GUIDELINES FOR THE IMPLEMENTATION OF BLENDED LEARNING IN A NURSING COLLEGE CAMPUS IN GAUTENG: A MIXED METHODS STUDY

by

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TITLE PAGE DECLARATION

I, **Magdalena Elizabeth Maré**, declare that this Dissertation is my own, unaided work. It is being submitted for the Degree of Master of Science in Nursing at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University.

Twenty fifth day of January 2024 in Johannesburg

DEDICATION

I dedicate this dissertation to my family who supported me throughout this study.

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ABSTRACT

The purpose of the study is to develop guidelines on how a nurse educator can best be prepared to implement blended learning in a Nursing Education Institution in Gauteng.

The readiness of nursing students and nurse educators in a nursing education institution in Gauteng was determined to serve as a point of reference for the development of guidelines to support nurse educators to implement blended learning in the institution.

Blended learning is the thoughtful integration of different instructional methods that contain face to face on online components. It enhances the educational experience for nursing students, preparing them to meet the challenges of modern health care and promoting lifelong learning.

The methodology used was a mixed method study, combining a quantitative survey using the Blended Learning Readiness Engagement Questionnaire (BLREQ®) to determine readiness for blended learning amongst nursing students and nurse educators, and two focus groups with nursing education managers and nurse educators respectively. The focus groups were done to determine how best nurse educators can be supported to offer blended learning in the Nursing education institution. The Community of Inquiry framework was used to analyse the data from the focus groups and the data from Section C of the BLREQ®.

According to the survey, both nursing students and nurse educators perceived themselves as ready for the implementation of blended learning, although there are gaps in their technical abilities and ability to navigate online environments. The qualitative data revealed that both nursing students and nurse educators need support and guidance for the implementation of blended learning. Nursing education managers expressed that nursing educators are still using traditional methods of teaching and that they need to be supported to use innovative teaching methods such as blended learning through regular skills development sessions. Nurse educators and students also indicated that they are not confident in participating in online platforms and discussions and that they need orientation and support navigating online platforms and the current learner management system.

Although both nursing students and nurse educators see themselves as having the basic digital skills, they indicated a need for training in spreadsheet, presentation, and online communication software as well as collaