitating interactions between participants, but who would be careful not to control the topic of discussion. Most focus groups are part of a mixed-

method approach to research (Lloyd-Evans, 2006), such is the case with this study. Data from the focus group is used as a source of information to help develop questions for a quantitative survey. In addition to this, rich and informative data gathered from the focus group is also beneficial in providing depth to the results obtained from the questionnaire, helping to build the knowledge contribution for the research study (Liamputtong, 2011). For the purpose of this study, using qualitative and quantitative methods ensure corroboration of data and the choice of the focus group to inform the questionnaire is appropriate to identify variables to study, and provide extensive data on the objectives of the study (Doyle et al., 2016).

3.4.3 Focus Group Planning

The researcher set out a detailed plan with the procedures needed to organize the focus groups. These included listing the dates and times for the focus groups and all the activities that should be carried out to conduct the focus group. Planning activities included: deciding how many participants to invite to each focus group, inviting participation in the focus groups through email, using a Google Doodle poll to find appropriate dates once participants had agreed to partake in the focus group, booking venues accessible to the participants, inviting a facilitator to be part of the process and detailing the budget needed to cover the costs of the focus groups.

3.4.4 Study Site, Population and Sample

Phase one of the study took place at Nelson Mandela University in Port Elizabeth. The study population included all academic staff (full-time and contract) in the Faculty of Health Sciences at Nelson Mandela University. The researcher invited participation in focus groups from the study population. These same participants in

the focus groups were also asked to complete the questionnaire (phase two) as they were part of the study population. The researcher gathered information from the HEMIS analyst at Nelson Mandela University regarding the number of academic staff in the Faculty of Health Sciences. At the time of writing the research proposal, this numbered 148 full time and contract academics (Theresa Webb, HEMIS analyst, Nelson Mandela University, personal communication, April 19, 2018), at the time of data collection, this had changed to 137 full time and contract staff. The inclusion criterium for participation in this study was that participants needed to be permanent or contract members of the academic staff in the Faculty of Health Sciences. Academic staff were considered to be those members who had any active participation in lecturing and who had research focus but had lecturing experience. As all academic staff were invited to participate in the focus groups, the possibility that both senior and junior members of the same department might be present. However, because the group's focus was on a specific topic, which all participants had in common, levels of seniority were not considered a problem. Furthermore, a senior academic or line manager's presence could also have been considered favourable to exploring the topic of the focus group from a variety of perspectives, possibly obtaining a more comprehensive range of responses (Liamputtong, 2011).

Participation in the study was voluntary; therefore, a convenience sampling method was used for each data collection phase. Convenience sampling is a non-probability sampling method that relies on data collection from a population who are easily accessible and provide a convenient source of data for the researcher (Lavrakas, 2008).

3.4.5 Conducting the Focus Group

3.4.5.1 Participant selection. Participants were selected by using a convenience sample. The entire study population was sent an email explaining the study and inviting participation in the focus groups. The intention was to have between six and twelve participants per focus group. Large focus groups limit participants' opportunities to share their thoughts and can be challenging to control, while smaller groups between six and eight are ideal (Green & Thorogood, 2004). Two groups were conducted with six (Group one) and five (Group two) participants. The participants were full time or contract academic staff from the Health Sciences Faculty at Nelson Mandela University. Each participant received an email two weeks before the focus group confirming the time date and venue for the focus group. They also received a letter (Appendix 1) detailing the background to the study and were informed that the focus group would take approximately two hours.

3.4.5.2 Question development. The researcher developed a focus group protocol (Table 2) to give structure to the discussions. The questions were based on literature and addressed the study's objectives, which were to describe the participants perceptions of blended learning and identify participants perceptions of factors affecting the incorporation of a blended learning approach into learning and teaching practices. The themes that emerged from phase one of the study further informed the researcher's questions for the questionnaire in phase two. Prompts were added to the outline that the facilitator could use to encourage more discussion around the questions.

Table 2

Focus group protocol (Developed by the researcher)

Activity	Question	Prompts
Ice Breaker	What is your understanding of blended learning?	
Question 1	How do you feel about the use of blended learning in teaching	
Question 2	What barriers have you experienced using blended learning techniques	Any skills, difficulties, help available, time and recognition
Question 3	What has facilitated your use of blended learning?	Any success stories, encouragement from colleagues, institution
Closure	Rephrase, summarise, clarify	

3.4.5.3 Facilitator selection and role in focus group. A neutral person was asked to facilitate, observe, and ensure the focus groups did not interrogate the participant's actual use of blended learning, rather their understanding of the questions posed for discussion. For these reasons, the facilitator had no connection to the Health Sciences Faculty at Nelson Mandela University, allowing the participants to share their views without feeling inhibited or manipulated in any way. The facilitator was selected for their expertise in focus group discussions and understanding of focus group data analysis processes (Green & Thorogood, 2004). The researcher met with the facilitator before the focus group sessions to discuss the research topic and the focus group protocol, which allowed the facilitator and researcher to identify any problems that could arise with the protocols. A neutral party was also asked to act as an observer and note-taker in the focus group discussions. The note-taker sat apart from the group and made notes on who was talking and observing and recording

actions that the audio recordings could not identify, such as body language (Stewart et al., 2007). The focus group sessions were recorded using two digital audio recorders to ensure that all responses were collected clearly from the group. Directly after the focus group, the facilitator and note-taker discussed participants responses and the observations with the researcher to ensure that the researcher had all the information needed to analyse the data.

3.4.6 Trustworthiness

To ensure data's trustworthiness, the researcher sought to address Guba's four criteria (Guba, 1981), namely; credibility, transferability, dependability and confirmability. Credibility provided internal validity and was addressed through prolonged engagement with participants, establishing trust between the parties, and purposive sampling, which would also remove any perception of researcher bias in the selection of participants. In addition to this, the researcher provided each person invited to participate in the study the opportunity to refuse participation, so that only people willing to take part were involved in data collection. In the concluding section of the focus group, instead of merely thanking participants, the facilitator summarised and reviewed the main points discussed, which provided an opportunity for clarification and an opportunity for peer review and to gain more information. Transferability relates to demonstrating that the results of the study can be applied to a broader population (Shenton, 2004). This issue was addressed by using a sequential design in which the generalisability of the findings of phase one was applied to a larger sample group in phase two. The researcher also developed recommendations for further studies. Dependability addresses the study's reliability, making sure that processes within the study are recorded in detail, allowing the reader to determine the extent to which

appropriate research practice has been followed. Reliability was further ensured by the presence of a neutral party (note-taker) during the recording of focus groups so that coding of each unit could be inspected for reliability and areas of misunderstanding identified and corrected (Stewart & Shamdasani, 2014). The last criteria identified by Guba (1981) is confirmability and relates to the researcher's objectivity; the researcher needs to ensure that the study's findings result from the experiences of the participants, not the feelings of the researcher (Shenton, 2004). Confirmability was achieved by having a neutral party present in the focus groups who acted as the facilitator, and having independent coder analyse the data obtained from the focus groups after the researcher did the initial coding. Member checks were also employed to ensure the confirmability of the findings.

3.4.7 Member Checks

Member checks were done to assess the accuracy and adequacy of the researcher's interpretation of participants responses. This process is used to increase factual accuracy and interpretive validity of the transcribed and analysed focus group data (Onwuegbuzie & Frels, 2015). To conduct the member checks, the researcher sent a copy of the qualitative data results section of the dissertation (Chapter 4) to each participant of the focus groups. Besides checking actual quotes, participants also checked that the data obtained from the focus groups had not been manipulated to change the intended meaning of what participants had said in any way. Each participant was informed of the identifying number that had been allocated to them for anonymity purposes.

Participants responded to the member check requests confirming satisfaction that their voices had been recorded accurately in the research study results. Participant one said, "I read through the transcripts, and it is reflected accurately". This links to Confirmability. Participant two confirmed, "I am satisfied that my input has been correctly portrayed and interpreted". Participant five checked the results and commented, "I have checked the results, and it all seems accurate. I can almost hear myself saying the words again". Participant six agreed the reported results were correct "I have also gone through Chapter 4 of your study and went through the transcribed version of my discussions, and yes I am happy with how it's been transcribed". Participant nine said "I've checked Participant 9's responses, and I can vouch for the validity".

Participant 3 responded to say that some of the quotes were not, in fact, her words. On checking, the researcher identified that two of the participants had been transcribed incorrectly and switched pseudonyms after the focus group's ice breaker. This mistake was corrected, and the new document sent to the participant involved, who replied: "I have read through the document and I believe the transcript of my words are fair and accurate".

3.4.8 Ethical Considerations

All research was conducted according to the Nelson Mandela University Policy on Research Ethics (Nelson Mandela University, 2017) and the Belmont Report on Ethical Principles and Guidelines for the Protection of Human Subjects in Research (United States Department of Health Education and Welfare, 1979). The Faculty Postgraduate Studies Committee approved the study and the Research Ethics Committee (Human) granted ethical approval, Rec-H, H18-HEA-PHA-005 (Appendix

6 and Appendix 7). Due to academic staff participating in the study, the Dean of Health

Sciences (Appendix 8) and the Deputy Vice-Chancellor Academic (Appendix 9) were

requested to act as gatekeepers for the study. Ethical considerations were followed

in accordance with the Belmont Report on Ethical Principles and Guidelines for the

Protection of Human Subjects in Research (United States Department of Health

Education and Welfare, 1979), namely respect for persons, beneficence, and justice.

The focus group participants were verbally informed of the study and received a

preamble which provided the necessary information relevant to the study (Appendix

2). All participants also received a consent form that explained that voice recorders

would be used during the focus group session and participation was voluntary so

participants could leave the focus group discussion at any time (Appendix 3).

Participants were informed that confidentiality and anonymity would be ensured using

codes instead of names during transcription from the voice recorders. The recordings

will be deleted after completion of the study, but the transcripts will be kept.

Participants were also made aware that more senior colleagues might be in their

group, but that this could be advantageous to the group as a whole and therefore, no

exclusion will be applied.   Lastly, the names of participants were not used, the

researcher gave them each a colour and then renamed the colours to numbers for the

purposes of the discussion in Section 4.1.4. No identifiers were linked to data derived

from the focus groups to ensure participants' anonymity.

3.4.9 Thematic Analysis

Qualitative data collected during the focus groups were transcribed and then

coded using ATLAS.ti, and central themes and subthemes were identified.   An

independent coder reviewed and verified the analysis and coding after the researcher

had assessed and coded the data. Braun and Clark's (2006) thematic analysis of focus group data can be categorised into six phases; they suggest that these guidelines be adapted according to the research question and data. Table 3 outlines the six phases as described by Braun & Clark (2006) and as applied by the researcher.

Table 3

Phases of analysis of focus group data (Braun & Clarke, 2006)

Phase of analysis	Description	Actions
Phase 1	Familiarise oneself with data	Read the data actively, search for meanings and patterns. Transcribe verbal data, keep data true to original meaning
Phase 2	Generate initial codes	Organise data into meaningful groups. Code for as many potential themes/patterns as possible. Code extracts of data inclusively
Phase 3	Identify themes	Use tables and mind-maps. Look for relationship between codes, between themes, and between different levels of themes
Phase 4	Review themes	Refinement themes. Look for clear and identifiable distinctions between themes
Phase 5	Define and name themes	Describe the scope and content of each theme.
Phase 6	Produce the report	Provides a concise, coherent, logical, and non-repetitive story the data tell – within and across themes

Phase one in analysing focus group data involves the process of transcribing and producing a transcript document that becomes the researcher-constructed artefact of the data (Shelton & Flint, 2020). The researcher transcribed the focus groups and then checked for accuracy by listening to the audio recordings again while reading the completed transcripts. This process also allowed the researcher to familiarise themselfwith the captured data.

Using ATLAS.ti®, the researcher developed codes from the data linked to the study's aim by using an inductive, open coding approach. Codes were related to quotes and could be identified in the discussion according to the document number assigned when the researcher split the transcript into various questions posed in the focus groups (Table 4). Each quote within the document was then numbered by using the coding software, ATLAS.ti®. In Chapter 4 Results, the quotes are followed by reference using the document number followed by the quote number, eg. (3:5) = Document 3, quote 5.

Table 4

Relation of document number assigned during coding to the topic in Focus Group

Doc nr in ATLAS.ti® report	Transcript Section Name	Description of Transcript Section
D 2	Intro_FG1_Definition	Focus Group 1 Ice breaker – What is your understanding of blended learning?
D3	Q1_FG1_Feelings	Focus Group 1 Question 1 – How do you feel about the use of blended learning in teaching?
D4	Q2_FG1_Barriers	Focus Group 1 Question 2 – What barriers have you experienced using blended learning techniques?
D5	Q3_FG1_Facilitators	Focus Group 1 Question 3 – What has facilitated your use of blended learning?
D6	Intro_FG2_Definition	Focus Group 2 Ice breaker – What is your understanding of blended learning?
D7	Q1_FG2_Feelings	Focus Group 2 Question 1 – How do you feel about the use of blended learning in teaching?
D8	Q2_FG2_Barriers	Focus Group 2 Question 2 – What barriers have you experienced using blended learning techniques?
D9	Q3_FG2_Facilitators	Focus Group 2 Question 3 – What has facilitated your use of blended learning?

The next step was to create networks in ATLAS.ti®. The analytical thinking process began at this point; once all the transcribed sections were coded, the researcher could start building networks within ATLAS.ti®. This step could also be described as identifying themes (Zakaria & Zakaria, 2015).   The researcher placed codes into networks (or themes) and could then connect codes by relationships. Codes repeated across various networks, which showed that participants opinions on topics over and above the questions posed in the focus group were also being recorded and analysed.

The researcher used an independent reviewer to confirm recurring themes created from the networking in ATLAS.ti® from the focus group data. The independent reviewer confirmed that the main codes were interpreted and allocated accordingly by the researcher. The codes assigned for each theme in the focus group were identified, and recurring themes were evident.

The researcher combined Phase five and six of the steps set out by Braun & Clark (2006). The theme (network) was first defined and named by using the central idea of that theme. The themes are defined and discussed in, in the context of the main study aim and objectives in the results section (Section 4.1.4). The independent reviewer generated a report (Appendix 4), and network views of barriers and facilitators to blended learning generated using ATLAS.ti® are included in Appendix 5.

3.4.10 Section Summary

In this section, the researcher has discussed phase one of the study's methodology, the focus groups. In the next section, phase two, the questionnaire methodology will be discussed.

3.5 Questionnaire Methodology - (Phase 2)

3.5.1 Introduction

In phase two of the study, a quantitative questionnaire was used to both deepen the understanding and the generalisability of the phase one findings. Researchers use a quantitative approach to apply inquiring strategies with questionnaires to collect data through the distribution and completion of instruments that yield statistical results (Creswell, 2003).

The research objectives which the questionnaire phase attempted to address were to:

- Describing the perceptions of blended learning by academic staff in the Faculty of Health Sciences at the Nelson Mandela University; and
- identifying the academic staff perceptions about the factors affecting incorporation of a blended learning approach into learning and teaching practices of the Faculty of Health Sciences at the Nelson Mandela University.

3.5.2 Questionnaire Study Design

Groves et al. (2009, p. 2) defined a survey as "a systematic method for gathering information from (a sample of) entities to construct quantitative descriptors of the attributes of the large population of which the entities are members". Quantitative descriptors are also known as statistics. In this study, the researcher used a questionnaire in an attempt to measure constructs in such a way as to address the research study objectives (Wolf et al., 2016). This questionnaire was used to collect data at one point in time, after which the responses were collated and

summarised. The data was then statistically analysed using the Chi-squared statistic and reported as frequencies and percentages. Once the data had been analysed and reported on, the researcher organized and integrated the findings, according to Graham et al.'s (2013) framework, as discussed in Chapter 2.

Wolf et al. (2016) suggest that when designing questionnaires, researchers should have a respondent-centred approach. It is useful to refer to a framework when deciding which questions to ask and how to ask them. The questions informed by the literature review and the results from phase one of the study were organised around the research objectives (Section 1.3). A flow diagram adapted from Cohen, Manion and Morrison, (2018) (Figure 4), shows the steps that were used in the questionnaire phase of the study.

Figure 4

Steps in designing the questionnaire (Adapted from Cohen, Manion and Morrison,2018)

3.5.3 Study Site, Population and Sample

Phase two of the study took place at Nelson Mandela University in Port Elizabeth; the researcher invited participation in the online questionnaire from the study population. The study population was essentially the same as that used in phase one (described in Section 3.4.4); however, at the time of the questionnaire distribution, there were 137 academic staff. The inclusion criterium for participation in this study was that participants needed to be a permanent or contract member of the academic staff in the Faculty of Health Sciences. Participation in the study was voluntary, and the entire study population was sent the link to the questionnaire.

3.5.4 Ethical Consideration

The same ethical procedures and considerations described and employed in the first phase of the study were also applied to this study phase (see Section 3.4.8). In this phase, informed consent was obtained during the completion of the on-line questionnaire. Participants were asked to click on an "agree" button before being directed to the questionnaire.

3.5.5 Data Collection

Academic staff e-mail addresses, which are available to all university staff, were used to e-mail a request to participate in the study, with a link to the questionnaire itself. An electronic cross-sectional questionnaire, using questionnaire software called QuestionPro®, was used to collect academic staff responses. QuestionPro® does not link the participant's e-mail address to the participant's responses, thus, ensuring anonymity of survey respondents. The questionnaire is presented in Appendix 10.

The questionnaire was open online for three weeks from 17 April until 7 May 2020, and four reminders were e-mailed to academic staff during that period.

3.5.5.1 Developing the questionnaire.

A purpose-designed cross-sectional questionnaire was used. Coldwell and Herbst (2004) advise researchers, who aim to use questionnaires, to synthesise questions themselves, making the study more relevant to the particular site and population where the research will take place.

The questionnaire design followed an outline adapted from Cant et al (2005). The questionnaire consisted of three sections. Firstly, there was a demographics section to identify the participant's academic department, allowing the researcher to identify where blended learning methods are being applied. Questions in the next two sections of the questionnaire were designed to obtain information about key concepts identified by the researcher in the literature review. The questions were also guided by the results of phase one of the study, the focus groups, in this mixed-method research design study. In the second section, the researcher explored the extent of the participant's use of blended learning; this information would be used to achieve the first research objective. Finally, questions falling into the third section explored barriers and facilitators affecting the use of blended learning methods, addressing the second research objective of the study.

A closed-ended question structure was used so that the questionnaire could be completed in a shorter time. The demographics section of the questionnaire is placed first to encourage completion of the questionnaire. It is then followed by questions relating to the extent of use of blended learning, which allowed the participant to think

about where they are using blended learning within their teaching. More thought was required from the participant to complete the final section, which covered barriers and facilitators to implementing blended learning. It was decided to make the questionnaire as short as possible to obtain a higher percentage response rate. Longer questionnaires require an increased participant commitment and may lead to lower response rates and might affect the quality of response (Lavrakas, 2008). Each of the three sections was separated to understand better what was expected of the participant. An introductory paragraph at the beginning of the questionnaire was included to provide participants with a full understanding of the study and allow for informed consent per the Belmont Report on Ethical Principles and Guidelines for the Protection of Human Subjects in Research (United States Department of Health Education and Welfare, 1979). The researcher's contact details were provided, should the participant have any queries about the research study. As this questionnaire was conducted electronically, consent was obtained by potential participants choosing to "agree" or "disagree" with the declaration of consent which was incorporated into the first section of the questionnaire.

3.5.5.2 Piloting the questionnaire.

A pilot study was undertaken with five academic staff, who were not in the Faculty of Health Sciences, to ascertain the time taken to complete the survey and identify any misunderstandings regarding how the questions were structured. Pilot testing of the questionnaire is essential to check the validity of the research tool by making sure participants understand the questions, know how to answer the questions, and have enough time to complete the questionnaire and that participants understand that their answers are confidential and anonymous for the study (Burton,

2000). Piloting questionnaire items ensure face validity and content validity as well as reliability of the data collection tool. Once the pilot study was complete, the researcher adjusted content and format to alleviate any problems identified by participants in the pilot.

3.5.5.3 Implementing the questionnaire.

An invitation to participate in the questionnaire survey (Appendix 11) was emailed to all the academic staff of the Faculty of Health Sciences at Nelson Mandela University in South Africa. The invitation included a link to the online questionnaire. Over a period of three weeks, four reminders were sent to participants who had not attempted to complete the questionnaire.

3.5.6 Quantitative Data Analysis

After the questionnaire was closed, the next step was to edit, code and tabulate. The questionnaire responses were exported directly from QuestionPro® into a Microsoft Excel® spreadsheet and analysed by an independent statistician. There were two types of statistical analyses performed when analysing the quantitative data: descriptive and inferential statistics. Descriptive analysis was used to organise, simplify and summarise the raw data which was then placed into tables and graphs to communicate to the reader, making it easier for the reader to understand the results (Allen, 2017).

For the purpose of this study, the following descriptive central tendency statistics were employed: means, mode and median, and spreads including range, quartiles, absolute deviation, variance and standard deviation (Salkind, 2012). The Cohen's d practical significance test, Chi-square test and paired difference t-test were

all used to analyse the quantitative data. Statistical analysis of the data was used to address the research objectives set out by the researcher.

Cohen's d measures effect size, which shows how something has a larger effect than something else (Kraska, 2017). Researchers use the effect size measurement to see the difference between groups, or the difference between the two groups' average outcome. It can also inform the standardised effect size for an outcome (Kraska, 2017).

The Chi-square practical significance test is used to measure the significance of inferential tests based on the mean of samples, and measures whether one group's standard deviation intervals fall above or below that of another group (Rubin, 2012). This test can inform the researcher what probability there will be that a given sample estimate will mirror the entire population (Salkind, 2012). For the purpose of this study, the Chi-squared test is performed to investigate the statistical significance between a participant's academic level and their years at a tertiary institution with their perceptions that using blended learning would enhance their teaching and their response to changing education to incorporate blended learning.

This study used paired *t*-tests to make inferences about the population and determine the probability that a difference between the mean of two data sets is a dependable one or whether it merely happened perchance in the study.

Inferential analysis was used to see if there was a relationship between variables or a statistically significant difference between two or more data sets (Charlesworth et al., 2002). The researcher performed inferential ranking of means on participants use of Moodle applications and their perceived importance for staff

adoption of blended learning methods. This was followed by a paired sample *t-test* of the independent variables comparing the mean scores and showing statistical significance where appropriate, calculating effect sizes using Cohen's d.

The researcher also explored the association between the ability to use blended learning with participants' academic level. Due to the small sample size, and categorising the academic level into three groups, Analysis of Variance was not possible (an ANOVA compares more than two groups r levels as in this case) and a Kruskal-Wallis test was chosen for this comparison. The Kruskal-Wallis test is appropriate for small sample sizes, and when the normal distribution of data cannot be assumed. This test shows statistically significant differences between three groups of independent variables (academic level) on the ordinal dependent variable (online ability) (Kraska, 2017).

Once the quantitative data was analysed, the relationship between the selected demographic variables and the summative scores were compared and these results are presented in Chapter 4.

3.5.7 Validity and Reliability

To confirm that findings from a research study are credible, they need to demonstrate reliability and validity (Collis & Hussey, 2013). Validity and reliability of the qualitative and quantitative instruments used in mixed-method research design needs to show statistically significant results from the data analysis that makes the study a valuable contribution to the research community (Guest et al., 2014).

Figure 5

The visual relationship between validity and reliability (Guest et al., 2014)
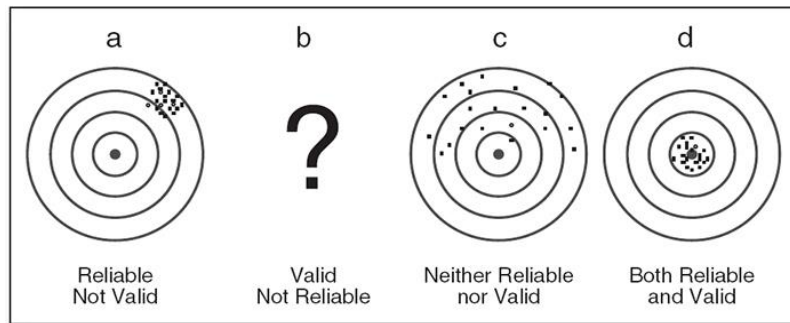
Visual representations of validity and reliability (Figure 5), are often used to explain how the two concepts relate to each other. However, it does need to be noted that noted if one of the two concepts is high, the other cannot be low (Guest et al., 2014).

Validity describes how accurately a topic is measured in a quantitative study, whether the same results will be obtained at different times with different participants within the same population (Heale & Twycross, 2015). According to literature, various types of validity can be used to ensure trustworthiness. Face validity is the degree to a question makes sense. Content validity looks at whether the instrument measures all the relevant content it was designed to measure. That is, is what is measured fully representative of what was aimed to be measured. On the other hand, construct validity looks at whether the instrument measures the concept it was designed to measure (Guest et al., 2014). In this study, there were no summated scores derived from the responses to the items in the questionnaire, resulting in the researcher only needing to report on face validity and content validity and not construct validity.

For reliability to be ensured, internal consistency need to be measured for each test using Cronbach's alpha. The more reliable the data is, the higher the score (Heale & Twycross, 2015). Usually, acceptable reliability scores are 0.7 or higher (where Cronbach's alpha result is measured between 0 and 1). However, for exploratory research, the Cronbach Alpha result of 0.50 and higher is acceptable (Collis & Hussey, 2013). For the purpose of this study reliability of the questionnaire was measured by calculation of Cronbach's alphas to determine the internal consistency of responses to the relevant items (Salkind, 2012).

The questionnaire's content validity was ensured through a thorough literature review and by the nature of the research design chosen. Sequential exploratory mixed-methods design is where the first phase of the study (qualitative focus group phase) informed the second phase (quantitative questionnaire phase) as to the items to include in the instrument, and that they were relevant and valid. The independent reviewer for phase one confirmed that the focus groups' themes were in line with the questionnaire framework.

The researcher ensured face validity and content validity and the reliability of the data collection tool by piloting the questionnaire items. By doing this, the researcher ensured that questions that were asked were unambiguous. Unambiguous and clear questions are more reliable (Muijs, 2012). By ensuring validity and reliability in these ways, the researcher created the possibility that the study will make a valuable contribution to the research community.

3.5.8 Chapter Summary

In this chapter, the researcher discussed pragmatism as a paradigm and why the study falls into this category. This explanation led to choosing the overarching research design as a mixed-methods sequential explanatory design, consisting of two different phases: quantitative followed by qualitative. The methodology of each phase was discussed separately due to the sequential nature of the study design. The findings from both phases will be integrated into the final interpretation of the study's findings in Chapter 5. In the following chapter, the results from each phase of the study will be presented.

Chapter 4

Results

In this section the results of phase one and phase two will be presented separately as 4.1 Focus Group Results, and 4.2 Questionnaire Results.

4.1 Focus Group Results (Phase 1)

4.1.1 Introduction

In the following section, the results from phase one of the data collection process, which was, qualitative in nature, will be reported.

4.1.2 Focus Group Details

Two focus groups were conducted. The first focus group was conducted off-campus at a venue with a relaxed atmosphere, and participants were eager to share. Although the second focus group was held on campus, the environment was still intimate and led to fair participation from all the participants. The facilitator did, however, comment after this session that the atmosphere in the first focus group had led to a more in-depth discussion than in the second group. The ice breaker that the facilitator used helped to form the basis of the conversation, and all participants made several contributions to the discussion. Body language (noted by the neutral party observer) and enthusiasm in responses showed positive attitudes from participants as they were very eager to share their views and opinions. The facilitator and researcher agreed that the data obtained from the focus groups would be appropriate to achieve the desired outcomes of the study.

4.1.3 Focus Group Sections

Focus group discussions were conducted as per the focus group protocol (Appendix 12). After the initial welcome, an ice breaker question was posed to participants on what their understanding of blended learning was. Responses to the question are categorised into four themes, namely: the manner of instruction, tools used, learning styles and engaging students.

After the ice breaker, the facilitator asked three questions that covered the main objectives of the study. The first question was about the participants' perceptions/feelings toward blended learning which relates to the first objective of the study, to describe the perceptions of blended learning by academic staff in the Faculty of Health Sciences at the Nelson Mandela University. The participants shared openly, and three key themes were identified: main feelings, support, and student influences. The second question related to barriers experienced in using blended learning techniques. In posing this question, the facilitator asked the participants to write down keywords on coloured post-it notes. Then he grouped all the ideas on a flip chart, recorded for the purpose of this study as Focus Group Artefact (Appendix 13). The group then discussed the points on the flip chart and provided explanations of the examples of the barriers they had provided. The facilitator also provided prompts during the discussion on barriers, including skills, difficulty, help available, time, and recognition. Recurring themes that emerged were lack of support, training, student attitude, and time.

Question three addressed participants perceptions of factors that can be considered as facilitators to the adoption of blended learning. The activity of writing keywords on post-it notes and discussing the points together afterwards was repeated

for this question. This process was also recorded as part of the Focus Group Artefact (Appendix 14). Prompts from the facilitator in this discussion included success stories, encouragement from colleagues, and institutional support. Themes that emerged were personal experiences, infrastructure support, convenience, technology, workload, and time. Finally, the facilitator closed by summarising and clarifying any points that the participants wanted to add.

In the following section, themes are discussed in terms of participant perceptions under thematic headings for each of the focus group topics.

4.1.4 Emerging Themes

The main themes and the thematic headings that arose from the focus group discussions are summarised in Table 5.

Table 5

Themes and thematic headings identified in each topic

	Thematic headings	Themes
a. Understanding of blended learning	Defining blended learning	Manner of instruction
		Tools used
	Blended learning impact on students	Learning styles
		Engaging students
b. Feelings about blended learning	Academic staff feelings	Main feelings
		Support
	Influence of student attitudes and ability on feelings	Student influencers
c. Barriers to blended learning	Barriers influencing academic staff	Lack of support
		Training
		Time
	Barriers from the student perspective	Student attitudes and abilities
d. Facilitators of blended learning	Motivation to convert to blended learning	Personal experiences
		Convenience
	Ability to convert course material to blended learning	Workload
		Time
		Technology

In Chapter 5, these themes will be integrated with the quantitative phase results and organised according to the framework described by Graham et al. (2013) (Table 6), used with permissions from the author and adapted by the researcher for the purposes of this study.

Table 6

Blended Learning Adoption Framework (Adapted from Graham et al (2013)*)*

Strategies (Section 5.2.1)	Support (Section 5.2.2)	Structure (Section 5.2.3)
Purpose	Technical	Governance
Advocacy	Pedagogical	Models
Implementation	Incentive	Schedules
Defining blended learning		Evaluation
Policy		

Various topics identified under identified themes (Table 5) will be discussed and will be drawn into discussions that follow in Chapter 5 and organised according to Blended Learning Adoption Framework adapted from Graham et al (2013) shown in (Table 6).

(a) Understanding of Blended Learning

As an icebreaker, participants were asked what their understanding of blended learning is, and four main themes emerged. These themes were placed under the headings of defining blended learning and blended learning impact on students.

Defining blended learning

In the literature blended learning (BL) is described as the combination of face-to-face (F2F) instruction with computer-mediated instruction it is not just adding to an existing teaching approach or design (Graham & Bonk, 2012). The understanding of the academic staff of this definition is key to designing meaningful quality blended learning activities that improve students learning experiences. Participants' understanding of this definition can be summarised under the themes - the manner of instruction and tools used.

i. Manner of instruction

Six quotations from five participants related to defining blended learning as a manner of instruction were identified. Most participants had a reasonable understanding of what blended learning is. Participant 9 described it as "*a blend between classroom teaching and then online" (7:12);* which was similar to the comment from Participant 4 who said, "*combining your normal didactic methods of teaching with more online multi-media type based teaching" (2:1).* Participant 7 described her understanding of blended learning by explaining how she viewed it diagrammatically:

> *"Two diagrams with the bit in the middle that overlaps, and I see the blended learning as the middle bit. Where the one side is the traditional face to face classroom style of teaching, and the other side using online media, different kind of teaching styles, so it's trying to bring the two together in that space in between" (6:2).*

Participant 6 believed blended learning to be less face-to-face saying that it: "*minimises contact sessions, between the educator and the students*" (2:6), and Participant 8 noted that blended learning is "*everything that is away from face-to-face*"(6:7).

While the three participants above defined blended learning as the combination of online and face to face teaching (in line with the true definition of blended learning), the other two participants believe blended learning was mostly online. We know from the literature that blended learning needs to combine the best attributes of F2F learning with appropriate online activities that will encourage a deeper understanding of the content in the student (Keis et al., 2017).

ii. Tools used

When describing blended learning, participants sometimes referred to the actual tools they use online in their teachings. Moodle and videos were mentioned by two of the six participants who spoke about tools. Participant 1 said that they "*initially thought Moodle*" (2:5) when asked what their understanding of blended learning is, and Participant 2 acknowledged Moodle as being part of blended learning; however, they but didn't know a lot about the tool, "*my understanding is also videos, that sort of thing, apps – there are also APPS and things you can use. I'd actually like to know more about the Moodle*" (2:11). From the quote above, the participantmentions videos, and this was also mentioned by Participant 4 who suggested blended learning was: "*trying to explore using videos and those sorts of multi-media in class*" *(2:2).* Participant 4 also mentioned word clouds as a tool, *"developing word clouds during classes based on what the class might be thinking" (2:15).* Participant 2 included

emailing students in their understanding of blended learning: *"part of the whole blended learning, the emailing of the students"* (4:17).

From the variety of tools mentioned, we can see that there is no consensus from participants on which tools are used for blended learning at Nelson Mandela University. Some participants preferred not to name specific tools, but instead gave generalised comments about tools when defining blended learning. This could be because they do not use many blended learning tools, or it could be that they know there are too many tools to mention when defining blended learning. Participant 9 said blended learning is "*technology enhanced teaching*" (7:13) and Participant 11 said "*Yes, I was just saying that using a digital tech platform and you can use mixed media or different technologies I guess*" (6:5)

In Chapter 5 the researcher draws the results from this section into the Blended Learning Adoption Framework, Strategies (Section5.2.1) - implementation and defining blended learning, Support (Section 5.2.2) - pedagogical support.

<u>Blended learning impact on students</u>

Literature has shown that using a variety of blended learning teaching methods assists students and improves their learning experience (Frehywot et al., 2013). The participants described ways in which this might happen, and these are described under the themes of learning styles and engaging students.

i. Learning styles

There were nine comments from six participants relating learning styles to participants understanding of blended learning. Interestingly, three of the participants commented about how people today live their lives online. Participant 3 believes that

being online in life helps students cope at university with online learning; she said the "*current generation of young people, um, are more used to working online or living online so to bring that into the classroom in any way*" (2:16). Participant 8 noted that:

> "*high school students who are already starting with blended learning in high school. So, you cannot expect them to develop there and then when they get here put them back only into the old style when they are coming with these expectations*" (7:11).

Participant 3 had a different perspective of online life, explaining that students sometimes feel that they are "*willing to spend my whole life online, but when it comes to schoolwork, I don't want to. Rather let us stick to the traditional ways*" (4:3). The same participant feels that "*we need to work towards with our students, that they don't separate these things*" (4:4), "*bring life and what I am studying together*" (4:5).

While it is evident that students today are using online technologies in their everyday life, as academics it is essential for us to create a platform for students to be able to apply their skills in the academic environment. It needs to be a platform that students feel comfortable with and are eager to use.

According to Participant 7, catering to various learning styles is advantageous to both lecturers and students. Participant 7 stated that blended learning provides a "*way of using lots of different teaching styles to meet lots of different learning styles*" (6:1). Participant 10 made a similar comment: "*to use different types of learning platforms and then also learning strategies or methods to cater for all the different types of learning styles*" (6:8). An example of different learning styles is given by Participant 8, who said, "*different ways of studying because different*

personalities….some are more visual…….addresses more type of students" (6:3). Implications of this for Blended Learning are that participants recognise the advantage of catering to different learning styles which could allow for better adoption for Blended Learning.

ii. Engaging students

The theme of engaging with students emerged during the ice breaker with Participant 3 saying that blended learning environment is an "*interactive place where you actually use that instead of traditional teaching just standing in front*" (2:8) and Participant 4 explained their understanding as "*engage with the students through those electronic platforms*" (2:3). Interesting observations were made by participants 6 and 11 when they commented on the importance of lecturer-student engagement: "*so at some stage there needs to be a facilitator or teacher present so that it's not purely remotely accessed. Some aspects can be remote, and others need to be face to face*" (6:6), and "*more accessible, wherever you are so students can use any gadgets and they can communicate with their lecturers, or do their assessments, even if they are far from the learning institution itself*" (2:7).

This theme is one of the defining characteristics of quality blended learning, as discussed in Section 2.1 in the literature review. Face-to-face courses should not be replaced with online courses, as there is a need by students for interaction with their lecturers, and between students themselves (Keis et al., 2017)

In Chapter 5, the researcher draws results from this section into the Blended Learning Adoption Framework (table 6) relating to; Strategies (Section 5.2.1) - purpose and defining blended learning.

(b) Feelings about Blended Learning

The first question posed to participants in the focus group was to gauge their feelings about the use of blended learning in teaching, and three themes emerged. They are grouped together under the headings of academic staff feelings and the influence of student attitudes and ability on feelings.

<u>Academic staff feelings</u>

In the literature review, we have seen ways in which blended learning benefits academic staff, and this included: greater flexibility, time saving, cost efficiency, staff satisfaction and improved communication with students (Smith, 2018). Conversely, there is evidence of barriers to academic staff adopting blended learning approaches, including limited technical knowledge of academic staff; students viewing the added activities as a burden; and increase of academic staff workload, as examples (Alammary et al., 2014). Results from the data gathered in this study concerning the feelings of academic staff have been grouped under two headings – dominant feelings and support.

i. Dominant feelings

Participants were eager to share their feelings about blended learning, and 23 comments were coded from a total of 10 participants, with only one participant not expressing their feelings.

Seven of the participants expressed feelings of excitement when talking about blended learning. Participant 11 said "*interesting dynamic, quite exciting feel, so if one wants to feel, one would be quite positive and hopeful because it opens up so*

many doorways" (7:2), while Participant 10 expressed both their excitement and described the potential that they see in using blended everything learning

> *"excited about the whole thing and I actually went in there with, and I went for as much training as I could, and the training was good at that stage. And for my students as well, it's the way that they have more platforms that they can learn something new, for example – Turnitin on Moodle….where I could teach them about plagiarism and about how excited they were on how they could actually bring their similarity down, and maybe end up with a 1%. There are so many different platforms, so it's very positive".*

What is evident from the data is that once staff start using blended learning, they get more excited about the concept. As can be seen from what participant 9 said,

> *"I love blended learning. In the classroom – well I have embraced it, so it is working for me. It is a lot of work in the beginning; you need some support and need to fiddle a lot. But then as soon as you get it right…then it's good…"* (7:14).

Participant 3 also feels positive, saying "*But when it worked, it was very powerful*" (3:26). Three participants recognised the need for blended learning in teaching. Participant 7 stated:

> *"…excited. Because I think there is definitely a need for it and I can see how just the principle of increasing the way that we teach and the different learning styles and accessibility of big key factors that are positive"* (7:7),

This sentiment was echoed by Participant 8: "*So I think it's a must, and I am positive about the way forward*" (7:6). Ánd Participant 11 said:

> "*it goes back to what I said at the very beginning…everyone should be embracing blended learning; it seems the way teaching should go given our context. Hopefully, if one overcomes the barriers, then you probably don't need that recognition because everyone is moving in this way*" (8:33).

However, not all the participants had positive feelings toward using blended learning. For example, Participant 5 expressed feelings of fear, mostly related to a lack of confidence in using blended learning. Participant 1 said that "*Blended learning scares me because I don't feel confident, and if I am not confident, will the students feel that, and think this person doesn't know what they are talking about*" (3:3). This participant is also afraid that students may think he/she does not know how to use blended learning tools, "*I don't want to look incompetent in front of my students*" (3:4). Participant 3 has experience of encountering difficulty using blended learning, sharing that "*students are saying please don't use it, or that's what I am getting from them, and that has affected how I feel*" (3:21). Vulnerability was another emotion expressed:

> "*unsure…where you're not 100% sure how it's going to work. I always joke about having an anti-technology aura around me, because if something can go wrong with a computer, something can freeze – it always seems to happen with me. So, you do wonder with a new challenge; there is that little bit of insecurity. Also, with technology, and having to pre-record and put yourself out there, you feel a little bit vulnerable on what's going to happen, I don't know, there is an element of that too*" (7:8).

Not all the participants' comments could be said to be distinctly positive or negative as four comments referred to the challenging nature of blended learning that could be interpreted either way. Participant 3 and 6 referred to technology being challenging: *"I have learnt a lot about technology, but it's still stressful"* (3:23), and "*blended learning is another platform where we can get challenged about gadgets and different use of technologies*" (3:8). Participant 10 expressed concern about using blended learning but still described feeling positive:

"There is some concerns and as she was saying the students, although they are all students – they have different ways of learning and different needs, they are totally in a new era, and there is no way that you can't go blended learning, especially if you look at digital – that's the way if you want to get through to the students. So yes, positive, but I have concerns" (7:10).

Lastly, Participant 9 mentioned blended learning being limiting, saying "*But it's got its limitations, you can't do everything online*" (7:15). This final comment which assumes that blended learning involves doing everything online links back to a deeper understanding of the true definition of blended learning that the researcher explored in Chapter 2. It shows that not all academics are aware of the true nature of blended learning (Graham & Bonk, 2012).

ii. Support

During the discussion about participants feelings toward blended learning, support from the university and individual departments was raised as an issue. Three participants complained that they do not get enough support from the university when it comes to blended learning. Participant 6 stated, "*I think we are not ready, as the*

institution, we not ready because we don't get supported enough for the minimal things that we now have" (3:9). This participant used an example to further explain what she meant, *"in a lecture, unsure and also unsupported kind of like you don't have backup"* (3:10). Participant 3 agreed that "*the university should actually support us more*" (3:7) and also felt pressurised by the university to apply blended learning in her teaching "*I sometimes feel that I am forcing something because management and institution say please go this route*" (3:22).

When it came to support from departments, just two participants mentioned support. Participant 6 felt that there are limits to what you can do in your own teaching space, citing "*so if your own HOD feels like you are trying to be too creative, so stop that – we not there yet. You know that kind of makes you feel like demotivated"* (3:11). This participant also felt that although the university seems to be going the blended learning route, the support at the department level is not necessarily there; "*the talk is there in the institution, but the action part is nowhere close to being where we want it to be*" (3:12).

In Chapter 5 the researcher draws results from this section into the Blended Learning Adoption Framework (Table 6) relating to; Strategies (section 5.2.1) - purpose, advocacy, implementation, defining blended learning and policy, Support (Section 5.2.2) - technical support and pedagogical support.

<u>Influence of student attitudes and ability on feelings</u>

Student attitudes and technological ability could stand in the way of creating education systems that are successful in including all students, no matter what social barriers exist (Castro, 2019).

i Student influencers

Student feedback influences how academic staff feel about blended learning, as well. Participant 4 stated that:

"a lot of our feeling and a lot of our techniques that we want to use is based upon the feedback we get from our students, and we can see that they are struggling with it and we can see that it's not working, or you even get negative feedback, saying you know I would prefer if you just gave a didactic lecture" (3:18).

Participant 2 recognises that we need to look at blended learning from the perspective of the student as well, saying that "*the students perspective needs to be taken into account*" (3:19).

In Chapter 5 the researcher draws results from this section into the Blended Learning Adoption Framework (Table 6) relating to; Strategies (Section 5.2.1) - purpose, Support (Section 5.2.2) - technical support.

(c) Barriers to Blended Learning

Although the benefits of blended learning are evident, there are many barriers to the implementation and incorporation of it into course modules at the tertiary level (Alammary et al., 2014). With this in mind, the second question posed to participants in the focus group was about barriers they had experienced using blended learning techniques, and four themes emerged. They were grouped under the headings of barriers influencing academic staff and those that were seen as influencing students.

<u>Barriers influencing academic staff</u>

Data related to barriers to blended learning are grouped under five main themes: lack of support, training, infrastructure access and equipment, time, and workload.

i. Lack of support

The theme of lack of support was by far the most prevalent concerning barriers experienced using blended learning techniques. There were 20 comments from seven of the participants. Eleven of the comments centred around the availability of expert assistance when academics run into difficulties using blended learning technology. When the university first started introducing blended learning, there were dedicated staff doing blended learning training and providing support to academics who could call them directly with questions, but as Participant 1 said, "*And now those people have left, and to my knowledge there is a void now that we don't have this expert on Moodle*" (4:14), adding that

> "*now there is nobody to call. So you would log a call with the Helpdesk, but then you have this, you don't know who you are speaking to, or how much they actually really know about Moodle*" (4:15).

Participant 6 agreed with this, commenting on personal experience with Helpdesk calls,

"if you phone 3000, you are either going to be transferred from another person to another person because that person got trained, sorry I have no clue about what you are talking about because the person that is an expert in that field, is so and so on this number" (4:19).

And while participants understand that Helpdesk covers all the departments of the university on that particular campus, for example, Participant 1 said, "*they cover quite a few departments*" (5:2), having to wait your turn to be assisted is a significant barrier to being able to seek assistance to use the tools that are available for blended learning successfully. Participant 8 expressed how much effort it took to get a response,

"Two weeks to get a response. I sent an email, I called, and one day I decided….no I will sit on their back. Calling them every half hour. I needed to sort names alphabetically, and they had done something on the system, different to the previous year – and I could not sort them alphabetically in an excel spreadsheet. So please tell me what I must do, and then finally two weeks later, I got my response" (8:13).

This delay in response was also experienced by Participant 10 who stated,

"I sent an email on the Friday, and by the next Thursday, I got feedback only. And by then, I had worked around it and fixed it my way. It was a test – they had already written by then. I can't wait if I have a problem with an online test" (8:14).

Participant 10 mentioned needing more follow-ups after training sessions to assist in implementing what was learnt, saying:

"it's kind of like follow up assistance, so you go for a training workshop – now you trying it for yourself…so you want to have a go-to person if you are struggling. So, with the time and hours, we are training myself on this" (8:6).

This participant also felt that because they did specific training on a blended learning topic, they became the departmental "expert" on the subject; "*so you end up in the department being the go-to person, and now you have to sort out – if they get stuck, you have to sort it out"* (8:13). Instead of there being pride in being able to use blended learning techniques academics tend to shy away from it because it just seems to bring more stress than what it's worth. Participant 1 said, "*you don't come out of the classroom and say "I am the blended learning queen"* (4:29). This barrier to adopting blended learning techniques is made worse when management is not entirely on board with converting to this teaching platform. Participant 6 when referring to her line manager, said: "*so anything that is technologically advanced, she is against it, totally. So, then it makes it difficult because then even if you needed support from her (you won't get it)"* (4:34). This participant who experienced pressure from the manager to be in front of the students in the traditional manner, questioned the need for blended learning, commenting:

"makes some academics feel then why must I like do blended learning because I am always supposed to be the face of my students and in the department…. do not see the need, because I am supposed to be here; I am supposed to show my face to my HOD to say I am still here, (5:27).

Two participants found a solution to lack of support when adopting blended learning; for example, Participant 8 uses YouTube for help videos:

"So, if I have a problem, I cannot get hold of the Helpdesk and they normally do not know what's going on either, then I would go YouTube…How to….and everything is there. But it is a pain and a schlep compared to if there was proper support" (8:17),

And Participant 10 uses the internet to search for solutions to her problems, "*I have to Google – How to do it because when I get to somebody to help me, they make a mess up and then I have to actually fix it myself anyway, and that's a big problem*" (8:18).

During the discussion around barriers, the facilitator used a prompt asking participants how they felt about a lack of recognition for using blended learning being a barrier to adopting it in their teaching practice. Four participants thought they don't get recognition even considering how much effort goes into preparing blended learning content. Participant 1 stated "*no we don't get recognition for anything" (4:27)*, and Participant 3 agreed that "*they don't even know that I am using it*" (4:28). Participant 10 feels that recognition, in general, is lacking from university, "*do we get recognition for anything at this university?*" (8:28). Participant 4 reiterated this by saying "*But I think the only recognition you could potentially get is from the students, but often that's not positive" (4:31)*.

The theme lack of support mentions technical support, support around training and institutional support. The next theme under barriers that will be discussed is training.

ii. Training

Attending training sessions could help alleviate frustration felt by academics when using blended learning techniques. Not being offered training or not being able to participate in training were two barriers identified by participants in using blended learning technology. Participant 1 felt that contrary to popular belief, academics are not always well versed in online technology, "*we are not IT, we are actually academics, believe it or not, but we seem to be a jack of all trades*" (4:18). Participant 3 knows that tools and features are available but don't know how to use them, saying, "*sort of features that could potentially be useful but we just actually don't have the time to try and even figure out*" (4:22). Furthermore, they added that they had to figure out how to use Moodle themselves when they started lecturing at the university as there was no training offered.

While the University does offer training on blended learning platforms and tools, it seems academics do not attend due to a variety of reasons. Participant 9 revealed that they lecture during the time that workshops are offered:

> "*they present workshops during lunchtimes and over lecture times and then they can't understand why we don't attend, but I would love to attend a course just on Moodle, show me all the little tricks of the trade…it took me so long to do….and then people would come along and say just click here…I wish somebody told me*" (8:5).

Participant 9 said that without training, it becomes more difficult to use and, "*then they just stop they don't use it because it's a pain" (*8:11).

As mentioned under the theme, lack of support, academics who know how to use the blended learning techniques end up training their colleagues who cannot or do not attend training sessions, as participant 9 experienced:

"Soon as they get to this barrier and I do understand that they do not have the time to fiddle around, and then they are stuck. The one said she can't upload, and there was something wrong with her – you know it kept on ….it was grey on the one end…but I said to her….it's not supposed to look like that? So, we tried another browser and it worked" (8:9).

While people are willing to assist each other in using blended learning, it would be better for everyone if proper training was available. As Participant 8 said: *"so now it's your time and her time now – two people's productivity is decreasing because we don't have proper training on it"* (8:10) and adds that being appropriately trained would be better than self-training, *"thing is that it would save us so much time if somebody was able to assist us instead of self-training"* (8:7).

Not knowing about or using features of blended learning technology can affect academics attitude toward it. Participant 11 explained that although they want to create the perfect content online, their skills don't permit it: *"Low tech confidence from the presenter's point of view…this is our own experience and our own …skills knowledge and how to create that perfect podcast or video"* (8:2). Participant 9 gave an example of some difficulty they have on Moodle, saying *"I struggle to transfer between different Moodle sites"* (10:5)

iii. Infrastructure, access, and equipment

Of the fourteen comments from six participants related to barriers due to infrastructure, access, and equipment, most of these were about access to online platforms. In contrast, others spoke of infrastructure and devices being barriers.

Participant 3 was concerned about the cost of data for academics when working off-campus, saying:

"Some staff in our department are saying who is going to pay for the data that I am using when I am not on campus? To go onto Moodle, or to search for videos or whatever, that that cost just comes from me" (5:29).

Participants also expressed concern that the students will not be able to access the online platforms off-campus due to data costs. Participant 9 mentioned:

"connectivity for students, and that is a major problem; if they have to buy data for all the downloads, we can't post videos for them. It is extremely expensive, so that to me, is the biggest issue in taking blended learning further, is what happens off campus where students are supposed to study" (8:19).

Participant 10 has also had an experience where access is a problem due to data costs, stating, "*in the rural areas, ….So they have to submit assignments on Turnitin, and if their network is not fast enough, they are not able to do that*" (8:22). Participant 7 explained that some students are being excluded because they cannot access the platforms, "*there is always that group of students that you are excluding, that don't have access*" (10:26). This was explicitly true when academics posted links

to online sites outside of the University that the students need to access which incur extra costs. Participant 6 explained that "*the links have data issues because then they will have to be online for that*" (5:34).

While most of the access issues are related to off-campus activities, there are barriers related to infrastructure on campus encountered by academics using blended learning. Venues were spoken about at length in the focus groups. Participant 1 revealed, "*our classrooms are built for didactic teaching. They are not built for blended learning*" (4:26). And Participant 3 struggled to present certain online activities because the venue did not allow it, "*Because it is in a venue that does not allow for this. So, then I had to make plans to take the right cords, you know to take things to the venue so that you could plug it in*" (3:25). Participant 7 also had trouble with sound at some of the venues "*more than once in a lecture where you want to play a video clip or something, and for some reason, there is just no sound*" (8:21).

If students do not have a device, they cannot interact online with activities or their lecturers; this could be when they are on or off-campus. On-campus, students use computer laboratories to work online, but according to Participant 6,

> "*The problem is the number of students we have currently and depending also on the timetable scheduling for the students. Because some of the students must do practicals, so that means at the time the computer lab is available, they are not available because they are in pracs*" (5:38).

If they are off-campus, students rely on using their own devices, and participants also shared examples when students couldn't do online work; Participant 1 mentioned "*students will come to you and their laptop was stolen*" (5:35).

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iv. Time

There were 13 comments from eight participants relating to time being a barrier to using blended learning techniques. Interestingly four of these comments were also categorised under the theme of student attitude, and this will be discussed further in the next chapter.

Most of the participants who commented on time being a barrier mentioned that developing blended learning takes a lot of time, which they do not often have at their disposal. Participant 4 stated that:

"I think there would perhaps be more time for discussions and just trying to understand where everyone is coming from if there wasn't such a staffing issue. Most of the time, we are just trying to keep afloat and cover the workload, so we don't even have time to actually discuss what we are actually doing" (4:30).

Participants 5 and 8 agreed that it takes longer to prepare blended learning *"sometimes it takes longer to prepare a blended learning"* (4:40), and *"I think that blended learning adds to the workload initially"* (10:37). An example of just how long it takes was provided by Participant 1 who said: *"my one colleague set up a test on Moodle and we were all laughing at her because she was so stressed and she took two days as opposed to two hours"* (4:42). While Participant 2 understands the benefit of blended learning, she noted the time it took to set up an activity, saying:

"You set up your rubric, and then when you mark, you just click on which one, and it adds up the marks for you, it's lovely. So, it sometimes takes you more time upfront, but it can save you time later" (4:43).

Another example of the time it takes was cited by Participant 6, who spoke about using multiple-choice quizzes being used in blended learning approaches:

"I have to draft those questions myself, then also I am needing my memorandum to add in any vowels, verbs, any other part of a sentence that the student could add, because if I don't add that Moodle will kick it off. So those are the challenges, so it makes it longer when you have to set up a test" (4:41).

Participant 9 has become an expert on blended learning in her department. However, she has found that even though her colleagues are excited about blended learning when she shows them how to use particular tools, *"they just don't have enough time, so it just goes away"* (8:16).

Repetition of online work still needing to be done face to face can also create more work and be time-consuming. Participant 6 expressed frustration:

"Student will come and say I didn't have data where I was, you will have to repeat yourself again next week for that group, and the university will still tell you, please make sure you accommodate all the students that could not…next week. Same as the test that was scheduled for today, we would have to accommodate them next week. So that's just additional work" (5:31).

Participant 10 summed up the issues of academics' time very well, revealing:

We all have three legs we have to adhere to. You are studying, maybe your Master's or PhD, you must lecture and then you have admin. And I can tell you if I give all my attention to my admin and lecturing, I do not get to my studies. And the same if I give all my attention to my studies and admin and don't get to my lecturing… I have always had the problem that I can only achieve two and not all three". (8:31)

v. Workload

As discussed in Chapter 2.3 – the literature review, academic staff with a high workload have trouble finding the time to convert course material to a blended learning format. This was corroborated by Participant 1, who has no time to work on blended learning techniques, explaining:

"lectures start at 745, and I lecture most days till 430pm, over 5/6 modules. So when must I do blended learning because I am also trying to further my studies, I am trying to attend workshops to further my studies" (5:28).

Participant 8 stated, "*if we didn't have this high workload, we would be able to focus more on blended learning*" (10:34). Participant 6 also experienced difficulty getting to work on blended learning saying: "*it feels like a load on top of the work we already have. So, you do it on your own at night, open your laptop at like 12 pm, then you start*" (5:30).

Participants felt that if the departments had a bigger staff compliment, they would have more time to work on blended learning. Participant 10 expressed her frustration with workload revealing:

"If people leave or retire, the posts are not always filled, and sometimes the modules are just handed out to the remaining people in the department. So, then you could end up doing six full-year modules, and then you have extra work as well, you might be the coordinator of the research methodology or the coordinator of the clinical modules. So, it is like if you cope this year, why will we look at new lecturers, because you are coping. This year is done, and we can just carry on like that" (10:33).

Participant 8 felt that if she were relieved of some work, she would have time to do blended learning, revealing "*lack of time comes from not having enough staff and you are overloaded with other things. If somebody would take something from your plate then you could focus a bit more on blended learning*" (8:23). Participant 9 had a good idea, but due to workload it hasn't been actioned, she said that it "*would be nice to have little sessions where you can share but if that becomes more formal, it's just something else that you have to prepare. But nobody has time*" (8:29)

In Chapter 5 the researcher draws the results from this section into the Blended Learning Adoption Framework (Table 6) relating to; Strategies (Section 5.2.1) - purpose, advocacy, implementation and defining blended learning, Support (Section 5.2.2), technical support, pedagogical support and incentives.

<u>Perceived barriers from a student perspective</u>

In this section, it needs to be understood that the theme "*barriers from student perspective*" are related to the participants' point of view and have been perceived or observed by participants who are lecturers, not the students themselves.

i Student attitudes and abilities

When it comes to barriers experienced using blended learning, another theme that emerged for participants was the students' attitudes and abilities when using these platforms. There were six comments related to students' technical abilities to use online tools. An example of this was provided by Participant 5, who revealed:

"Some students come from places where there's rarely technology – and they are used to the traditional methods of teaching. So if one has to bring in blended learning, you are kind of trying to teach them two things at the same time" (3:1),

The same participant added, "*if I don't have a background of a computer, chances of me accepting of whether this is a learning platform are very low, whether I am a lecturer or a student*" (4:39). Participant 6 commented explicitly on the transition from school to university, and students not being prepared for blended learning:

"School does not support is not … or their curriculum at school is not aligned to blended learning, they are used to a teacher standing in front of them giving them information, so then the expectation, when they get to varsity, is no different and they expect the same from us" (4:8).

Even senior students also struggle with online. Participant 4 explained that her part-time master's students' group are struggling with online work:

"Just logging onto a computer was a huge issue; in the meantime, the person is a manager in a clinic or hospital where they are placed in. So then you kind of now, also on the other side, have to tread softly as to how to teach this person the basics, even though the person is in the hierarchy of whatever institution and well respected and all of that" (4:9).

Participant 2 also commented on senior students' ability to use the online library: "*I was actually quite shocked because when I give some kind of online assignments to the students, even third and fourth-year level, and how they don't know how to use the online library*" (3:14).

Participant 2 spoke about the self-discipline that is needed to be able to work in a blended learning environment, saying:

"For blended learning, you need a lot of self-initiative and discipline because someone is not sitting you there and going – okay now, you are going to do this. You are going to have to find your own time, and that can be difficult for an immature student" (4:10).

Motivating students to complete activities in the blended learning environment is a barrier, one which Participant 3 has encountered and found a solution to:

"So if there is an online forum and you attach marks to that they would participate and find a way at night to go somewhere to work online, but if it's not for marks, then why would anybody respond" (4:12).

In Chapter 6, the researcher draws results from this section into recommendations for further studies.

(d) FACILITATORS TO BLENDED LEARNING

The third question posed to participants in the focus group was about facilitators in their use of blended learning techniques, and seven main themes emerged. They were grouped under the headings of motivation to come to blended learning and how academics are enabled to convert to blended learning.

<u>Why are academics motivated to use blended learning?</u>

Motivation to use blended learning results are grouped under themes of personal experience and convenience.

i. Personal experiences

Of the 77 comments coded as facilitators to blended learning, 21 were grouped under the theme of personal experience, with 10 of the 11 participants sharing their views. Many examples were given where online tools were used successfully for blended learning teaching; these positive experiences motivate academic staff to convert to and continue using blended learning. Participant 9 stated: "*And when people start to use it they are like this is so amazing, every time when you start with blended learning you can see the benefits*" (10:31). Similarly, Participant 4 said:

> "*but just hearing from colleagues that they have had positive feedback from students when they tried this new online forum or if they tried to use videos as part of their teaching. Hearing that it worked encourages you to want to try it for your students as well*" (5:18).

Participant 7 also shared "*you don't know what can be done until you see it being done, so when you sitting in a lecture with Socrative* [an online program that supports classroom engagement] *– this lecturer was the first person that used it and I was like wow, I didn't know that was possible*" (10:17).

The Learning Management System (LMS) chosen by Nelson Mandela University is Moodle. Moodle facilitates Blended Learning for both academics and students alike by creating a platform to create online content and activities. Participants mentioned examples where using Moodle has facilitated blended learning in their teaching. Participant 1 used only the basic features in Moodle, "*I posted my slides on Moodle*" (4:36), while Participant 3 used some of the more integrated features of Moodle stating:

> "*I have chosen a movie that I have the DVD of, and so I lecture part of the time, and the rest of the time we watch the movie then they have reflection questions on Moodle that they must answer, which they must apply the theory to the movie section and see what comes out of that*" (3:24).

Participant 2 used another tool that Moodle facilitates, and it worked well for her, "*based on Moodle, I do a little survey, I did it last year, it was very helpful*" (4:33). This participant also said how the administration could also be facilitated using Moodle, "*Even class attendance you can do on Moodle*" (4:23). Participant 9 spoke of the advantage of planning and preparing activities in advance on Moodle:

> "*instead of me getting the pictures to them, I can just open up the practical tut for that day, and then say to them they can then start doing it on Moodle, so then lots of them had already completed the tuts before we did the*

catchup. So not even them working ahead – they were just completing things that were already there" (10:24).

Other examples of tools facilitating blended learning use were mentioned. Two of the participants spoke about how using video facilitates blended learning; Participant 5 recounted when he was a student, "*like other lecturers will bring in videos to class, I think I learnt much better through that than when they tried to teach it"* (5:7), and Participant 4 was more motivated to use blended learning after a colleague said that using videos had worked well for them and that they had received "*positive feedback from students when they tried …to use videos as part of their teaching"* (5:18). Participant 2 used an online application (App) to create a virtual practical session:

> *"found an app online where you could actually, there is a little character, and you take it to the locker, and you have to put on this and put the different gown on in a certain sequence to gown properly, and it's a whole app that you can do, and it is like that was a prac, it was amazing…..And then I set a quiz afterwards that made sure they had to answer the questions to show that they had done it"* (5:10).

Two of the participants mentioned doing voice-overs of their lecture slides, which helped when either the students or the lecturer could not come onto campus for any reason. Participant 7 said:

> *"I did voice-over lectures with my PowerPoint slides, which obviously can be useful when the next time I needed to do that lecture, and I had a clash or something, I could then use that lecture for the students"* (10:24),

And participant 4 said they used "*voice-over lectures during this time*" (4:37).

Motivation to use blended learning tools is also a result of collaboration, with colleagues, faculty, and even other universities. Participant 8 felt that to be able to have time to collaborate would be advantageous, "*to sit around the table and just discuss*"(8:30). While Participant 4 gave an example of engaging with colleagues in her department, "*someone you are close to within the department and you just talk about it, just ask how the lecture went and you would say, well I showed this video, it went really well, that sort of engagement*" (5:23).

Participant 8 found motivation through workshops that allow for interaction with other academics beneficial, suggesting that:

"workshops between us to share ideas about what you are doing and what I am doing…instead of trying to reinvent the wheel. Even in our faculty, to sit down every now and then and share … I discovered this way, and it's working … and I see the benefits" (8:27).

Collaborating with other universities motivated Participant 6 to use blended learning tools, who suggested that learning "*from other universities and other institutions - that helped me a lot. Because it showed us how possible*" (5:19).

ii. Convenience

The theme of convenience as a motivator for academic staff to convert to blended learning came through strongly for the participants. Participant 8 stated the following about assignments posted for the students on Moodle,

"once I have put an assignment on Moodle …at the end, I just have to download the marks. I am happy I have put the due date in, and everything that is late receives penalties or otherwise zero. Yes, it took me a while to put in place, but after that, I have less marking to do" (10:3).

Participant 2 set up a rubric which made marking very convenient,

"if you are doing rubric marking its lovely, because you set up your rubric and I do it a lot with the Master's students, you set up your rubric, and then when you mark, you just click on which one, and it adds up the marks for you, it's lovely" (4:43).

Participants commented on the convenience of accessing online material for academic staff. Participant 10 stated how when she was on sabbatical leave, "*I paid other lecturers to teach my module, and I made them the primary lecturer, and they could access all my stuff"* (10:8). She also mentioned her lecture notes being available to the HOD should it be necessary, "*in our department we are meant to put all our notes and info on that site, so that if I drive home and don't come home ever, at least the HOD can access those"* (10:12). Having online access to the material was also seen as beneficial when academics take over teaching modules new to them. Participant 8 developed new material, but still had access to the previous lecturers content saying; *I added extra things that were my own, and developed my own. I kept a lot of the old stuff hidden, so if I needed to refer back, I could"* (10:9). Participant 10 also used old content to build new material:

"what I think is that if you have somebody else's, it's accessible to you…and even if you feel like it's not what you need, you need maybe more…or you need less, you can still use it as a starting point," (10:11).

Another feature that facilitates academics use of blended learning is being able to submit tasks online, Participant 2 spoke of personal experience when she was a student, "*I found it was so nice to be able to submit things online and on the online platform"* (5:6), and Participant 7 described the convenience from the academic's perspective,

"so it's just with submissions of practical's and assignments and things, you don't have to worry about hard copies going missing….and if there is a late submission penalty, you have a date stamp of when it was uploaded" (10:1).

In Chapter 5, the researcher draws results from this section into the Blended Learning Adoption Framework (Table 6) relating to; Strategies (Section 5.2.1) - purpose, advocacy and implementation, Support (Section 5.2.2) - pedagogical support.

<u>How academics are enabled to convert to blended learning</u>

Enabling academics to convert to blended learning is discussed under the themes of support and technology.

i. Support

Seven participants gave input on how support can facilitate their use of blended learning. From this input, three levels of support were identified by the researcher, namely: university management, departmental, and colleagues. With regards to

support from university management, Participant 8 thought that "*having the support of the management makes a huge difference, if the management supports you and encourages you to go that way, then you'll do it, but if nobody cares, then why should you care*" (10:18). Furthermore, she added that recognition from management is a motivator for her; "*it should be recognised because it's a good motivator…stimulates you, and if you are self-driven that recognition stimulates even more*" (8:34). Contrary to this, Participant 11 said that while recognition is essential in anything you do, there should not be specific recognition given for using blended learning:

> *"I think it helps no matter what you do. It helps if you are doing a good teaching job, it helps if you are a good researcher, it helps if you are just enthusiastic. But I don't think there should be recognition specifically for blended learning"* (8:32)

Part of university management support is also the IT backup and workshops offered by the university. Participant 1 stated, "*We received a number of workshops from a person at CTLM who was kind of the driver of Moodle and was passionate about that*" (4:13). This participant was referring to the blended learning task team from the Centre of Teaching and Learning and Media (CTLM), who used to run all the workshops and provided technical support for academics using blended learning at the University. Participant 9 also spoke of this task team, saying "*I hope they are going to fill and expand the blended learning posts – like one or two per faculty*" (10:29). Participant 3 had a very favourable opinion of the support she received from IT at the university, saying "*our IT support at University is awesome, it's really fantastic*" (5:1).

The second level of support is on the departmental level, and three participants spoke how this support had assisted them in using blended learning. Participant 9 said, "*my HOD, she supported me, and said just run with it*" (10:19). While participant 8 understood that with departmental and faculty support, academics could change to blended learning, "*if you have the support of the faculty and the department, maybe we can go in that direction*" (10:38). Participant 3 mentioned that when the university first introduced Moodle, her department encouraged each academic to engage with blended learning, and for some, this worked, but not all persevered with it:

> *"Every one of us should have at least one module on Moodle, so we were thrown into the deep end, regardless of how you felt about it personally and that forced all of us to have to engage with it. Some people stayed with the one module and did not go further, and others did. But that is where it started for us*" (5:15).

Participant 8 believed it should be mandatory to use blended learning, proposing that: "*Once it becomes mandatory, not like starting tomorrow, but starting at a certain time and saying by such and such a date everyone should go blended, and then maybe more will convert*" (10:30).

The third and final level of support comes from colleagues. Participant 6, who understood the value of this level of support mentioned: "*We just have to find more ways of supporting each other to get the work done*" (5:17).

ii. New Developing technology

Participant 11 spoke about new blended learning technologies that are continually being developed and designed: "… *there's a lot more like question banks. So, we do not have access to that at the moment, but many other universities are buying into these things ... Socrative… the classroom app, there are lots of quite amazing apps*" (10:14). She also alluded to the change in online access, saying "*even though we are saying that we don't have access and data is expensive and devices, there is a flip to that as well…it's just getting better and better….for staff and students access is getting better*" (10:14).

Participant 9 suggested that learning sites should be accessed without using data if students are not on campus, which solved the problem of students needing a lot of data to access the technology.

> "*Even if they can't get to varsity and they'll still have access. You cannot show them videos ... and I also experienced the voice-overs are so large, they could not download it. They told me it took R100 of data to download a voice-over PowerPoint. But if Moodle can be used without data charges, then that would be fantastic*" (10:28).

In Chapter 5, the researcher draws results from this section into the Blended Learning Adoption Framework (Table 6) relating to; Strategies (Section 5.2.1) - purpose, advocacy, implementation and policy, as well as Support (Section 5.2.2) - technical support, pedagogical support and incentives.

4.1.5 Section 4.1 Summary

The mixed-method research design of this study included two phases, and the results of the qualitative first phase have been discussed in this section. On analysis, themes emerging from the focus group discussions have been reported under the headings; defining blended learning, its impact on the student, how academic staff perceive blended learning, how student attitudes and abilities affect academic adoption, barriers to blended learning adoption, motivation to adopt blended learning, ability to convert the course material, and finally institutional support. These results will be organised into the Framework for Blended Learning Adoption in Chapter 5 and discussed together with the results of the quantitative second phase of the study, which are presented in the next section.

4.2 Questionnaire Results (Phase 2)

4.2.1 Introduction

This section reports the results obtained from the quantitative phase of the research. The research instrument, an online questionnaire, was distributed to academic staff in Health Sciences at Nelson Mandela University. Trends related to the study were identified to address the study's primary aim, which was to explore the perceptions related to the conceptualisation, utilisation, and facilitation of blended learning in learning and teaching practices within the Faculty of Health Sciences by academic staff at Nelson Mandela University. The questionnaire (Appendix 11) was divided into three sections; *Demographics (Section A), The extent of use of blended learning (Section B)*, and *Implementing blended learning (Section C)*, and the results will be discussed under these three headings. Section A (Demographics) and B

(Extent of use of blended learning) address the first objective of the study – *to describe the perceptions of blended learning by academic staff in the Faculty of Health Sciences at the Nelson Mandela University.* Section C of the questionnaire addresses the second objective of the study – *to identify the academic staff perceptions about the factors affecting incorporation of a blended learning approach into learning and teaching practices of the Faculty of Health Sciences at the Nelson Mandela University.*

4.2.2 Demographics (Section A of the questionnaire)

This section of the questionnaire addressed the first objective of the study - *to describe the perceptions of blended learning by academic staff in the Faculty of Health Sciences at the Nelson Mandela University.* One hundred and thirty-seven participants were invited to partake in the study, and a total of 55 participants (40%) attempted the questionnaire. Fifty-four participants (39%) completed Section A and B, and 52 (38%) completed the entire questionnaire. Of the participants, 74% were female, and 26% male (Figure 6). When considering the age distribution, 63% of the participants were between 30 and 49 years of age (Figure 7).

Figure 6

Gender profile of participants (n=54)
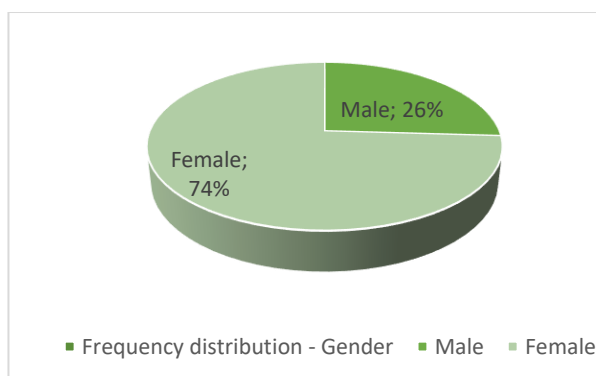
Figure 7

Age distribution of participants (n=54)
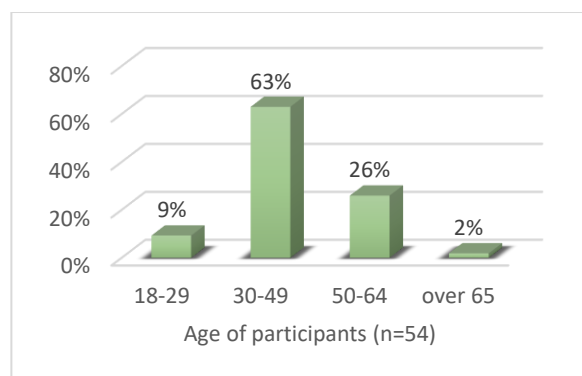
When addressing the study's first objective, to describe the perceptions of blended learning by academics, it was essential to consider the number of years participants had been lecturing and their academic level as this impacted their understanding of learning and teaching. In the literature chapter of this study, barriers to blended learning were discussed; some of these relate to the academic experience at a tertiary institution, such as workload, technical ability, and inexperience. When academics start lecturing, they are overwhelmed with adjusting to new modules, lecturing, students, and the administration, so they might have less time to develop blended learning skills. The number of years at a tertiary institution and academic level might influence the use and adoption of blended learning modalities.

The number of years participants have spent lecturing at tertiary institutions was analysed. It is noted that 32% of the participants have less than five years teaching experience (0-2 years = 13%, 3-4 years = 19%), while 33% of the participants indicated they have been lecturing for between 5-9 years (Figure 8). Thus, more than half the participants had been lecturing for nine years or less (0-9 years = 65%). When looking at the academic level of the participants, it can be seen in Figure 9 that several participants were on lecturer level (61%), with less at the senior level of professor, associate professor or senior lecturer (Senior lecturers = 15%, associate professors = 7%, professors = 2%). Fifteen percent of participants were at an associate lecturer level, which would suggest that they have not yet completed a post-graduate degree and are possibly new to the lecturing environment.

Figure 8

Number of years at a tertiary institution
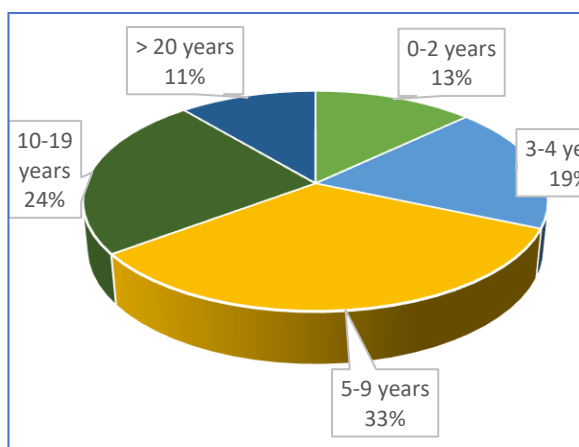
Figure 9

The academic level of participants
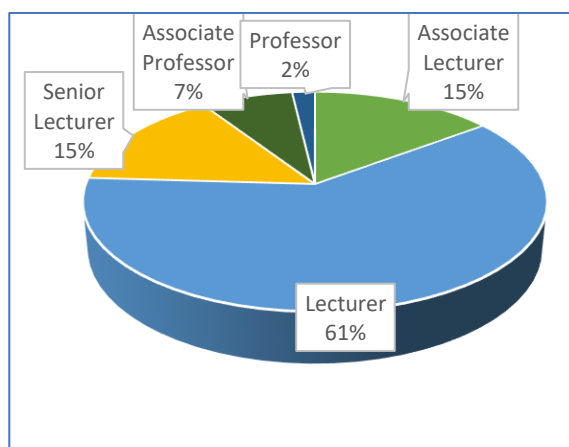
Figure 10 shows the number of years of lecturing experience for each academic level (at any tertiary institution). Twenty-seven participants (49%) indicated that they are at the lecturer's academic level, all of them with between 3 and 19 years of experience. There were fewer participants (0-2 years = 1, 5-9 years = 1, 10-19 years = 3, >20 years = 3) at senior lecturer level. Only 9% of participants were either associate or full professor (associate professor = 4, professor = 1).

Figure 10

Academic level and number of years of lecturing
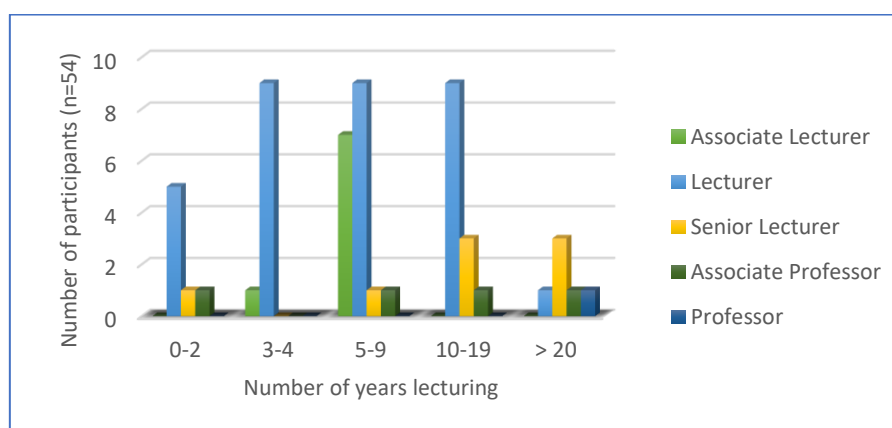
A Chi-squared test was done to explore if there was a correlation between the academic level and years at a tertiary institution, , grouping senior lecturer, associate professor, and professor together (Table 7).

Table 7

Contingency Table - Academic level and Years at tertiary institution

	Years at a tertiary institution							
Academic level	**0-4**		**5-9**		**10+**		**Total**	
	Nr of particip ants	% of total/ academic level	Nr of particip ants	% of total/ academic level	Nr of particip ants	% of total/ academic level	Total Nr of parti cipa nts	
Associate Lecturer	1	13%	7	88%	0	0%	8	100%
Lecturer	14	42%	9	27%	10	30%	33	100%
Sr Lecturer / Assoc.Prof./ Prof.	2	15%	2	15%	9	69%	13	100%
Total	17	31%	18	33%	19	35%	54	100%

Chi² (d.f. = 4, n = 54) = 10.36; p = 0.035; V = 0.31 Medium (3 added to each cell to meet minimum expected frequency requirements)

There is a correlation between the academic level and years at a tertiary institution, which is to be expected. Since the p-value (0.035) is less than 0.05, there would appear to be a significant relationship, X2 (4, N = 54) = 10.36, *p* < 0.05.

Additional data gathered from the questionnaire included the level of responsibility that the participant has as an academic and the level of student group to whom they lecture. Most of the participants, 89%, lecture in a module, while 61% are module coordinators and only 30% are programme coordinators (Figure 11).

Figure 11

Participants scope of responsibility
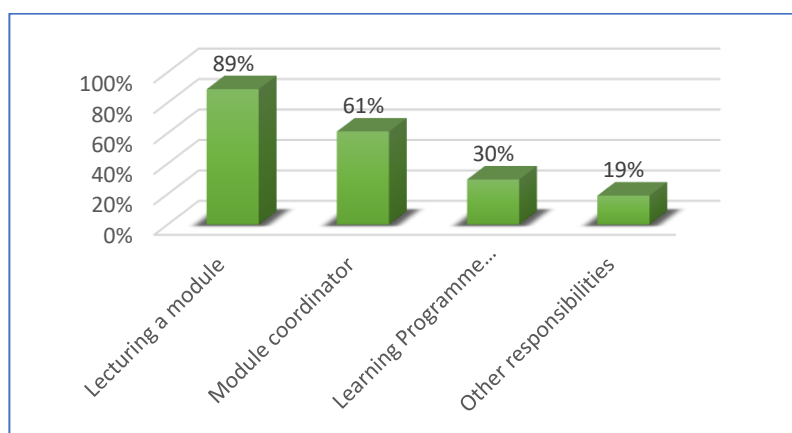
Other responsibilities listed by participants included Head of Department 4%, experiential learning co-ordinator 5%, research 4% and lecturing assistant 2%.

The academic level of the students taught by the participants does not show any particular pattern (Figure 12). However, it would suggest that participants predominantly taught degree courses as opposed to certificate and diploma students. The mix of programmes in Health Sciences could influence this result, as there are mostly degree programmes, and fewer certificate and diploma programmes being presented.

Figure 12

Level of students lectured by participants (n=54)
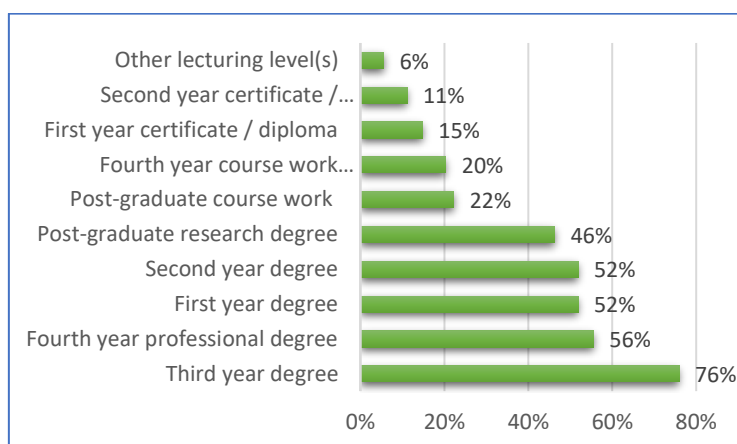
Since it is possible that the employment status may influence the adoption of blended learning, participants were asked to indicate whether they were permanent or contract staff at Nelson Mandela University. Seventy-four percent were permanent, and 26% were on contract (Table 8).

Table 8

Frequency distribution - Employment status

	Number	**Percentage**
Permanent	40	74%
Contract	14	26%
Total	54	100%

The final question under demographics was to ask the participants to rate their own ability to use online technology for teaching purposes (*M*=6.54, *SD*=2.15) (Table 9).

Table 9

Central Tendency & Dispersion: Ability to use online technology for teaching purposes (0-10) (n = 54)

| | Mean | SD | Minimum | Quartile 1 | Median | Quartile 3 | Max | 95% Conf. Interval | |
								Low	High
Ability to use online technology for teaching purposes	6.54	2.08	2.00	5.00	6.50	8.00	10.00	5.93	7.07

Of note to the researcher is that the mean of all the participants responses was 6.54, indicating a fair level of ability in their own opinion at 95% *CI* (5.93, 7.07). Looking at Table 10, results show that 50% of participants gave themselves a rating of six or more, suggesting they view their competency in online technology from fair to high, however 50% suggested a level of five or less, indicating low competency.

Table 10

Frequency distribution - Ability to use online technology for teaching purposes

Rating level 0-10	Nr of participants	% of total participants
0	0	0%
1	1	2%
2	5	9%
3	4	8%
4	6	11%
5	11	20%
6	7	13%
7	11	20%
8	5	9%
9	2	4%
10	2	4%
Total (n)	54	100%

As highlighted in the literature, Chapter 2 (section 2.2 and 2.3) of this study; technical ability, skills, and training reoccur numerous times under both barriers and facilitators, so this result will be important to discuss in the next chapter.

The researcher then explored the perceived ability to use blended learning with the academic level of participants. Due to the small sample size, and splitting the academic level into three groups, a comparison of means test, such as an Analysis of Variance (ANOVA) could not be performed, therefore for this comparison, the non-parametric Kruskal-Wallis test was chosen. As discussed in Chapter 3, the Kruskal-

Wallis test is appropriate for small sample sizes and for when the assumption of normally distributed data is violated. This test shows statistically significant differences exist between three groups of independent variables (for this study - academic level) on the ordinal dependent variable (for this study - online ability) (Table 11).

Table 11

Kruskal-Wallis test - Academic level and Ability to use online technology for teaching purposes (n = 54)

Academic level	n	Sum of Ranks	Mean Rank	D.F.	H	p
Associate Lecturer	8	220.50	27.56			
Lecturer	33	952.50	28.86	2	0.91	.634
Sr Lecturer/ Assoc.Prof./ Prof.	13	312.00	24.00			

One of the research objectives was to determine what the online ability of academics was. Table 11 displays the correlation between academic level and ability with online technology.

The Kruskal-Wallis H Test showed that there was no statistically significant difference in participants' perceived ability to use online technology for teaching purposes and academic level of participants, $H(2)=0.91$, $p=0.634$, with a mean rank ability score of 27.56 for Associate lecturer, 28.86 for Lecturer, and 24.00 for Senior lecturer/Associate professor/Professor.

These results are incorporated into the discussion on – Blended Learning Adoption Framework in Chapter 5 under the heading Support (Section 5.2.2) – *pedagogical.*

4.2.3 Extent of use of blended learning (Section B of the questionnaire)

Section B of the questionnaire also addressed the first objective of the study - *to describe the perceptions of blended learning by academic staff in the Faculty of Health Sciences at the Nelson Mandela University*. In this section, participants were asked about their perceptions of blended learning in their teaching practice. Eighty-seven percent of the participants agreed or strongly agreed (agreed = 44%, strongly agreed = 43%) that using blended learning would enhance their teaching (Figure 13), While 88% of the participants agreed or strongly agreed (agreed = 57%, strongly agreed = 31%) that they have already changed their teaching methods to incorporate a blended learning approach (Figure 13).

This section's results are incorporated into the Framework for blended learning adoption in Chapter 5; Strategies (Section 5.2.1) – advocacy, implementation, and defining blended learning, Support (Section 5.2.2) – pedagogical.

Figure 13

Participants' perceptions of the use of blended learning
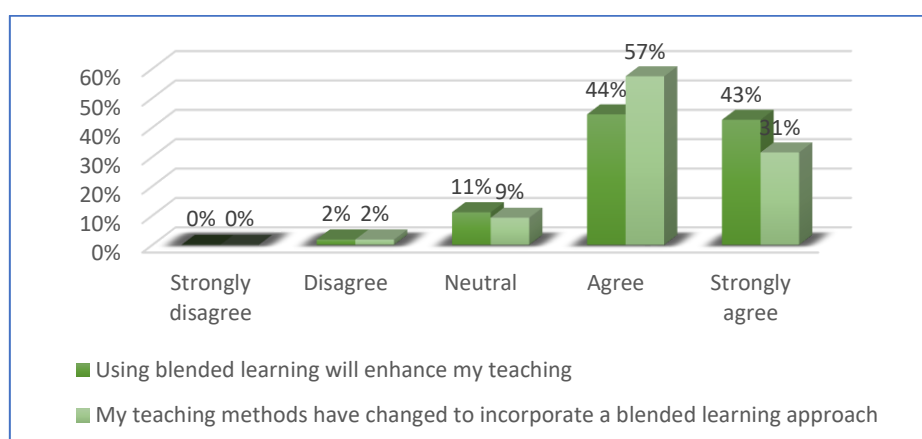
To further confirm the research objectives of the study, a Chi-squared test of independence was performed and showed that there was no significant association between the participants view that using blended learning would enhance their teaching and their response to changing teaching to incorporate blended learning, $X2$ (2, N=54) = 4.95, p = 0.084 (Table 12).

Table 12

Contingency table - Using blended learning will enhance my teaching and Ability to use online technology for teaching purposes

Using blended learning will enhance my teaching	Ability to use online technology for teaching purposes (category)							
	Ability 0-4		Ability 5-6		Ability 7-10		Total	
Disagree & Neutral	3	30%	3	18%	1	4%	7	13%
Agree & Strongly Agree	7	70%	14	82%	26	96%	47	87%
Total	10	100%	17	100%	27	100%	54	100%

Chi²(d.f. = 2, n = 54) = 4.95; p = 0.084

This result suggests that participants are not opposed to using blended learning in their teaching. This could indicate that if they are not adopting blended learning methods, it is not because they do not believe in it, but that there are other reasons preventing them from adopting the approach.

Participants predominantly use Moodle for posting of notes (70%), providing links to other resources (57%) and uploading assignments (52%). Almost half of the participants, 46%, said that although they are aware of the ability to conduct assessments through Moodle, they have never used this option (Figure 14).

Figure 14

Participants use of Moodle activities in their teaching
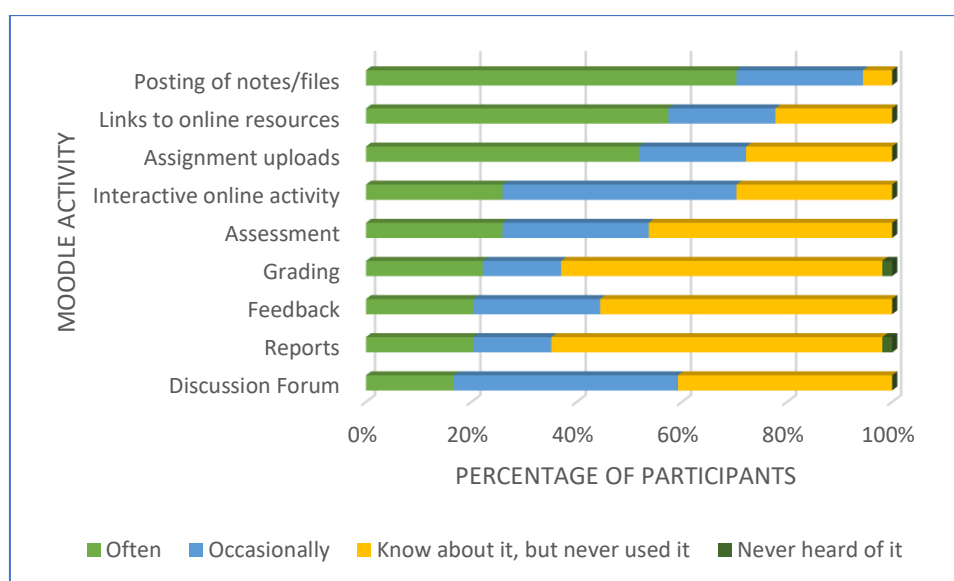
This result suggests that Moodle is still mostly used as a repository for notes, providing links to resources, and for students to upload assignments. When it comes to using the interactive online features of Moodle, the frequent use dropped to 26% , although 44% of the participants reported using it occasionally. What was noticeable was that except for two participants (4%), who had never heard of "grading" and "reports", 96% of the participants had heard of all the features available on the Moodle platform. While the literature highlights the benefits of using an LMS tool such as Moodle in a blended learning approach to teaching, it also suggested that not all academics use these tools to their full extent because of a lack of technical knowledge (Section 2.3).

In analysing the use of applications within Moodle for teaching by participants, an inferential ranking of means was conducted, and the results are reported in Table 13.

Table 13

Inferential ranking of means - Moodle applications used in teaching (n = 54)

Variables	Rank	Signif. Group	Mean	SD
Posting of notes/files	1	1	1.35	0.59
Links to online resources	2	2	1.65	0.83
Assignment uploads	2	2	1.76	0.87
Interactive online activities like quizzes / surveys	4	3	2.04	0.75
Assessment	4	3	2.20	0.83
Discussion Forum	4	3	2.24	0.73
Feedback	7	4	2.35	0.80
Grading	7	4	2.43	0.86
Reports	7	4	2.46	0.84

A *t-test* of independent variables (Moodle activities used by participants) was then conducted, and the results are reported in Table 14.

A paired sample *t-test* indicated that scores were significantly higher for the Links to online resources subscale *(M* = 1.65, *SD* = 0.83) than for the Posting notes/files subscale *(M* = 1.35, *SD* = 0.59), *t* (53) = 3.04, *p* = .002, *d* = 0.41 (where low scores indicate using the application OFTEN, as opposed to high scores – NEVER heard of the resource). This comparsion shows that links to online resources were hardly ever used, whereas posting of notes/files was used often.

Another significant effect was observed for Interactive online activities subscale *(M* = 2.04, *SD* = 0.75) having significantly higher scores than Links to online resources subscale *(M* = 1.65, *SD* = 0.83), *t(*53) = 3.26, *p* = .001, *d* = 0.44. This comparsion shows that Interactive online activities were hardly ever used, whereas links to online resources were used more often.

The last significant effect observed from this dataset was Feedback subscale *(M* = 2.35, *SD* = 0.80) having significantly higher scores than Interactive online activities subscale *(M* = 2.04, *SD* = 0.75), *t(*53) = 3.09, *p* = .002, *d* = 0.42. This comparsion shows that Feedback were hardly ever used, whereas Interactive online activities were used more often.

No significant effect was observed between Interactive online activities subscale *(M* = 2.04, *SD* = 0.75) and Assessment subscale *(M* = 2.20, *SD* = 0.83), *t(*53) = 1.70, p = .047, d = 0.23.

No significant effect was observed between Interactive online activities subscale *(M* = 2.04, *SD* = 0.75) and Discussion Forum subscale *(M* = 2.24, *SD* = 0.73), *t(*53) = 1.75, *p* = .043, *d* = 0.24.

Table 14

Inferential Ranking Statistics - Moodle applications used in teaching
(n = 54; d.f. = 53)

Variables Compared		Difference				Inference			Significance	
Var.1	Var.2	n	Mean	SD	*t*-value	d.f.	*p*-value	Cohen's d	Statistical	Practical
Posting of notes / files	Links to online resources	54	-0.30	0.72	3.04	53	.002	0.41	Yes	Yes
Links to online resources	Assignment uploads	54	-0.11	0.79	1.03	53	n/a	0.14	n/a	No
Links to online resources	Interactive online activities like quizzes / surveys	54	-0.39	0.88	3.26	53	.001	0.44	Yes	Yes
Interactive online activities like quizzes / surveys	Assessment	54	-0.17	0.72	1.70	53	.047	0.23	Yes	Yes
Interactive online activities like quizzes/surveys	Discussion Forum	54	-0.20	0.86	1.75	53	.043	0.24	Yes	Yes
Interactive online activities like quizzes /surveys	Feedback	54	-0.31	0.75	3.09	53	.002	0.42	Yes	Yes
Feedback	Grading	54	-0.07	0.82	0.66	53	n/a	0.09	n/a	No
Feedback	Reports	54	-0.11	0.90	0.90	53	n/a	0.12	n/a	No

Cohen's D measures how large an effect of something is (Guest et al., 2014). The measured effect is not significant where d < 0.20, small significance, where d is between 0.20 and 0.50, medium significance where d is between 0.50 and 0.80 and large significance when d is > 0.80.

Participants were asked to list what other online tools, other than Moodle, they used or had heard of (Figure 15). Fifty-two percent of participants reported using YouTube in their teaching, while 37% use PowerPoint with audio. SharePoint (28%, 15), Turnitin (20%), digital textbooks (20%) and video conferencing (15%) are also all used by participants. Interestingly social media applications (Apps) are not used much by the participants for teaching purposes. For example, only 2% of participants reported using Facebook, while Twitter and Blogs are also not used at all for teaching purposes.

Figure 15

Other online tools used by participants besides Moodle (n=54)
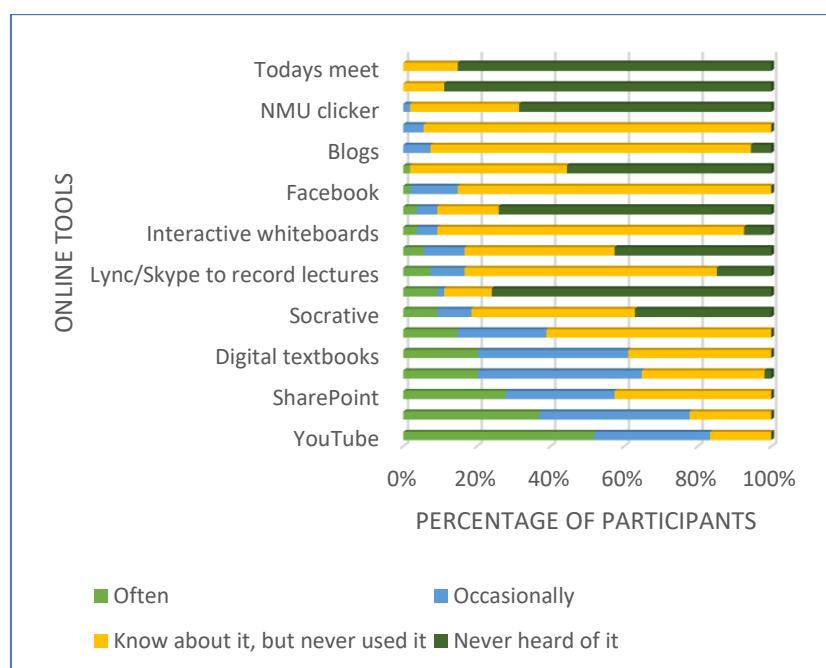
Section A (Demographics) and B (Extent of use of blended learning) of the questionnaire addressed the first objective of the study, to describe the perceptions of blended learning by academic staff in the Faculty of Health Sciences at the Nelson Mandela University. Section C of the questionnaire that addresses the second objective is presented in the next section.

4.2.4 Implementing blended learning (Section C of the questionnaire)

Section C of the questionnaire addresses the second objective of the study - to identify academic staff perceptions about the factors affecting incorporation of a blended learning approach into learning and teaching practices of the Faculty of Health Sciences at Nelson Mandela University.

This section's results are incorporated into the Blended Learning Adoption Framework in Chapter 5 – strategies (Section 5.2.1) – purpose, advocacy, implementation, policy, support (Section 5.2.2) – technical support, pedagogical and incentives.

The results to questions about what motivates participants to use blended learning revealed that it is a combination of motivation from colleagues and the university. When comparing these two motivating factors, 37% of the participants remained neutral when asked if their colleagues encouraged them to use blended learning. Similarly, 33% of participants could not decide if they were motivated to use blended learning by university pressure. Fifty-two percent agreed or strongly agreed that they were motivated by colleagues. Similarly, 54% felt that university pressure made them use blended learning (Figure 16). The source of motivation to use blended learning seems to be very similar, whether it is positive motivation from colleagues or

pressure exerted from the university. As seen in literature, motivation is a facilitator to converting to blended learning (Section 2.4).

Figure 16

Source of motivation to use blended learning
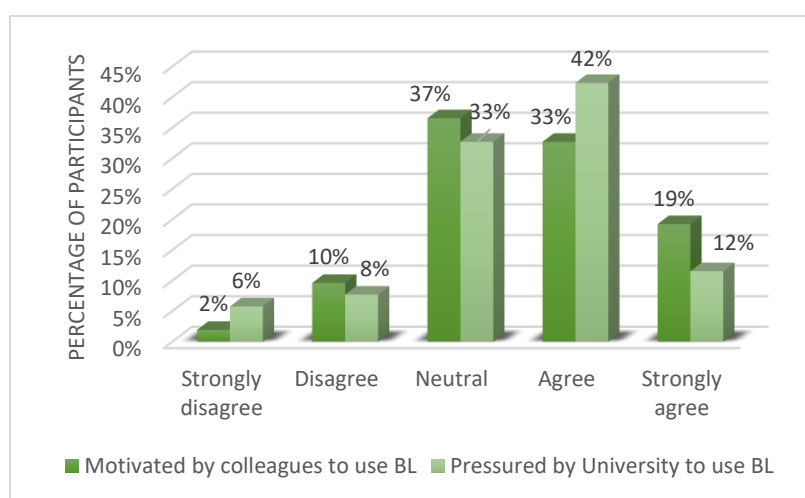
When asked how often participants share their blended learning activities with colleagues, 23% said never, and 35% said once in a while (Figure 17). Only 12% said they always share their activities. Bearing in mind that 53% of participants agree and strongly agree that colleagues' motivation is important (Figure 16), it is interesting that 58% of participants either 'never' share or only share 'once in a while' with their colleagues. This could be because participants do not feel confident in their use of blended learning and are only at the early adoption stage of blended learning.

Figure 17

Sharing Blended learning activities with colleagues
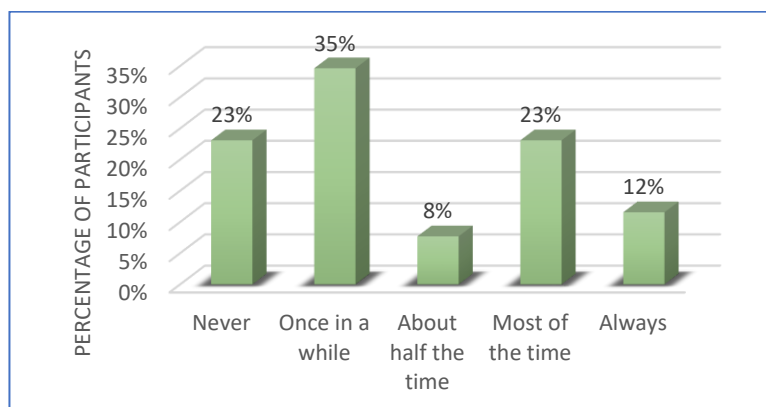
When implementing a blended learning approach, technical support was identified as a facilitator and discussed in Chapter 2 (Section 2.4). However, only 33% of the participants indicated that they often experience technical difficulties with online tools. The rest of the participants, 67% reported sometimes having difficulty. Seventy-nine percent of participants use the NMU helpdesk support system if they do have technical difficulties. Participants felt that the helpdesk's response is mostly rapid (42%) or moderate (44%) as reported in Figure 18 below.

Figure 18

Response to call for technical support
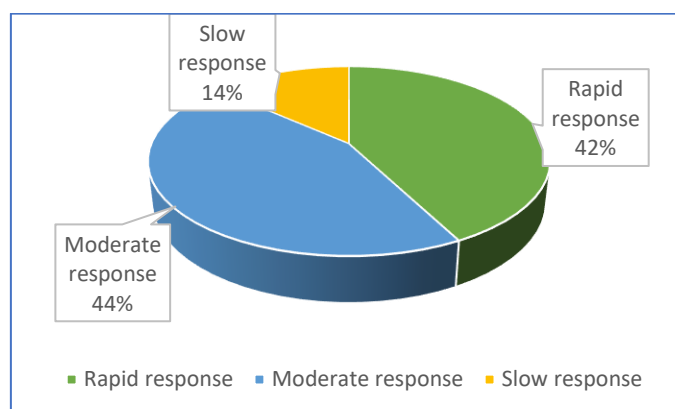
Also tied to the study's second research objective - factors affecting implementing blended learning approach - are whether the participants have the necessary skills to develop blended learning courses. Sixty-two percent of the participants attended one or more training courses on blended learning tools available at the university in the past two years (Table 14). Twenty participants (38%) reported attending Moodle training which is in line with the fact that the university uses Moodle as their leading LMS platform. Eight participants (15%) attended various courses and webinars related to online teaching, which is positive for moving toward blended learning within the Health Sciences Faculty at Nelson Mandela University.

Table 15

Training attended by participants in past two years

Training Attended	Number of participants	Percentage of Participants
Moodle	20	39%
Online teaching	8	15%
Microsoft Teams	3	6%
Blended learning	3	6%
clinical teaching online	3	6%
Specific online Apps	2	4%
Online assessment	2	4%
Turnitin	2	4%
PowerPoint advanced	1	2%
Flipped classroom	1	2%

As discussed in the literature review (Section 2.3), time can be a barrier to implementing blended learning, When participants in this study were asked if they had enough time to develop blended learning modules, 83% said they did not have enough time (Figure 19). Only 17% felt that they have enough time to develop blended learning modules.

Figure 19

Time to develop blended learning modules (n=52)
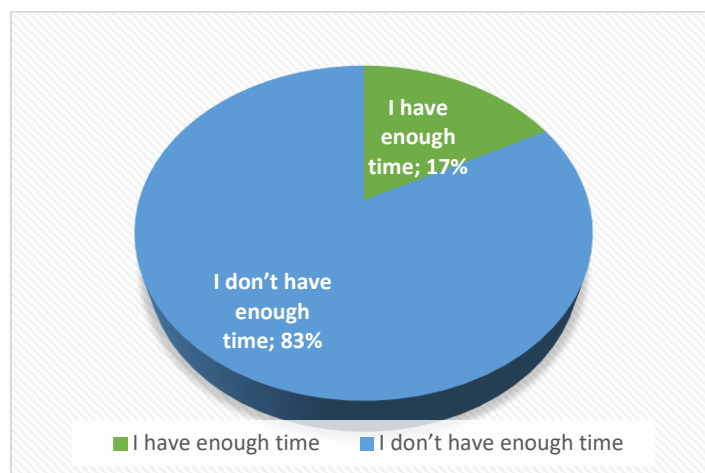
When asked if students have access to online learning tools, only 4% of participants felt that all of their students have access, 40% saying that the majority of the students have access, and 56% felt that only some of the students could access these tools (Figure 20). Participants perceptions that students have trouble accessing these tools could affect academic staff motivation to change to blended learning. In addition, it could also create extra work for academics and a negative impression of the blended learning environment.

Figure 20

Participants opinion of student access to online tools (n=52)
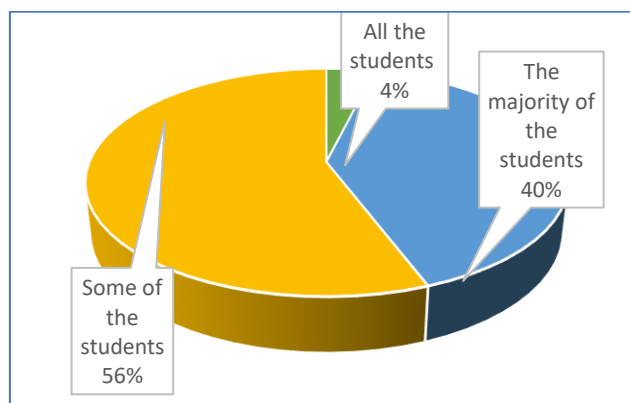
A similar trend can be seen when participants were asked to comment on students' ability to use online technology for blended learning. Only 6% felt that all students have the ability to use these tools, 42% think that the majority of the students have the necessary skills to use the tools and 52% of participants felt that only some of the students were skilled enough to use these tools (Figure 21).

Figure 21

Participants opinion of student ability to use online technology for blended learning
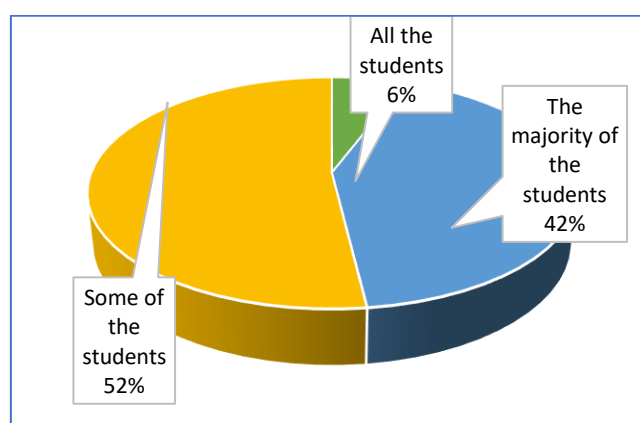
If the perception is that students struggle to access online materials and that many do not have the skills to use the technology, the success of developing and implementing blended learning in teaching practice will be affected.

When asked to indicate the importance of certain factors for staff adoption of blended learning, training sessions, technical support, the advantage of time-saving and sharing with colleagues were ranked together in the most influential group, followed closely by student appreciation and recognition (Table 15). Fifty-one percent of participants felt that seeing examples from other universities using blended learning was important (Figure 22). The academic age was ranked as least important by participants when it came to adopting blended learning methods, with only 25% saying that age is a major factor.

Figure 22

Important factors for staff adoption of blended learning
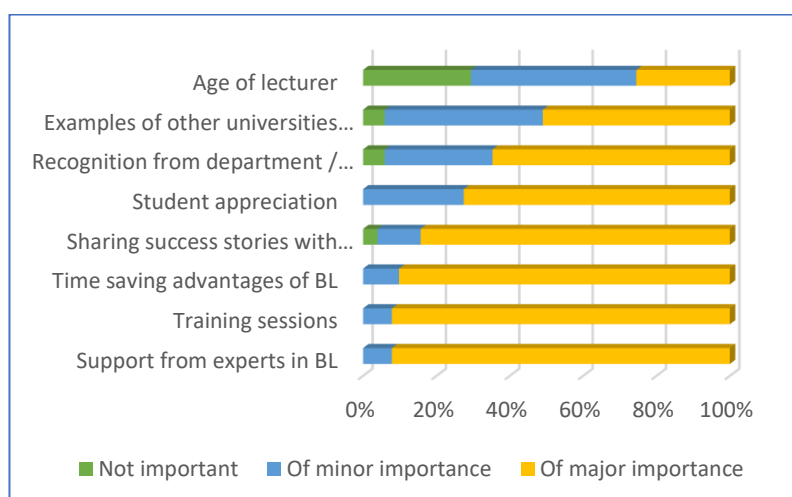
The inferential ranking of means for Importance for staff adoption of blended learning methods (n=51) is reported in Table 16.

Table 16

Inferential Ranking of Mean (n = 51)

Variables	Rank	Signif. Group	Mean	SD
Training sessions	1	1	2.92	0.27
Support from experts in BL	1	1	2.92	0.27
Time saving advantages of BL	1	1	2.90	0.30
Sharing success stories with colleagues	1	1	2.80	0.49
Student appreciation	5	2	2.73	0.45
Recognition from department / NMU	5	2	2.59	0.61
Examples of other universities using BL	7	3	2.45	0.61
Age of lecturer	8	4	1.96	0.75

To address the research objectives, the researcher aimed to determine which variables affected adoption of BL the most. A *t-test* of independent variables (Importance for staff adoption of blended learning methods) was conducted and the researcher made the following observations (Table 17). Training sessions were the highest ranked by participants when considering adoption of blended learning.

Table 17

Inferential Ranking Statistics - Importance for staff adoption of blended learning methods (n = 51; d.f. = 50)

| Variables Compared | | | Difference | | | Inference | | | Significance | |
Var.1	Var.2	n	Mean	SD	*t*-value	d.f.	*p*-value	Cohen's *d*	Statistical	Practical
Training sessions	Support from experts in BL	51	0.00	0.28	0.00	50	n/a	0.00	n/a	Not
Training sessions	Time saving advantages of BL	51	0.02	0.37	0.37	50	n/a	0.05	n/a	Not
Training sessions	Sharing success stories with colleagues	51	0.12	0.52	1.63	50	.055	0.23	Not	Yes
Training sessions	Student appreciation	51	0.20	0.53	2.64	50	.005	0.37	Yes	Yes
Student appreciation	Recognition from department / NMU	51	0.14	0.75	1.31	50	n/a	0.18	n/a	Not
Student appreciation	Examples of other universities using BL	51	0.27	0.63	3.09	50	.002	0.43	Yes	Yes
Examples of other universities using BL	Age of lecturer	51	0.49	0.88	3.98	50	<.0005	0.56	Yes	Yes

A paired sample *t-test* indicated that scores were significantly higher for the Examples from other universities subscale *(M = 2.45, SD = 0.61)* than for the Age of lecturer subscale *(M = 1.96, SD = 0.75)*, *t(*50) = 3.98, *p* = <.0005, *d* = 0.56 (where low scores indicate NO importance, as opposed to high scores – of MAJOR importance).

This comparsion shows that while Examples from other universities were very important, Age of lecturer was not as important to participants.

Another significant effect was observed for Student appreciation subscale *(M =* 2.73, *SD* = 0.45) having significantly higher scores than Examples from other universities subscale *(M* = 2.45, *SD* = 0.61), *t(*50) = 3.09, *p* = .002, *d* = 0.43. This comparison shows that while Student appreciation was very important, Examples from other universities was not as important to participants.

The last significant effect observed from this dataset was Training sessions subscale *(M* = 2.92, *SD* = 0.27) having significantly higher scores than Student appreciation subscale *(M* = 2.73, *SD* = 0.45, *t(*50) = 2.64, *p* = .005, *d* = 0.37. This comparsion shows that while Training sessions was very important, Student appreciation was not as important to participants.

No significant effect was observed between Training sessions subscale *(M* = 2.92, *SD* = 0.27) and Sharing success stories with colleagues subscale *(M* = 2.80, *SD* = 0.49), *t(*50) = 1.63, *p* = .055, *d* = 0.23.

The questionnaire's final activity was to allow for a qualitative element, open-ended question, inviting the participants to comment on any important factors they believed might influence staff adoption of blended learning, but had not been listed in the questions previously (Appendix 15). Twenty-six (47%) participants comments were recorded. These comments were analysed and included in Chapter 5 under relevant sections (section 5.2.1, 5.2.2, 5.2.3) of the framework used to organise the discussion data.

4.2.5 Chapter summary

In this chapter, the researcher has analysed the results of both the qualitative and quantitative phases of the research study. Both the focus group and the questionnaire results have addressed the main objectives of the research study. The first objective was to describe the perceptions of blended learning by academic staff in the Faculty of Health Sciences at Nelson Mandela University. The second objective of the study was to identify the academic staff perceptions about the factors affecting incorporation of a blended learning approach into learning and teaching practices of the Faculty. Together with the literature from Chapter 2, this has provided valuable information that will help build the knowledge contribution in the discussion, which is presented in Chapter 5.

Chapter 5

Discussion

5.1 Introduction

In this study, the researcher has investigated the perceptions of blended learning and factors affecting incorporating a blended learning approach into learning and teaching practices. The mixed-method design adopted for this study was sequential exploratory design, where the results of the first phase (qualitative) have informed the second phase (quantitative). Academic staff in the Faculty of Health Sciences at the Nelson Mandela University participated in focus groups and a questionnaire. In Chapter 4 the researcher laid out the results for each of these two phases. In this chapter the researcher builds the knowledge contribution by merging the themes identified in each phase (QUAL + quan) and setting them out for the reader, using the framework described in the literature review (Section 2.7). Each of the main themes will be discussed, Strategies, Support and Structure. The ultimate goal of the study is to address the main objectives set out in Chapter 1:

- Describe the perceptions of blended learning by academic staff in the Faculty of Health Sciences at the Nelson Mandela University.

- Identify the academic staff perceptions about the factors affecting incorporation of a blended learning approach into learning and teaching practices of the Faculty of Health Sciences at Nelson Mandela University.

By discussing the findings within the framework chosen, the researcher will attempt to address both the research objectives and add other meaningful information gathered from the study.

5.2 Blended Learning Adoption Framework

As discussed in Chapter 2, Section 2.7, the framework designed by Graham et al. (2013) will be used to organise the research study's findings (Table 17), used with permissions from the author and adapted by the researcher for the purposes of this study.

5.2.1 Strategies

According to Graham et al. (2013), strategies are related to the design of blended learning. He lists five important themes which fall under strategy: purpose, advocacy, implementation, defining blended learning and policy (Table 18).

The first theme to discuss within this section is *PURPOSE.* Literature shows that blending with purpose is essential to meeting students' needs (Picciano, 2009). This explanation is further supported in this study, with 87% of academic staff believing that using blended learning will enhance their teaching. The study also investigated academic staff recognition of blended learning benefits and shows that learning styles, timesaving, convenience, and continuity are major benefits. Basic use of LMS tools such as posting of content ($M = 1.35$, $SD = 0.59$), and links to online resources ($M = 1.65$, $SD = 0.83$) are used more often and are considered more beneficial than those that perhaps need more technical skills to use such as the feedback feature ($M = 2.35$, $SD = 0.80$). The results are consistent with literature concerning benefits, indicating that academic staff understand the benefits of blended learning well. Benefits of blended learning go hand in hand with academics' motivations to adopt blended learning. Alammary et al. (2014) found that the more confident academics were in using blended learning technology, the more motivated they became. This

explanation is further supported by the results indicating a 95% CI (5.93, 7.07) that on a scale of 1 to 10, academic staff in the Health Sciences Faculty at Nelson Mandela university would rate their own ability between 5.93 and 7.07. While this might show some confidence using technology which will motivate them to use blended learning, it also indicates a possible reason as to why staff are not motivated to convert to blended learning. To be able to successfully adopt blended learning a high level of technical knowledge of the tools being used would be needed. Academic staff's view of their online ability falls between 5.93 and 7.07 on a scale of 1 to 10, this shows us that they do not feel that they have a very high ability to use blended learning tools, this leads to lack of motivation to adopt blended learning.

ADVOCACY is a leading strategy for institutions to adopt blended learning, ranging from informal to formal advocacy, and across the different levels from individuals to department and institutional (Graham et al., 2013). According to the literature, individual advocacy usually occurs where blended learning is very new, and academics are still exploring the concept (Graham et al., 2013). This study reveals 87% of academic staff believe that blended learning enhances their teaching. Furthermore, 52% claim that colleagues encouraged them to use blended learning, which supports the literature. However, an interesting result arose: 55% of academic staff either never (23%), or do not often (35%) share their blended learning activities with their colleagues. One plausible explanation for these variances could link back to the first section where participants view of their ability to use online technology was discussed. Lower confidence in using blended learning technology would explain why academic staff do not want to share their blended learning activities with their colleagues. The study also revealed that while some academic staff are encouraged to use blended learning on a departmental level, others are not encouraged to or

supported by departments to adopt blended learning. Similarly, while academics indicate that the institution advocates blended learning adoption, some feel forced to use it. Although these results are not supportive of each other, it does support the literature in understanding at which stage in the adoption process of blended learning an institution might be at (Graham et al., 2013).

The third theme within strategies to adopt blended learning is *IMPLEMENTATION*. Graham et al. (2013) explain that implementation strategies could be at various stages. The first stage is academics implementing individual modules. The next step is departments and faculty identifying courses to change, resulting in the highest impact, and the last stage is widespread blended learning implementation across departments and faculties. According to Garrison and Kanuka (2004) implementation of blended learning courses, are dependent on financial, human and technical resources. The study results reveal that the most critical factors for adopting blended learning are training sessions ($M = 2.92$, $SD = 0.27$) and support from experts ($M = 2.92$, $SD = 0.27$), and the both of these factors are directly related to implementation. Financial and human factors are interrelated when it comes to implementing blended learning. Departments are short-staffed, leading to increased workload, which results in less time to design blended learning modules. Positive perceptions of blended learning were related to academic staff who were supported by departments as to workload, where departments understood the time investment needed for blended learning adoption, strategising to enable academic staff time away from their duties in the department to attended blended learning courses and work on module development.

While implementing blended learning is a strategy being adopted globally, South African institutions have different challenges in implementing blended learning, as discussed in the literature (Vandeyar, 2015). This explanation is further supported by South African research study results by Tshabalala et al. (2014), indicating that many academics did not understand what blended learning was and were not trained to use the tools. While literature shows trends, capabilities and various categories of blended learning tools and the attributes of these tools (Mirriahi et al., 2015), this study reveals the limited use of higher-level blended learning tools by academic staff in the Health Sciences Faculty at Nelson Mandela University. Mirriahi et al. (2015) categorised tools used for blended learning design into synchronised, LMS and social networking. Nelson Mandela University uses the LMS Moodle. This study showed that Moodle tools used most were posting content, providing links to online resources, and uploading assignments. Moodle functions that are more interactive and would also require training on the LMS tool such as grading, feedback, and reports generation were used much less. These findings are further supported by academic staff recounting the knowledge of being aware of all the tools but not knowing how to use them, which in turn leads to lack of confidence as mentioned under purpose in this section.

Besides systems such as Moodle facilitating blended learning, as seen in the literature (Mirriahi et al., 2015), many other tools could be used. The researcher explored what these were, and the findings showed that academic staff often use YouTube, PowerPoint with audio and SharePoint. Interestingly, social media sites like Facebook and Twitter were not often used by academic staff for learning and teaching purposes. These findings reported in Section 4.2.3 differ from the literature. For example, Rambe (2012) and Al-Samarraie (2018), showed that social media tools are

very effectively used in blended learning courses to encourage interaction between students. This difference identified could be because the study population is at the early adoption stage of blended learning, mostly using the available basic tools of LMS. Using social media as a blended learning tool falls into more advanced adoption stages (Graham et al., 2013).

Graham et al. (2013) set DEFINING BLENDED LEARNING as a strategy for adoption in their framework. At a mature blended learning implementation stage, the researchers found that institutions had formally defined blended learning with specific attributes for academic staff. Those staff members who were only starting to blend had no formal definition of blended learning. Knowing what authentic blended learning is, could affect the quality of blended learning being designed.

In literature, blended learning is defined as the combination of face to face instruction with computer-mediated instruction, not just adding to an existing teaching approach or design (Bonk & Graham, 2006). It is also defined as understanding how technology should be applied to address specific learning needs (Picciano, 2009). Hrastinski (2019) concluded that academic staff need to know how to blend, what is being blended, and why we need to blend (purpose). While the definition of blended learning does seem clear in the literature, this study has revealed that many academic staff do not understand what true blended learning is. The results show that 88% of academic staff think that they are already implementing blended learning in their teaching. If this were true, then it would be expected that the results would indicate that academic staff use higher-order capabilities of Moodle and other tools. The study findings differ, however, as shown in Section 4.2.3 when tools were discussed. Only the more fundamental tools are currently being used by academic staff. Interestingly

when asked directly in the focus groups what their understanding of blended learning is, most participants gave an accurate definition, but there were also comments that did not support this, participants saying that blended learning has limitations, not everything can be done online, and another voicing concern over work integrated learning which cannot be online. These comments from the qualitative phase of the study concur with the results from the quantitative phase mentioned above and indicate that academic staff have a lack of understanding of the true definition of blended learning.

The final strategy discussed is *POLICY.* The most mature level of blended learning is based on revised institutional policies that are well communicated to all stakeholders (Graham et al., 2013). Garrison and Kanuka (2004) stated that if blended learning were to apply to large numbers of students, university policies would need to support the blended learning approach, making sure it was cost-effective and accessible. While this is the goal of adopting blended learning, it is not the reality in the South African context. Vandeyar (2015) investigated the implementation of national e-education policy in South Africa and found gaps in comprehension of policies on the provincial and district levels. His recommendation is that revision of policies should involve relevant stakeholders who know what is happening in the institutions. Concerning policy as a strategy, this study's findings showed that 54% of academic staff are motivated through pressure from the university policy. Furthermore, academic staff do not feel supported by university to adopt blended learning; however, academic staff recognise that university policy must be in place to be able to adopt blended learning which is in agreement with Graham et al. (2013).

5.2.2 Support

Another vital component of blended learning is support (Graham et al., 2013). According to Graham et al. (2013), support can be broken down into three main themes: technical, pedagogical and incentives (Table 17).

Understanding what *TECHNICAL* support is needed by academic staff to adopt blended learning is required to successfully convert face to face teaching to a blended learning course (Alammary et al., 2014). Technical support is exhibited in this study's findings with 79% academic staff using NMU HelpDesk Support system if they have technical difficulties and an encouraging 84% of academic staff saying they received a rapid to moderate response from the University's Helpdesk. However, it needs to be noted that the converse was true for seven of the eleven participants from the focus groups who felt they were not getting the technical support that they needed from the University's Helpdesk and resorted to Google or YouTube for assistance. However, they did relate having information technology (IT) backup and workshops from dedicated blended learning experts that helped adopt blended learning. One plausible explanation for the different findings between the questionnaire participants and the focus group participants is that the focus group participants were led to speak about the actual design of blended learning and technical support they needed relating to design. In contrast, the questionnaire did not allow for elaboration on what type of support was required from Helpdesk.

PEDAGOGICAL support can range from basic training on blended learning tools in the early adoption stages, to blended learning course development training which is established and promoted by institutions (Graham et al., 2013). There is significant literature linking training to overcoming barriers and successful adoption of

blended learning, Alammary et al. (2014), Garrison and Kanuka (2004) and Gedik et al. (2012) all emphasise the importance of training. Findings from this study show evidence that training is necessary to design authentic blended learning courses. Evidence of academic staff views of their online ability shows a 95% CI of a mean between 5.93 and 7.07, low confidence in using online tools would hinder adoption of blended learning. While only 62% of academic staff have attended any training for blended learning design in the past two years, most of this training (36%) has been on Moodle.

Similarly, participants could not mention many tools other than Moodle used for blended learning, supporting the findings above that training is only done on Moodle and the essential online tools. It is interesting to note that participants who had blended learning training a few years ago when the University had a dedicated blended learning department, had a more positive view of blended learning training than staff who have only been exposed to blended learning assistance through the helpdesk option. Time is also a factor in that training sessions are held at inconvenient times, or participants could not attend training due to workload demands. Alammary et al. (2014) found that several interventions were necessary to move blended learning from a low to a medium impact. These interventions included financial interventions which could address workload concerns by employing more academic staff members. Financial backing by way of providing funds for blended learning course development training is the ideal, this idea is supported by participants who agreed that structured, detailed blended learning training would be beneficial.

Support from the institution in the form of *INCENTIVES* for the academic staff does not necessarily have to be directly financial. Graham et al. (2013) suggest that allowing staff time out of their academic responsibilities to attend training and for working on course development is an incentive in itself. Findings in this study suggest time is a major barrier to adopting blended learning, thereby implying that time would be an incentive to adopt blended learning. Eighty-three percent of academic staff do not have enough time to develop blended learning. The focus group results support this result, eight participants listing a lack of available time to develop blended learning modules. Therefore, as suggested by Graham et al. (2013), giving staff the time to develop a blended learning course may increase the use of blended learning amongst staff of the Faculty of Health Sciences and allow for a more mature stage of blended learning adoption.

5.2.3 Structure

The final blended learning adoption is *STRUCTURE* (Graham et al., 2013), encompassing the following themes; governance, models, scheduling and evaluation (Table 17).

According to Graham et al. (2013), governance relates to regulations and approvals of blended learning courses. Blended learning models help structure blended learning adoption processes, scheduling refers to institutions cataloguing registered courses to be blended learning or not, and evaluating blended learning concerns course design, student outcomes, staff satisfaction, workload and overall blended learning as a modality.

Interestingly the themes related to understanding how structure allows for (or hinders) adoption of blended learning (Table 1) did not appear in the study's findings. The lack of data in this area in this study and from literature (sub section 2.7.3) is consistent with Hrastinski's (2019) conclusions. Hrastinski (2019), after discussing blended learning definitions, concepts and models in his research, recommends that more work needs to be done to identify new models of blended learning that can answer the questions: How to blend? What is being blended? And most importantly, why do we need to blend?

5.3 Chapter Summary

In this chapter, the researcher integrated the results from the two phases of the mixed-method research study using the blended learning adoption framework. Using the framework assists in organising the findings in such a way as to build on the body of knowledge related specifically to the Faculty of Health Science academic staff use of blended learning. In the next chapter, the researcher will conclude with a summary of the study outcomes and its implications. Limitations and recommendations for further research will complete the study.

Chapter 6

Conclusion

6.1 Introduction

In the last chapter, the researcher discussed the results of the study. As per the overarching mixed-method research design chosen, data from qualitative focus groups, quantitative questionnaire, and literature reviewed were integrated under themes organised according to the framework for blended learning adoption adapted from Graham et al. (2013) to address the research objectives. In this final chapter, the research's outcome and its implications for real world, limitations, and recommendations for future research will be considered.

6.2 Study Outcome

At the onset of Chapter 5, the researcher proposed using the framework of blended learning adoption by Graham et al (2013) to address the research objectives. The key findings of the study are listed below under sections set out in the framework.

Strategies:

- Not all participants understand the definition of blended learning in its true form. Most believe they are already implementing blended learning, but in reality, they are just scraping the surface of what blended learning is.

- While participants understand the purpose and benefits of blended learning, they are not confident enough in the use thereof. This affects their motivation to adopt blended learning and their need to share experiences with their

colleagues, even though they admit colleagues encourage them to use blended learning.

- Other findings indicate participants need for blended learning training and being allowed time to focus on blended learning away from academic duties.

- The study also revealed the limited use of higher-level blended learning tools by participants leading to lack of confidence adopting blended learning.

Support:

- Findings in the study related to technical support reveal that participants receive rapid to moderate support from NMU HelpDesk. However, focus group participants expressed the need for blended learning experts to help with adoption.

- Most training done was centred around the LMS, Moodle. This finding shows low confidence of participants when using other online tools for blended learning.

- Participants revealed the need for time to adopt blended learning.

Structure:

- Although structure is part of the blended learning adoption framework the researcher used to organise data, no themes emerged in the findings relating to structure.

- This in itself reveals that adoption of blended learning is at an early stage for the participants and leads to recommendations for further studies.

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The study's first objective was to describe the perceptionsof blended learning by academic staff in the Faculty of Health Sciences at the Nelson Mandela University. By analysing strategies of blended learning adoption within literature and the study results, this objective was met. The second objective of the study was to identify academic staff perceptions about the factors affecting incorporation of a blended learning approach into learning and teaching practices of the Faculty of Health Sciences at the Nelson Mandela University. The researcher identified factors affecting incorporation of blended learning within all three support themes: technical, pedagogical and incentives.

The researcher has built on the body of knowledge about the use of blended learning, specifically within the Faculty of Health Sciences at Nelson Mandela University. In the next section, the researcher provides some insight into what implications the study could have.

6.3 Recommendations

This study has contributed toward knowledge about strategy, support and structure related to current use of blended learning by academic staff in the Faculty of Health Sciences at Nelson Mandela University. This knowledge contribution might help to augment existing strategies, support, and structure for blended learning adoption within the Faculty.

For blended learning to be adopted on a deeper level, the faculty might consider creating incentive opportunities for staff. Central to this would be opportunities to have time away from academic responsibilities to attend blended learning design training that moves beyond training on the use of basic tools. To formalise this process into a Short Learning Programme (SLP) might be an idea, where academic staff would gain

knowledge but have something to show for it. In this way, staff would experience the true definition of blended learning and be empowered to apply it to their modules' design.

Faculty and departments should consider ways to encourage advocacy amongst colleagues and share ideas about why and how they are applying blended learning to their teaching.

On an institutional level, the University should refine what blended learning is and possibly develop blended learning models to be applied to various modules. While understanding that each module may have different needs to learning outcomes, some similar modules could be looked at together across multiple departments, such as clinical training and work-based learning.

It would be remiss of the researcher if the implications of the changing teaching environment in 2020 due to COVID were not mentioned. Adoption of blended learning in the faculty is no longer a choice, but a necessity. 'Forced readiness' is how a participant in a study assessing faculty readiness for online crisis teaching during Covid-19 described the rapid conversion to online teaching (Cutri et al., 2020). The time for departments, faculty, and institutions to implement blended learning models, incentives, training, and other strategies is now. Academic staff have been confronted with a difficult situation. While they might have had a stressful time learning how to cope, it should be said that academic staff have been exposed to online teaching on a level that would not naturally have happened and should be able to adopt blended learning on a much deeper level. However, the structure is necessary to move to more mature stages of blended learning adoption within the institution.

The researcher believes there is scope for further studies. to explore factors affecting students perceptions of blended learning within the Health Sciences Faculty would be useful. Student learning styles, what motivates them and issues around access were recorded in the literature review, the focus groups and questionnaire responses. However, they were not brought into the discussion as the focus was on academic staff.

As discussed in the previous section, research looking into structure related to adopting more mature blended learning stages would provide useful insight for the University and the Faculty.

6.4 Limitations of the Study

A limitation of this study could be the response rate for the quantitative data collection instrument. Effective quantitative analysis requires bigger sample sizes than qualitative data analysis and relies on a reasonable response rate to the questionnaire. The questionnaire's response rate in this study was 40%, with 55 participants taking part out of a possible 137.

Limitations recognised by literature when using quantitative research design such as lack of depth and insider perspective are reduced by using a mixed-method approach. Data from the qualitative phase was used to add depth to the study results.

This study's results could be quite different if it were conducted again next year following the COVID-19 pandemic instead of pre-Covid-19. Staff will have a very different view of blended learning due to having to deal with online teaching in 2020.

6.5 Concluding Remarks

Academic staff use of blended learning in the Faculty of Health Sciences at Nelson Mandela University is still in the early stages of blended learning adoption. While this could be viewed as discouraging, it should rather be seen as an opportunity. since blended learning is not a new concept with technologies, resources, models, and advocacy widely researched. Developing strategies, support, and structure to take blended learning in the Faculty of Health Sciences at Nelson Mandela University to a more advanced level is achievable and very necessary in the changing face of tertiary education.

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Appendix 1

Letter for participants in Focus Group

NELS●N M▲NDELA

UNIVERSITY

Department of Pharmacy

Nelson Mandela University

Tel: (041) 504-2128

Fax: (041) 504-2744

Email of researcher: janet.barry@mandela.ac.za

Date: 12 March 2019

Ref: H18-HEA-PHA-005

Contact person: Janet Barry

Dear Participant

You are invited to take part Phase 1 of a Masters research study (REC-H Reference number to be inserted once approval has been granted) which aims to explore factors affecting Faculty of Health Sciences academic staff use of blended learning in order to optimise the use of blended learning methods available at Nelson Mandela University. This research project is being conducted by Janet Barry at the Nelson Mandela University, Port Elizabeth

During phase 1 of the study, the researcher will conduct focus groups aiming to help develop a reliable questionnaire (phase 2) to identify factors affecting Faculty of Health Sciences academic staff use of blended learning. Your participation in the focus group would be greatly appreciated. The focus group discussion will take no longer than two hours and will be conducted at Nelson Mandela University in Port Elizabeth.

Participation is entirely voluntary and you are under no pressure to participate. There might be more senior colleagues in your group, but that this could be advantageous to the group as a whole and therefore no exclusion will be practiced. You also have the right to leave the focus group discussion at any time during the session. You will be asked to provide consent by signing a consent form

Voice recorders will be used during the focus group session and confidentiality and anonymity will be ensured using codes instead of their names during transcription from the voice recorders. Data collected will be transcribed and checked by a third party, not linked to the faculty. Participants will be given the opportunity to review the transcripts of the focus group discussions to ensure their anonymity is preserved. Participants will be given the opportunity to remove any contributions he/she has made during the focus group discussion. The recordings will be deleted after completion of the study.

This study has been approved by the Research Ethics Committee (Human) (Rec-H) of Nelson Mandela University.

Your participation is very important so as to be able to construct a questionnaire that is of high quality being both clear and unambiguous.

Yours sincerely,

Janet Barry (Principal Investigator)

Appendix 2

Focus Group Preamble

NELS●N M▲NDELA
UNIVERSITY

Department of Pharmacy

Nelson Mandela University

Tel: (041) 504-2128

Fax: (041) 504-2744

Email of researcher: janet.barry@mandela.ac.za

Date: _____

Ethics clearance reference number: H18-HEA-PHA-005

Contact person: Janet Barry

Dear Participant

You are invited to participate in a focus group which aims to help develop a reliable questionnaire that will be distributed to health science staff at Nelson Mandela University in order to identify the extent of use of blended learning and the factors affecting use of blended learning by the participants of the study. A focus group is a planned and controlled discussion designed to capture perceptions on a particular topic in a nonthreatening environment.

Participation is entirely voluntary and you are under no pressure to participate. You also have the right to leave the focus group discussion at any time during the session. You will be asked to provide consent by signing a consent form.

Voice recorders will be used during the focus group session and confidentiality and anonymity will be ensured using codes instead of their names during transcription from the voice recorders. The recordings will be deleted after completion of the study.

This study has been approved by the Research Ethics Committee (Human) (Rec-H) of Nelson Mandela University.

Your participation is very important so as to be able to construct a questionnaire that is of high quality being both clear and unambiguous.

Yours sincerely,

Janet Barry (Principal Investigator)

Appendix 3

Focus Group consent form

NELS●N MΛNDELA
UNIVERSITY

Department of Pharmacy

Nelson Mandela University

Tel: (041) 504-2128, Fax: (041) 504-2744

Email of researcher: janet.barry@mandela.ac.za

Date: 18 April 2019

Ref: H18-HEA-PHA-005

Contact person: Janet Barry

Dear Participant

Phase 1 Focus Group: INFORMED CONSENT FORM

I, ..., hereby confirm my participation in the focus group undertaken by Janet Barry (principal investigator) of the Department of Pharmacy in Faculty of Health Sciences at Nelson Mandela University.

The following information has been explained to me:

- The aim of this focus group is to help develop a reliable questionnaire that will be distributed to health science staff at Nelson Mandela University in order to explore the extent of use of blended learning and factors affecting use of blended learning by participants in the study.
- The focus group discussion will take approximately 2 hours and no longer.
- There are no known risks.
- My right of confidentiality as a participant in this focus group is ensured as codes will be used instead of names during transcription of data and no participant identifiers will be linked to data. Each participant will also be asked to record ideas on post-it notes which will be used as artefacts for the study. Data collected will be transcribed and checked by a third party, not linked to the faculty. I will be given the opportunity to review the transcripts of the focus group discussions to ensure my anonymity is preserved, and given an option te remove any comments that I do not want included in the study. The voice recordings will be deleted after the study is complete.
- I am participating in this focus group voluntarily, no pressure has been exerted on me to take part and I am aware that I may leave the focus group discussion at any time.
- I have not received any remuneration in exchange for participation in this study.
- I know that a voice recorder will be used during the session and that recorded data will be used for transcription purposes only, ensuring confidentiality at all times.
- I will not incur any cost to participate in this focus group.

I, ..., hereby voluntarily consent to participate in the focus group as part of the study: "Use Of Blended Learning By Academic Staff In The Health Sciences Faculty At Nelson Mandela University".

Signed and confirmed at .... on 2018

_____   _____   _____

(Participant)   (Principal Investigator)   (Witness)

Appendix 4

Review of ATLAS.ti® Qualitative Analysis – Dr Tim Pittaway

1. PRIMARY QUOTATIONS IDENTIFIED ON TRANSCRIPTS

The researcher has identified the primary quotations for coding analysis and representative statements.

2.1 DEFINITIONS/UNDERSTANDING OF BLENDED LEARNING

ID	Document	Name	Density
< > 2:1	Intro_FG1_Definition	combining your normal didactic methods of teaching with more online mu...	3
< 2:4	Intro_FG1_Definition	electronic methods when you look at assessment of understanding	3
2:5	Intro_FG1_Definition	initially thought Moodle	1
2:7	Intro_FG1_Definition	more accessible, wherever you are so students can use any gadgets and...	6
2:15	Intro_FG1_Definition	developing word clouds during classes based on what the class might be...	1
> 2:11	Intro_FG1_Definition	Ja, also my understanding is also videos, that sort of thing, apps – t...	2
2:6	Intro_FG1_Definition	minimises contact sessions, between the educator and the students	2
2:16	Intro_FG1_Definition	current generation of young people, um, are more used to working onlin...	1
< 2:2	Intro_FG1_Definition	trying to explore using videos and those sorts of multi-media in class	2
2:10	Intro_FG1_Definition	I just want to emphasise on the part shes saying its about engaging th...	2
> 2:3	Intro_FG1_Definition	engage with the students through those elcectronic platforms	2
< 2:8	Intro_FG1_Definition	interactive place where you actually use that instead of traditional t...	2
6:8	Intro_FG2_Definition	I just said that it is to use different types of learning platforms an...	1
6:1	Intro_FG2_Definition	way of using lots of different teaching styles to meet lots of differe...	1
6:4	Intro_FG2_Definition	in my view should allow studying in a formal and also informal environ...	1
6:3	Intro_FG2_Definition	different ways of studying because different personalities.....some are...	1
> 6:7	Intro_FG2_Definition	everything that is away from face to face	2
6:6	Intro_FG2_Definition	so at some stage there needs to be a facilitator or teacher present so...	1
< 6:2	Intro_FG2_Definition	2 diagrams with the bit in the middle that overlaps and I see the BL a...	3
< 6:5	Intro_FG2_Definition	Yes, I was just saying that using a digital tech platform and you can...	2

Other quotations to consider for coding:

a)   What training has influenced understanding: 2:24 "I haven't really explored it too much, but just from what I have heard in a workshop that I attended last year"

b)   What teaching is not part of Blended Learning: 2:25 "that its like you said, that its actually not just posting your slides on Moodle"

2.2 FEELINGS TOWARDS BLENDED LEARNING

ID	Document	Name	Density
3:11	Q1_FG1_Feelings	department, so if your own HOD feels like you are trying to be too cre...	1
3:4	Q1_FG1_Feelings	Don't want to look incompetent in front of my students	1
3:1	Q1_FG1_Feelings	some students come from places where there's rarely technology – and t...	2
3:10	Q1_FG1_Feelings	in a lecture, unsure and also unsupported kindof like you don't have b...	1
3:2	Q1_FG1_Feelings	have used is the most basic of BL Moodle	1
3:22	Q1_FG1_Feelings	I sometimes feel that I am forcing something because management and in...	1
3:8	Q1_FG1_Feelings	BL is another platform where we can get challenged about gadgets and d...	1
3:16	Q1_FG1_Feelings	am quite positive and excited about it	1
3:5	Q1_FG1_Feelings	oh your old lecturer is battling here, would some young person come an...	2
3:26	Q1_FG1_Feelings	But when it worked, it was very powerful	1
3:18	Q1_FG1_Feelings	a lot of our feeling and a lot of our techniques that we want to use i...	1
3:20	Q1_FG1_Feelings	So still using didactive techniques, but for those that are comfortabl...	1
3:15	Q1_FG1_Feelings	They get the tools, because I know we send our students for training,...	1
3:19	Q1_FG1_Feelings	then that's going to affect our feeling around BL as well, so I feel I...	1
3:7	Q1_FG1_Feelings	the university should actually support us more	1
3:9	Q1_FG1_Feelings	I think we are not ready, as the institution, we not ready because we...	1
3:13	Q1_FG1_Feelings	What we need to be teaching students, is how to find information, inte...	1
3:27	Q1_FG1_Feelings	atmosphere in the class, what they got out of it, what was in the refl...	1
3:6	Q1_FG1_Feelings	I am so stressed, I am like oh was it really worth it?	1
3:21	Q1_FG1_Feelings	students are saying please don't use it, or that's what I am getting f...	1
3:14	Q1_FG1_Feelings	I was actually quite shocked because when I give some kind of online a...	1
3:25	Q1_FG1_Feelings	Because it is in a venue that does not allow for this. So then I had...	1
3:23	Q1_FG1_Feelings	I have learnt a lot about technology, but it's still stressful	1
3:12	Q1_FG1_Feelings	the talk is there in the institution, but the action part is nowhere c...	1
3:17	Q1_FG1_Feelings	I think I am also very hopeful about the potential it could have	1
3:24	Q1_FG1_Feelings	one of the modules I am doing, it's just a simple thing I am doing, I...	1
7:11	Q1_FG2_Feelings	also pictured other students, not ours, but high school students who a...	1
7:10	Q1_FG2_Feelings	there is some concerns and as she was saying the students, although th...	1
7:9	Q1_FG2_Feelings	excited about the whole thing and I actually went in there with everyt...	1
7:6	Q1_FG2_Feelings	So I think it's a must and I am positive about the way forward	1
7:7	Q1_FG2_Feelings	excited. Because I think there is definitely a need for it and I can...	1
7:8	Q1_FG2_Feelings	unsure...where you not 100% sure how it's going to work. I always joke...	1
7:2	Q1_FG2_Feelings	interesting dynamic, quite exciting feel, so if one wants to feel, one...	1
7:15	Q1_FG2_Feelings	But it's got its limitations, you can't do everything online	1
> 7:13	Q1_FG2_Feelings	technology enhanced teaching	2
7:14	Q1_FG2_Feelings	I love BL. In the classroom – well I have embraced it so it's working...	1
7:4	Q1_FG2_Feelings	I am positive and hopeful that it will allow more access to informatio...	1
> 7:12	Q1_FG2_Feelings	blend between classroom teaching and then online,	3
7:1	Q1_FG2_Feelings	It means that given our environment, given costs, the technological ag...	1
7:3	Q1_FG2_Feelings	it's a bit like climate change that is staring us in the face...but no o...	1

2.3 BARRIERS TO BLENDED LEARNING

ID	Document	Name	Density
4:1	Q2_FG1_Barriers	walking away feeling relieved – I am not on my own on this journey, we...	1
4:2	Q2_FG1_Barriers	oh dear I am going to be the only one not using it properly, everyone...	1
4:3	Q2_FG1_Barriers	I am willing to spend my whole life online, but when it comes to schoo...	1
4:4	Q2_FG1_Barriers	we need to work towards with our students, that they don't separate th...	1
4:5	Q2_FG1_Barriers	bring life and what I am studying together,	1
4:6	Q2_FG1_Barriers	Masters students are all in the workplace, they have all worked for a...	1
4:7	Q2_FG1_Barriers	easier to do something online than what you write, but when you have u...	1
4:8	Q2_FG1_Barriers	school does not support is not...or their curriculum at school is not al...	2
4:9	Q2_FG1_Barriers	Masters group now that is battling to the core with everything. Just...	1
4:10	Q2_FG1_Barriers	For BL you need a lot of self-initiative and discipline because someon...	1
4:11	Q2_FG1_Barriers	everyone doesn't have equal access to those online platforms to engage...	1
4:12	Q2_FG1_Barriers	So if there is an online forum and you attach marks to that they would...	1
4:13	Q2_FG1_Barriers	Fees must Fall started that everyone must use BL. So we received a nu...	1
4:14	Q2_FG1_Barriers	And now those people have left and to my knowledge there is a void now...	1
4:15	Q2_FG1_Barriers	now there is nobody to call. So you would log a call with the Helpdes...	1
4:16	Q2_FG1_Barriers	module maintenance might also be a training thing	1
4:17	Q2_FG1_Barriers	part of the whole BL, the emailing of the students	1
4:18	Q2_FG1_Barriers	we are not IT, we are actually academics, believe it or not, but we se...	2
4:19	Q2_FG1_Barriers	if you phone 3000, you are either going to be transferred from another...	1
4:21	Q2_FG1_Barriers	as a new staff member, I received no training on Moodle, I had to figu...	1
4:22	Q2_FG1_Barriers	sort of features that could potentially be useful but we just actually...	1
4:23	Q2_FG1_Barriers	Even class attendance you can do on Moodle	1
4:24	Q2_FG1_Barriers	It's a very powerful tool, but you are not using it to the full extent...	1
4:25	Q2_FG1_Barriers	venues on North campus, so we know the venues don't have much, so we...	1
4:26	Q2_FG1_Barriers	our classrooms are built for didactic teaching. They are not built fo...	1
4:27	Q2_FG1_Barriers	no we don't get recognition for anything	1
4:28	Q2_FG1_Barriers	they don't even know that I am using it	1
4:29	Q2_FG1_Barriers	you don't come out of the classroom and say "I am the BL queen"	1
4:30	Q2_FG1_Barriers	I think there would perhaps be more time for discussions and just tryi...	1
4:31	Q2_FG1_Barriers	But I think the only recognition you could potentially get is from the...	1
4:32	Q2_FG1_Barriers	you try so hard and you think, someone must have enjoyed that. Please...	2
4:33	Q2_FG1_Barriers	if it's based on Moodle, do a little survey, I did it last year, it wa...	1
4:34	Q2_FG1_Barriers	so anything that is technologically advanced, she is against it, total...	1
4:35	Q2_FG1_Barriers	So then you know the key staff member who should be promoting it is ac...	1
4:36	Q2_FG1_Barriers	I posted my slides on Moodle	1
4:37	Q2_FG1_Barriers	Voice over lectures during this time	1
4:38	Q2_FG1_Barriers	we are supposed to have research supervision, so we have just said to...	1
4:39	Q2_FG1_Barriers	if I don't have a background of a computer, chances of me accepting of...	1
4:40	Q2_FG1_Barriers	sometimes it takes longer to prepare a BL	1

2.4 FACILITATED THE USE OF BLENDED LEARNING

ID	Document	Name	Density
5:36	Q3_FG1_Facilitators	I was saying that I wish the university could work forward and get all...	1
5:38	Q3_FG1_Facilitators	computer labs are quite good, the problem is the number of students we...	1
5:25	Q3_FG1_Facilitators	Because some of the people are really good, but not wanting to share,...	3
5:23	Q3_FG1_Facilitators	think the only real interaction is if you do have someone you are clos...	1
5:5	Q3_FG1_Facilitators	I found the same thing with my masters which was open book, I would br...	0
5:11	Q3_FG1_Facilitators	way things are done at varsity and the way things are done in real lif...	1
5:20	Q3_FG1_Facilitators	people working in this are kind of like minded type of lecturers, it's...	2
5:22	Q3_FG1_Facilitators	Encouragement from colleagues is something that the researcher wanted...	1
5:9	Q3_FG1_Facilitators	But if they can see a picture of how that actually looks, what we are...	1
5:10	Q3_FG1_Facilitators	I found an app online where you could actually, there is a little char...	1
5:...	Q3_FG1_Facilitators	also...academics are very competitive. So it's like if you share what y...	3
5:...	Q3_FG1_Facilitators	was quite surprised when I started working here. I didn't think of it...	5
5:1	Q3_FG1_Facilitators	our IT support at University is flippen awesome, it's really fantastic	1
5:15	Q3_FG1_Facilitators	And one of the plans that we had made to bring our department up to st...	1
5:13	Q3_FG1_Facilitators	Responding to different learning styles	1
5:37	Q3_FG1_Facilitators	although there are computer labs, students can always go to computer l...	1
5:12	Q3_FG1_Facilitators	We did experience some problems, because not all of their laptops were...	1
5:39	Q3_FG1_Facilitators	2 people have resigned, they were the only people who presented the to...	2
5:4	Q3_FG1_Facilitators	When I was an undergrad – 4th year, for our open book test, we had to...	1
5:2	Q3_FG1_Facilitators	they cover quite a few departments	1
5:34	Q3_FG1_Facilitators	the links have data issues because then they will have to be online fo...	1
5:28	Q3_FG1_Facilitators	no we have to be on campus when our lectures start at 745 and I lectur...	1
5:18	Q3_FG1_Facilitators	but just hearing from colleagues that they have had positive feedback...	1
5:29	Q3_FG1_Facilitators	some staff in our department are saying who is going to pay for the da...	1
5:21	Q3_FG1_Facilitators	it's clear there is a positive support, although we say it's not enoug...	1
5:27	Q3_FG1_Facilitators	makes some academics feel then why must I like do BL, because I am con...	1
5:16	Q3_FG1_Facilitators	Hermien coming in to do workshops with us, so it wasn't just thrown ou...	1
5:30	Q3_FG1_Facilitators	it's supposed to make our lives easier, but it doesn't seem like it's...	1

Further quotations to consider for coding:

a) Student adoption, prepardness and attitude towards Blemded Learning. 4:49 "Student readiness, student separation of life and academics, student access, resistant to change (students), resource limitations (students which may in their use of BL techniques out of contact sessions".4:50 "Students that they are not positive about BL, or Moodle specifically

b) Availablbilty of digital devices 4:51 "students are not allowed any digital devises when they are at their workplaces"

5:31	Q3_FG1_Facilitators	the university is not well equipped, for instance, today, if any of us...			2
5:8	Q3_FG1_Facilitators	YouTube and you can do almost anything, you can find so many amazing v...			1
5:33	Q3_FG1_Facilitators	end up removing all your images from your student versions and then th...			1
5:7	Q3_FG1_Facilitators	my experience as a student, I think I enjoyed the online quiz and test...			1
5:17	Q3_FG1_Facilitators	We do have many of the resources that we need. We just have to find m...			1
5:14	Q3_FG1_Facilitators	it was like what she said, some people want to hear, some people want...			1
5:32	Q3_FG1_Facilitators	So some of the students may be connected to BL, and some aren't, so yo...			2
5:19	Q3_FG1_Facilitators	from other universities and other institutions that helped me a lot....			1
5:35	Q3_FG1_Facilitators	then students will come to you and there laptop was stolen.			1
5:3	Q3_FG1_Facilitators	passion to teaching and learning is what drove me to loving BL because...			3
5:6	Q3_FG1_Facilitators	so I used it as a student, so when I became a lecturer – I enjoyed it...			2
10:18	Q3_FG2_Facilitators	I think having the support of the management makes a huge difference,...			1
10:34	Q3_FG2_Facilitators	if we didn't have this high workload, we would be able to focus more o...			1
10:27	Q3_FG2_Facilitators	but the thing is with these worksheets- it doesn't matter where you g...			1
10:37	Q3_FG2_Facilitators	I think that BL adds to the workload initially,			5
10:13	Q3_FG2_Facilitators	we have a Moodle site for that, but people don't use it, and they don'...			2
10:17	Q3_FG2_Facilitators	I know that positive personal experience, you don't know what can be d...			3
10:22	Q3_FG2_Facilitators	did voice over not now – during the Fees Must Fall a few years ago. I...			1
10:6	Q3_FG2_Facilitators	that is exactly where you need the help from Korslaar and her assistan...			1
10:38	Q3_FG2_Facilitators	but as human beings we should have the end result in mind, its not onl...			3
10:30	Q3_FG2_Facilitators	I think it should become mandatory – at this point its optional and yo...			1
10:14	Q3_FG2_Facilitators	I went to a lecture on artificial intelligence....so they said, imagine...			2
10:9	Q3_FG2_Facilitators	so I started from the beginning again when I got from someone else. I...			1
10:33	Q3_FG2_Facilitators	The posts in the department – if people leave or retire....the posts are...			1
10:10	Q3_FG2_Facilitators	so I have my own style, I don't want to use other peoples, so I also r...			1
10:8	Q3_FG2_Facilitators	was on sabbatical leave for 6 months, and I paid other lecturers to te...			1
10:19	Q3_FG2_Facilitators	my HOD, she supported me, and said just run with it....			1
10:33	Q3_FG2_Facilitators	The posts in the department – if people leave or retire....the posts are...			1
10:10	Q3_FG2_Facilitators	so I have my own style, I don't want to use other peoples, so I also r...			1
10:8	Q3_FG2_Facilitators	was on sabbatical leave for 6 months, and I paid other lecturers to te...			1
10:19	Q3_FG2_Facilitators	my HOD, she supported me, and said just run with it....			1
10:20	Q3_FG2_Facilitators	now I struggle to get the other people to run with me because it takes...			2
10:36	Q3_FG2_Facilitators	look we past that already. And I think to myself for the 2020 vision.......			1
10:11	Q3_FG2_Facilitators	what I think is that if you have somebody elses, its accessible to you...			1
10:31	Q3_FG2_Facilitators	but I saw the problem is with BL – people want to still teach in the c...			2
10:12	Q3_FG2_Facilitators	where we are supposed to put all our stuff...so in our department we are...			1
10:35	Q3_FG2_Facilitators	but even at school – the grade 1's are even getting tablets, and I thi...			2
10:28	Q3_FG2_Facilitators	I am thinking about Moodle when they use those URL, you know from 2016...			2
10:4	Q3_FG2_Facilitators	it takes a lot of time now, but next year...I just open and close those...			1
10:16	Q3_FG2_Facilitators	different types of students different learning, so the last section he...			1
10:7	Q3_FG2_Facilitators	so I started from the beginning again when I got from someone else. I...			1
10:2	Q3_FG2_Facilitators	we received funding...to test laptops...because they initially said to us...			1
10:26	Q3_FG2_Facilitators	I do worry when doing that that there is always that group of students...			1
10:5	Q3_FG2_Facilitators	I struggle to transfer between different Moodle sites			1
10:25	Q3_FG2_Facilitators	my students too – I sent them some worksheets by email. I didn't go v...			1
10:21	Q3_FG2_Facilitators	But I find that another benefit is that, I used to have MCQ, and then...			2
10:29	Q3_FG2_Facilitators	I hope they are going to fill and expand the BL posts – like 1 or 2 pe...			2
10:32	Q3_FG2_Facilitators	and it will help them in the work environment			1
10:1	Q3_FG2_Facilitators	so its just with submissions of practicals and assignments and things,...			2
10:15	Q3_FG2_Facilitators	it helps quite a lot, like Primal Pictures – especially the first 3 mo...			1
10:3	Q3_FG2_Facilitators	so once I have put an assignment on Moodle ...at the end I just have to...			1
10:24	Q3_FG2_Facilitators	I definitely used it, because I realised on Tuesday night that there w...			1
10:23	Q3_FG2_Facilitators	problems though, if the file got too big then they couldn't access it,...			1

2.5 FURTHER QUOTATIONS TO CONSIDER FOR CODING:

a)   Technical know-how and institutional memory on how BL learning techniques could be lost with staff leaving.
5:39 "two people have resigned, they were the only people who presented the topic that I lecture, so I am alone, don't have anyone to talk to. So for me that's the reason"

2.6 ORPHANED QUOTATIONS NOT CODED.

Document 5

Participant 3 I found the same thing with my masters which was open book, I would bring my ipad

Then you have the whole planet that you can extract from, saying that you don't bring it in, but you have way more that you can pull from

Document 8

Facilitator good

Lemon something else which I didn't put up there...but which might be a slightly different stance, is quite a lot depends on the lecturer personalities...some would take more to wanting to use BL, technology. And secondly I lecture just a small amount, I am involved in coordinating and doing other things most of the time, and those who are contracts or guest lecturers, certainly if you are full time you might be more likely to get involved, even using Moodle. If you give perhaps half a module or 10 lectures a year, you might not use that if you are a guest lecturer and this is also important.

3. CODING APPLICATION ON TRANSCRIPTS

3.1 CODES: DEFINITIONS/UNDERSTANDING OF BLENDED LEARNING

	IntroDefinition Gr=31; GS=2		Totals
	Absolute	Column-relative	Absolute
● **Intro_combine online didactic**Gr=7	6	15.39%	6
● **Intro_Tools**Gr=8	6	15.39%	6
○ **Intro_different learning styles**Gr=10	5	12.82%	5
● **Intro_engaging**Gr=5	5	12.82%	5
○ **Intro_flexibility**Gr=2	2	5.13%	2
○ **electronic assessments**Gr=1	1	2.56%	1
● **Facilitator_different learning styles**Gr=5	1	2.56%	1
○ **I_accessability**Gr=1	1	2.56%	1
○ **I_electronic platforms**Gr=1	1	2.56%	1
○ **I_everything online**Gr=1	1	2.56%	1
○ **I_gadgets**Gr=1	1	2.56%	1
○ **I_lack understanding**Gr=1	1	2.56%	1
○ **I_minimising contact students**Gr=1	1	2.56%	1
○ **I_mix class room and technology**Gr=1	1	2.56%	1
○ **I_Moodle**Gr=1	1	2.56%	1
○ **I_more visual**Gr=1	1	2.56%	1
○ **I_videos and visual**Gr=1	1	2.56%	1
○ **I_young generation**Gr=1	1	2.56%	1
○ **Intro_Training**Gr=1	1	2.56%	1
○ **Intro_What BL is not**Gr=1	1	2.56%	1
Totals	39	100.00%	39

Main codes allocated for BL definitions identified. The researcher has interpreted and allocated codes accordingly. Recurring themes identified; in the manner of instruction, tools used, learning styles and engaging students.

3.2 CODES: FEELINGS TOWARDS BLENDED LEARNING

	Feelings of BL Gr=44; GS=2		Totals
	Absolute	Column-relative	Absolute
○ **Opinion of BL_Excited**Gr=10	10	21.74%	10
○ **Opinion of BL_Fear**Gr=7	6	13.04%	6
○ **Opinion of BL_Challenging**Gr=4	4	8.70%	4
○ **Opinion of BL_Support from NMU**Gr=5	4	8.70%	4
○ **Opinion of BL_student feedback**Gr=3	3	6.52%	3
● **Barrier_Student ability**Gr=2	2	4.35%	2
● **Barrier_Student attitude**Gr=14	2	4.35%	2
○ **Intro_different learning styles**Gr=10	2	4.35%	2
○ **Opinion of BL_ideal teaching with BL**Gr=9	2	4.35%	2
○ **Opinion of BL_support from dept**Gr=2	2	4.35%	2
○ **_inadequate**Gr=1	1	2.17%	1
○ **_Scared**Gr=1	1	2.17%	1
○ **_stressed**Gr=1	1	2.17%	1
● **Barrier_Student background**Gr=6	1	2.17%	1
● **Barriers_Infrastructure, access, equipment**Gr=14	1	2.17%	1
● **Facilitator_Personal experience**Gr=21	1	2.17%	1
● **Intro_combine online didactic**Gr=7	1	2.17%	1
● **Intro_Tools**Gr=8	1	2.17%	1
○ **Opinion of BL_Basic use of BL**Gr=2	1	2.17%	1
Totals	46	100.00%	46

Main codes allocated for BL feelings identified. The researcher has interpreted and allocated codes accordingly. Recurring themes identified, main feelings, support and student influences.

3.3 CODES: BARRIERS TO BLENDED LEARNING

	Barriers Gr=86; GS=2		Totals
	Absolute	Column-relative	Absolute
● **Barrier_Support lacking from NMU**Gr=20	17	17.89%	17
● **Barrier_Training**Gr=16	12	12.63%	12
● **Barrier_Student attitude**Gr=14	9	9.47%	9
● **Barrier_time**Gr=13	9	9.47%	9
● **Facilitator_Personal experience**Gr=21	7	7.37%	7
● **Barriers_Infrastructure, access, equipment**Gr=14	6	6.32%	6
● **Barriers_security of material and cheating**Gr=6	5	5.26%	5
● **Barrier_Student background**Gr=6	4	4.21%	4
○ **Opinion of BL_ideal teaching with BL**Gr=9	4	4.21%	4
○ **Intro_different learning styles**Gr=10	3	3.16%	3
● **Barrier_workload**Gr=7	2	2.11%	2
● **Facilitator_Support**Gr=13	2	2.11%	2
● **Facilitator_time saving**Gr=5	2	2.11%	2
● **Facilitators_student maturity**Gr=3	2	2.11%	2
○ **FG Feedback_**Gr=2	2	2.11%	2
○ **Bar_ student digital devices**Gr=1	1	1.05%	1
○ **Bar_student adoption of BL**Gr=1	1	1.05%	1
○ **Bar_student attitude towards**Gr=1	1	1.05%	1
● **Barrier_staff motivation**Gr=4	1	1.05%	1
● **Facilitator_student appreciation**Gr=2	1	1.05%	1
● **Intro_Tools**Gr=8	1	1.05%	1
○ **Opinion of BL_Basic use of BL**Gr=2	1	1.05%	1
○ **Opinion of BL_Fear**Gr=7	1	1.05%	1
○ **Opinion of BL_Support from NMU**Gr=5	1	1.05%	1
Totals	95	100.00%	95

Main codes allocated for BL barriers identified. The researcher has interpreted and allocated codes accordingly. Recurring themes identified, lack of support, training, student attitude and time.

3.4 CODES: FACILITATED THE USE OF BLENDED LEARNING

	Facilitators Gr=77; GS=2		Totals
	Absolute	Column-relative	Absolute
● **Facilitator_Personal experience**Gr=21	13	13.98%	13
● **Facilitator_Support**Gr=13	11	11.83%	11
● **Barriers_Infrastructure, access, equipment**Gr=14	7	7.53%	7
● **Facilitator_convenience**Gr=7	7	7.53%	7
● **Facilitator_technology**Gr=7	7	7.53%	7
● **Barrier_workload**Gr=7	5	5.38%	5
● **Barrier_time**Gr=13	4	4.30%	4
● **Barrier_Training**Gr=16	4	4.30%	4
● **Facilitator_different learning styles**Gr=5	4	4.30%	4
● **Facilitator_training**Gr=4	4	4.30%	4
● **Barrier_staff motivation**Gr=4	3	3.23%	3
● **Barrier_Student attitude**Gr=14	3	3.23%	3
● **Barrier_Support lacking from NMU**Gr=20	3	3.23%	3
● **Facilitator_real world examples**Gr=3	3	3.23%	3
● **Facilitator_Resources**Gr=3	3	3.23%	3
● **Facilitator_time saving**Gr=5	3	3.23%	3
○ **Opinion of BL_ideal teaching with BL**Gr=9	3	3.23%	3
● **Barrier_Student background**Gr=6	1	1.08%	1
● **Barriers_security of material and cheating**Gr=6	1	1.08%	1
○ **Fac_alone**Gr=1	1	1.08%	1
○ **Fac_staff loss**Gr=1	1	1.08%	1
● **Facilitator_student appreciation**Gr=2	1	1.08%	1
● **Facilitators_student maturity**Gr=3	1	1.08%	1
Totals	93	100.00%	93

Main codes allocated for facilitation of BL identified. Researcher has interpreted and allocated codes accordingly. Recurring themes identified, personal experiences, infrastructure support, convenience, technology, workload and time.

4. CODING TABLE

	Code	Grounded
●	Facilitator_Personal experience	21
●	Barrier_Support lacking from NMU	20
●	Barrier_Training	16
●	Barriers_Infrastructure, access, equipment	14
●	Barrier_Student attitude	14
●	Barrier_time	13
●	Facilitator_Support	13
○	Opinion of BL_Excited	10
○	Opinion of BL_ideal teaching with BL	9
○	Intro_different learning styles	9
●	Facilitator_technology	7
●	Barrier_workload	7
○	Opinion of BL_Fear	7
●	Facilitator_convenience	7
●	Intro_Tools	7
●	Intro_combine online didactic	6
●	Barriers_security of material and cheating	6
●	Barrier_Student background	6
●	Intro_engaging	5
○	Opinion of BL_Support from NMU	5
●	Facilitator_time saving	5
●	Facilitator_different learning styles	5
●	Barrier_staff motivation	4
○	Opinion of BL_Challenging	4
●	Facilitator_training	4
●	Facilitators_student maturity	3
○	Opinion of BL_student feedback	3
●	Facilitator_real world examples	3
●	Facilitator_Resources	3
●	Barrier_Student ability	2
○	FG Feedback_	2
○	Opinion of BL_support from dept	2
●	Facilitator_student appreciation	2
○	Opinion of BL_Basic use of BL	2
○	Intro_flexibility	1

5. CODE AND QUOTATION TABLE

This section is not included in the appendix, but is available on request by examiner

6. CODE DOCUMENT CO-OCCURRENCE TABLE

	Barriers Gr= 86; GS= 2	Facilit ators Gr=77 ; GS=2	Feelin gs of BL Gr=44 ; GS=2	Intro Defini tion Gr=31 ; GS=2	Total s
● **Facilitator_Personal experience Gr=21**	7	13	1	0	21
● **Barrier_Support lacking from NMU Gr=20**	17	3	0	0	20
● **Barrier_Training Gr=16**	12	4	0	0	16
● **Barrier_Student attitude Gr=14**	9	3	2	0	14
● **Barriers_Infrastructure, access, equipment Gr=14**	6	7	1	0	14
● **Barrier_time Gr=13**	9	4	0	0	13
● **Facilitator_Support Gr=13**	2	11	0	0	13
○ **Intro_different learning styles Gr=10**	3	0	2	5	10
○ **Opinion of BL_Excited Gr=10**	0	0	10	0	10
○ **Opinion of BL_ideal teaching with BL Gr=9**	4	3	2	0	9
● **Intro_Tools Gr=8**	1	0	1	6	8
● **Barrier_workload Gr=7**	2	5	0	0	7
● **Facilitator_convenience Gr=7**	0	7	0	0	7
● **Facilitator_technology Gr=7**	0	7	0	0	7
● **Intro_combine online didactic Gr=7**	0	0	1	6	7
○ **Opinion of BL_Fear Gr=7**	1	0	6	0	7
● **Barrier_Student background Gr=6**	4	1	1	0	6
● **Barriers_security of material and cheating Gr=6**	5	1	0	0	6
● **Facilitator_different learning styles Gr=5**	0	4	0	1	5
● **Facilitator_time saving Gr=5**	2	3	0	0	5
● **Intro_engaging Gr=5**	0	0	0	5	5
○ **Opinion of BL_Support from NMU Gr=5**	1	0	4	0	5
● **Barrier_staff motivation Gr=4**	1	3	0	0	4
● **Facilitator_training Gr=4**	0	4	0	0	4
○ **Opinion of BL_Challenging Gr=4**	0	0	4	0	4
● **Facilitator_real world examples Gr=3**	0	3	0	0	3
● **Facilitator_Resources Gr=3**	0	3	0	0	3
● **Facilitators_student maturity Gr=3**	2	1	0	0	3
○ **Opinion of BL_student feedback Gr=3**	0	0	3	0	3
● **Barrier_Student ability Gr=2**	0	0	2	0	2
● **Facilitator_student appreciation Gr=2**	1	1	0	0	2
○ **FG Feedback_ Gr=2**	2	0	0	0	2
○ **Intro_flexibility Gr=2**	0	0	0	2	2
○ **Opinion of BL_Basic use of BL Gr=2**	1	0	1	0	2
○ **Opinion of BL_support from dept Gr=2**	0	0	2	0	2
○ **_inadequate Gr=1**	0	0	1	0	1
○ **_Scared Gr=1**	0	0	1	0	1

○ _stressed Gr=1	0	0	1	0	1
○ Bar_ student digital devices Gr=1	1	0	0	0	1
○ Bar_student adoption of BL Gr=1	1	0	0	0	1
○ Bar_student attitude towards Gr=1	1	0	0	0	1
○ electronic assessments Gr=1	0	0	0	1	1
○ Fac_alone Gr=1	0	1	0	0	1
○ Fac_staff loss Gr=1	0	1	0	0	1
○ I_accessability Gr=1	0	0	0	1	1
○ I_electronic platforms Gr=1	0	0	0	1	1
○ I_everything online Gr=1	0	0	0	1	1
○ I_gadgets Gr=1	0	0	0	1	1
○ I_lack understanding Gr=1	0	0	0	1	1
○ I_minimising contact students Gr=1	0	0	0	1	1
○ I_mix class room and technology Gr=1	0	0	0	1	1
○ I_Moodle Gr=1	0	0	0	1	1
○ I_more visual Gr=1	0	0	0	1	1
○ I_videos and visual Gr=1	0	0	0	1	1
○ I_young generation Gr=1	0	0	0	1	1
○ Intro_Training Gr=1	0	0	0	1	1
○ Intro_What BL is not Gr=1	0	0	0	1	1

7. REPRESENTATION QUOTATIONS ON NETWORK VIEWS / TABLES

See appendix 5

8.   FINAL COMMENTS ON OUTPUTS AND FINDINGS:

I have confirmed the following recurring themes form the focus group data and that these did line up with your questionnaire. These themes should be considered for follow-on questionnaires or final discussion:

1)   Manner of teaching and instruction applicable to students.
2)   Blended Learning tools and applications used.
3)   Time and workload required for Blended Learning.
4)   Staff support and training for Blended Learning.
5)   Facilitator technical support and infrastructure at university.
6)   Student adoption and attitude to Blended Learning.

Appendix 5

ATLAS.ti® Network Views

Solutions

Staff expected to be experts

Training to use tools to their full potential

staff are trained - must walk away with actual BL activity

Moodle available without incuring data costs

opportunities to share personal experiences

dedicated staff dealing with BL

Online security - Barrier

copyright

more than posting slides with pics

links expire and students dont get the info

staff dont trust safety of tests/assignments/lectures

Students - cheating

Students not working on their own

◆ Barriers_security of material and cheating

◆ Barrier_Student ability — is part of → ◆ Barrier_Student attitude

is part of

◆ Barrier_Student background

◆ Barrier_time — is part of — ◆ Barrier_workload

◆ Barrier_Training

Barriers Student related

students background - school, traditional teaching methodsand need help adjusting to BL

environment they grew up in

ability & attitude toward BL

success or failure of BL in teaching, and can affect the facilitators use of BL

Student access not assured

AGE of the student.

Staff related Barriers

Workload - no time to develop the BL, have to do it after hours, nobody to do their work if they have to take time out of day to work on BL, initial extra workload

Training - Academics not IT experts, expected to figure it out alone, Training not at convenient time

Demotivation - Academics not sharing BL knowledge with colleagues, not getting feedback from colleagues/managers/ students on BL

Time - staffing shortage, time to do it yourself or teach others how, BL MCQ theory is time-consuming, first time setting up slow, repeating BL exercises, access, BL self taught is slower, difficult to convince staff to change to BL when they see how long it takes, dont have the time to action new knowledge, staff have 3 functions: own post grad studies....teaching...admin. Usually can only manage 2 of the 3

◆ Barrier_staff motivation

8:3 ¶ 6, support from the university side…you actually don't know who to call. in Q2_FG2_Barriers

8:17 ¶ 25, So if I have a problem I cant get hold of the Helpdesk and they normal… in Q2_FG2_Barriers

◇ Barrier_Support lacking from NMU

4:19 ¶ 48, if you phone 3000, you are either going to be transferred from another… in Q2_FG1_Barriers

4:35 ¶ 87, So then you know the key staff member who should be promoting it is ac… in Q2_FG1_Barriers

8:18 ¶ 26, but I mean its exactly the same if you have a problem with your comput… in Q2_FG2_Barriers

5:2 ¶ 6, they cover quite a few departments in Q3_FG1_Facilitators

4:34 ¶ 86, so anything that is technologically advanced, she is against it, total… in Q2_FG1_Barriers

4:14 ¶ 36, And now those people have left and to my knowledge there is a void now… in Q2_FG1_Barriers

8:13 ¶ 20, now when you actually go to them – it took me, for 1 thing, 2 weeks to… in Q2_FG2_Barriers

4:27 ¶ 73, no we don't get recognition for anything in Q2_FG1_Barriers

4:15 ¶ 36, now there is nobody to call. So you would log a call with the Helpdes… in Q2_FG1_Barriers

4:29 ¶ 77, you don't come out of the classroom and say "I am the BL queen" in Q2_FG1_Barriers

8:28 ¶ 44, do we get recognition for anything at this university? in Q2_FG2_Barriers

5:27 ¶ 50, makes some academics feel then why must I like do BL, because I am con… in Q3_FG1_Facilitators

4:31 ¶ 83, But I think the only recognition you could potentially get is from the… in Q2_FG1_Barriers

8:6 ¶ 11, its kind of like follow up assistance, so you go for a training worksh… in Q2_FG2_Barriers

4:28 ¶ 76, they don't even know that I am using it in Q2_FG1_Barriers

10:35 ¶ 54, but even at school – the grade 1's are even getting tablets, and I thi… in Q3_FG2_Facilitators

8:12 ¶ 19, what happens is like you went for training and I went for training, an… in Q2_FG2_Barriers

8:14 ¶ 21, I sent an email on the Friday and by the next Thursday, I got feedback… in Q2_FG2_Barriers

10:23 ¶ 36, problems though, if the file got too big then they couldn't access it,... in Q3_FG2_Facilitators

8:22 ¶ 33, in the rural areas, because I still have BTech students, we are only f... in Q2_FG2_Barriers

◇ Barriers_Infrastructure, access, equipment

5:34 ¶ 64, the links have data issues because then they will have to be online fo... in Q3_FG1_Facilitators

8:19 ¶ 28, I did a whole study on this, we started off with laptops, netbooks – t... in Q2_FG2_Barriers

5:38 ¶ 71, computer labs are quite good, the problem is the number of students we... in Q3_FG1_Facilitators

8:4 ¶ 7, every year Respondus needs to be updated with a new license so by the... in Q2_FG2_Barriers

4:26 ¶ 68, our classrooms are built for didactic teaching. They are not built fo... in Q2_FG1_Barriers

10:26 ¶ 40, I do worry when doing that that there is always that group of students... in Q3_FG2_Facilitators

5:29 ¶ 55, some staff in our department are saying who is going to pay for the da... in Q3_FG1_Facilitators

5:35 ¶ 65, then students will come to you and there laptop was stolen. in Q3_FG1_Facilitators

3:25 ¶ 34, Because it is in a venue that does not allow for this. So then I had... in Q1_FG1_Feelings

4:25 ¶ 67, venues on North campus, so we know the venues don't have much, so we h... in Q2_FG1_Barriers

8:21 ¶ 31, it happens more than once in a lecture where you want to play a video... in Q2_FG2_Barriers

5:31 ¶ 59, the university is not well equipped, for instance, today, if any of us... in Q3_FG1_Facilitators

---

Staff facilitators

Student appreciation - drives the process to change to BL, demonstrating TurnItIn to student

Time saving - mark in large classes - just a click of a button, invest initially to get the outcome

Convenience - submissions on record, time stamps for when handed in, share notes/lecture/module details with temporary lecturer, handover to new staff, hide info on Moodle - easy to set up and prep beforehand

◇ Facilitator_time saving

◇ Facilitator_student appreciation

◇ Facilitator_convenience

Support from NMU - facilitate

Training workshops - able to contact person who facilitated again after if you run into problems, dont know the programme can do someting until you are shown, attending workshops is NB

NMU - Computer labs avail to students on campus, Resources are available - just need support to help use it, Team to assist...dedicated to BL

Management - If they support BL, easier to change, make it mandatory, more staff will use it, give credit/recognition for BL work being done, start somewhere - must do 1 module on Moodle by due date

staff - consider the end result, with support, easier to get there

colleagues - like-minded people sharing and helping..best way

◇ Facilitator_Support

◇ Facilitator_training

Personal experience - biggest facilitator

Student to staff - Using BL/tech as a student...then starting as lecturer - more comfortable, Sharing successes

From colleagues and feedback from students - other universities use it, seeing it work

Preparing for when campus closed - having tut/worksheets ready in case there are disruptions

Examples

Movie analysis online

Apps online to show how do tasks in pracs/real world

Moodle - survey, class register, posting slides, post voice over slides, assignments

Interaction with lecturer - live chat with group

Open book exam easier

BL used to reinforce the work done in class.

◇ Facilitator_Personal experience

Technology - facilitate

Real world examples for students -show how theory and practice relate

Examples where BL worked - worksheets online when classes had to be canceled

Resources getting better all the time - data/access/ programmes

Students expecting technology...they want to use it

Resources used - YouTube, Moodle MCQ, Moodle site management, data-free sites - Moodle, Socraties, Primal Pictures, Turnitin

◇ Facilitator_technology

◇ Facilitator_real world examples

◇ Facilitator_Resources

Student facilitators

Age/level of student affects use - masters part-time students can work and do assessments/ assignments/communicate online , used BL as a student - leads to wanting to use it more as staff

Learning Styles - Catering to diff styles, using BL to reinforce what was covered in class - good for students with diff learning styles

◇ Facilitators_student maturity

◇ Facilitator_different learning styles

Appendix 6

RecH Approval

NELSON MANDELA

UNIVERSITY

PO Box 77000, Nelson Mandela University, Port Elizabeth, 6031, South Africa mandela.ac.za

Chairperson: Research Ethics Committee (Human)
Tel: +27 (0)41 504 2235
charmain.cilliers@mandela.ac.za

Ref: [H18-HEA-PHA-005] / Approval]

2 November 2018

Ms T-L Fogarty
Faculty of Health Sciences

Dear Ms Fogarty

**USE OF BLENDED LEARNING BY ACADEMIC STAFF IN THE HEALTH SCIENCES FACULTY AT
NELSON MANDELA UNIVERSITY**

PRP: Ms T-L Fogarty
PI: Ms J Barry

Your above-entitled application served at the Research Ethics Committee (Human) for approval.

The ethics clearance reference number is **H18-HEA-PHA-005** and is valid for one year. Please inform
the REC-H, via your faculty representative, if any changes (particularly in the methodology) occur
during this time.

An annual affirmation to the effect that the protocols in use are still those for which approval was
granted, will be required from you.

We wish you well with the project.

Yours sincerely

**Prof C Cilliers
Chairperson: Research Ethics Committee (Human)**

Cc: Department of Research Capacity Development
        Faculty Officer: Health Sciences

Appendix 7

RecH Extention Approval

NELSON MANDELA

UNIVERSITY

PO Box 77000, Nelson Mandela University, Port Elizabeth, 6031, South Africa mandela.ac.za

Chairperson: Research Ethics Committee (Human)
Tel: +27 (0)41 504 2347
Sharlene.Govender@mandela.ac.za

NHREC registration nr: REC-042508-025

Ref: [H18-HEA-PHA-005/ Extension]

23 March 2020

Ms T-L Fogarty
Faculty of Health Sciences
Department: Pharmacy
South Campus

Dear Ms Fogarty

USE OF BLENDED LARNING BY ACADEMIC STAFF IN THE HEALTH SCIENCES FACULTY AT NELSON MANDELA UNIVERSITY

PRP: Ms T-L Fogarty
PI: Ms J Barry

We take pleasure in informing you that the Research Ethics Committee (Human) approved the extension of data collection for protocol **H18-HEA-PHA-05** until 2020/11/21.

Please inform the REC-H, via your faculty representative, if any changes (particularly in the methodology) occur during this time. An annual affirmation to the effect that the protocols in use are still those for which approval was granted, will be required from you.

We wish you well with the project.

Yours sincerely

Dr S Govender
Chairperson: Research Ethics Committee (Human)

cc: Department of Research Capacity Development
        Faculty Officer: Health Sciences

Appendix 8

Institutional Permission Dean

NELSON MANDELA
UNIVERSITY

PO Box 77000, Nelson Mandela University, Port Elizabeth, 6031, South Africa mandela.ac.za

Summerstrand-South Campus
Faculty of Health Sciences
Office of the Executive Dean
Tel: +27 (0)41 504 2815 Fax. +27 (0)41 504 2854
Mobile: +27 82 776 6024
lungile.pepeta@mandela.ac.za
annaline.maasdorp@mandela.ac.za

11 March 2019

(Institutional permission for conducting research)
H18-HEA-PHA-005

Dear Ms J Barry

TITLE: USE OF BLENDED LEARNING BY ACADEMIC STAFF IN THE HEALTH SCIENCES
FACULTY AT NELSON MANDELA UNIVERSITY

I, Professor Lungile Pepeta, grant permission for the above mentioned study.

Kind regards

Professor Lungile Pepeta
Executive Dean
Faculty of Health Sciences

Change the World   PO Box 77000, Nelson Mandela University, Port Elizabeth, 6031, South Africa

Appendix 9

Institutional Permission DVC

NELS●N M▲NDELA
UNIVERSITY

Office of DVC Research & Engagement
Room 1706, Main Building
NMMU South Campus
Tel. +27 (0)41 504 2016/7 Fax. +27 (0)41 504 9591
Andrew.leitch@mandela.ac.za
04 March 2019

(Institutional permission for conducting research)
H18-HEA-PHA-005

Dear Ms J Barry

**TITLE: USE OF BLENDED LEARNING BY ACADEMIC STAFF IN THE HEALTH SCIENCES
FACULTY AT NELSON MANDELA UNIVERSITY**

I Professor Andrew Leitch, DVC: Research and Engagement grant permission for the above mentioned study and will act in the capacity as gatekeeper for this institutional study.

SIGNATURE:

DATE: 04 March 2019

Change the World   PO Box 77000, Nelson Mandela University, Port Elizabeth, 6031, South Africa

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Appendix 10

Phase Two Questionnaire

NELSON MANDELA
UNIVERSITY

Blended Learning Questionnaire

Dear colleague,

You are invited to take part in a research study (*H18-HEA-PHA-005/ Extension*) which aims to explore factors affecting Faculty of Health Sciences academic staff use of blended learning. This research study is trying to identify ways that can optimise the use of blended learning methods available at Nelson Mandela University. The masters study is being conducted by Janet Barry at the Nelson Mandela University, Port Elizabeth.

The procedure involves voluntary completion of an online questionnaire that will take approximately 10 to 15 minutes to complete. Your responses will be confidential and no participant identifiers will be used (e.g. name, email address or IP address). You may opt out of the study at any stage while you are filling in the questionnaire, if you wish to do so. The questionnaire consists of three sections: demographics, extent of use of blended learning, and implementing blended learning.

The results of this study will be used for research purposes only. By agreeing to participate in this study, you are granting consent to the researcher to use the anonymous data for research purposes and sharing with Nelson Mandela University.

If you have any queries about the research study, please contact the researcher, Janet Barry, e-mail address jbarry@mandela.ac.za, or telephonically 0733555092.

Electronic Consent: Please select your choice below.

By ticking "I Agree" button below you will declare that you understand the following:

·   Participation in this study is completely voluntary and I was not pressured to partake in it
·   At no time will my identity be made known in any form
·   I understand that the researcher can use the information I share as part of this research study, or any future studies

☐   I Agree

Blended Learning Questionnaire   QuestionPro

Section A   Demographics

This section will cover basic demographics which will assist the researcher in addressing the objectives of the study
(Please note that you cannot proceed unless you have selected at least one option for each question)

· What is your gender

○ Male

○ Female

· What is your age in years?

○ 18-29

○ 30-49

○ 50-64

○ over 65

· Employment status at Nelson Mandela University

○ Permanent

○ Contract

· How many years have you been at NMU or any tertiary institution?

○ 0-2

○ 3-4

○ 5-9

○ 10-19

○ 20 years or more

Blended Learning Questionnaire   QuestionPro

· What is your academic level?

○ Associate Lecturer

○ Lecturer

○ Senior Lecturer

○ Associate Professor

○ Professor

· Which of the following are you responsible for (you may chose more than 1 response)?

☐ Lecturing a module

☐ Module coordinator

☐ Learning Programme coordinator

☐ Other

· What level of students do you lecture (you may choose more than one response)?

☐ First year certificate / diploma

☐ First year degree

☐ Second year certificate / diploma

☐ Second year degree

☐ Third year degree

☐ Fourth year professional degree

☐ Fourth year course work honours degree

☐ Post-graduate research degree

☐ Post-graduate course work

☐ Other

· How would you rate your ability to use online technology for teaching purposes?

0	1	2	3	4	5	6	7	8	9	10

Beginner   Advanced

Section B   Extent of use of blended learning

In this section your use of blended learning methods in presentation of modules will be explored.

• Using blended learning (combining face to face teaching with online material) will enhance my teaching.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

• My teaching methods have changed to incorporate a blended learning approach.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

• Moodle Learning Management System (iLearn)
Which of the following applications within Moodle do you make use of in your teaching (select the appropriate response)?

	Often	Occasionally	Know about it, but never used it	Never heard of it
Posting of notes/files	○	○	○	○
Links to online resources	○	○	○	○
Interactive online activities like quizzes / surveys	○	○	○	○
Assignment uploads	○	○	○	○
Assessment	○	○	○	○
Grading	○	○	○	○
Reports	○	○	○	○
Discussion Forum	○	○	○	○
Feedback	○	○	○	○

• Other online tools used in the teaching environment
Which of the following methods do you make use of in your teaching?

Blended Learning Questionnaire   P QuestionPro

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	Often	Occasionally	Know about it, but never used it	Never heard of it
PowerPoint with audio	○	○	○	○
Digital textbooks	○	○	○	○
Video conferencing	○	○	○	○
Interactive whiteboards	○	○	○	○
Blogs	○	○	○	○
Facebook	○	○	○	○
Twitter	○	○	○	○
Turnitin	○	○	○	○
Curation	○	○	○	○
SharePoint	○	○	○	○

	Often	Occasionally	Know about it, but never used it	Never heard of it
Yammer	○	○	○	○
NMU clicker	○	○	○	○
Todays meet	○	○	○	○
Epson network projection	○	○	○	○
Remote mouse	○	○	○	○
YouTube	○	○	○	○
Lync/Skype to record lectures	○	○	○	○
Wordclouds	○	○	○	○
Socrative	○	○	○	○

Section C   Implementation of blended learning

In this section your experiences of implementing blended learning methods will be explored

· My colleagues encourage me to adopt new technology.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
○	○	○	○	○

Blended Learning Questionnaire   P QuestionPro

· I am pressurised by university administration to adopt new technology.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
	○	○	○	○	○

· How frequently do you experience technical difficulties with online resources?

○ Often

○ Sometimes

○ Never

· Do you use NMU HelpDesk Support system if you experience technical difficulties with online tools?

○ Yes

○ No

· How quickly are these technical difficulties resolved?

○ Rapid response

○ Moderate response

○ Slow response

· Have you attended any courses in the past two years on blended learning methods?

○ Yes

○ No

If your answer to the previous question was yes, what was the training for?

Blended Learning Questionnaire   QuestionPro

• I share Blended Learning activities with my colleagues.

	Never	Once in a while	About half the time	Most of the time	Always
	○	○	○	○	○

• Do you have enough time allocated for the development of modules that you present?

○ Yes

○ No

• In your opinion how long would it take to develop a typical 70 minute lecture to a Blended Learning mode?

○ 60 minutes

○ 90 minutes

○ 120 minutes

○ 150 minutes

○ 180 minutes

○ 210 minutes

○ 240 minutes

• To what extent do your students have access to internet and online tools that you use in your teaching?

○ All the students

○ The majority of the students

○ Some of the students

○ None of the students

• Are your students capable of using technology that utilises blended learning methods?

○ All the students

○ The majority of the students

Blended Learning Questionnaire

QuestionPro

○ Some of the students

○ None of the students

▪ How important are the following for staff adoption of Blended Learning (BL) methods.

	Not important	Of minor importance	Of major importance
Age of lecturer	○	○	○
Sharing success stories with colleagues	○	○	○
Examples of other universities using BL	○	○	○
Training sessions	○	○	○
Recognition from department / NMU	○	○	○
Support from experts in BL	○	○	○
Time saving advantages of BL	○	○	○
Student appreciation	○	○	○

If you feel that there are any other important factors you believe might influence staff adoption of Blended Learning, NOT listed in the question above, please list below.
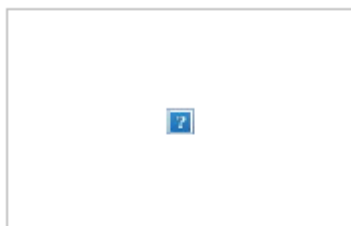
Blended Learning Questionnaire

P QuestionPro

Appendix 11

Invitation to participate in blended learning questionnaire

From:	jbarry@mandela.ac.za
To:	Barry, Janet (Mrs) (Summerstrand Campus South)
Subject:	Blended Learning Questionnaire invitation
Date:	Friday, 17 April 2020 10:33:40

Good morning Health Science academic colleagues

Who knew when I started my research journey years ago that it would be so relevant in 2020? I hope you all enjoy partaking in something that means so much to each and every one of us during this very difficult, surreal time we find ourselves a part of. I invite you to take part in a research study (H18-HEA-PHA-005/ Extension) which aims to explore factors affecting Faculty of Health Sciences academic staff use of blended learning in order to optimise the use of blended learning methods available at Nelson Mandela University. This research project is being conducted by myself, Janet Barry at the Nelson Mandela University, Port Elizabeth.

Background to the research study
Blended learning is the integration of face-to-face learning experiences with online learning experiences. Presenting a blended learning designed course to learners requires restructuring and reorganisation of the traditional way a module is presented. It must be noted that blended learning is not just converting a course into an electronic version of the face-to-face equivalent, besides providing a platform for distributing course content, there must be opportunity for students to interact with content, each other and with course presenters.
The main objectives of this study will be to explore the use of blended learning by academic staff in the Faculty of Health Sciences at the Nelson Mandela University; and identify the factors affecting incorporation of a blended learning approach into teaching practices of the Faculty of Health Sciences at the Nelson Mandela University.
The procedure involves voluntary completion of an online questionnaire that will take approximately **10 to 15 minutes** to complete. Your responses will be confidential and no participant identifiers will be used (e.g. name, email address or IP address). You may opt out of the study at any stage of questionnaire completion, if you wish to do so.

I have contracted with QuestionPro, an independent research firm, to field your confidential survey responses. Please click on this link to complete the survey:

Powered by QuestionPro

Start Survey

If you have any queries about the research study, please contact me via email jbarry@mandela.ac.za, or on my cell 0733555092. Thank you in advance for taking the time to complete this survey.

Janet Barry
Associate Lecturer
Department of Pharmacy
South Campus
Nelson Mandela University

Unsubscribe   Report Abuse

Appendix 12

Focus Group Protocol

These questions will be used as a guide during the focus group sessions

Introduction (10 minutes)

Ice Breaker - What is your understanding of Blended Learning?

Question 1 (30 minutes)

How do you feel about the use of Blended Learning in teaching?

Question 2 (30 minutes)

What barriers have you experienced using blended learning techniques?

Prompt if necessary: skills, difficulties, help available, time and recognition.

Question 3 (30 minutes)

What has facilitated your use of Blended Learning?

Prompt if necessary: success stories, encouragement from colleagues, institution

Closure (5 minutes)

Rephrase

Summarise

Clarify

Appendix 13

Focus Group Artefacts

Question 2: What barriers have you experienced using blended learning techniques?

Question 3: What has facilitated your use of blended learning?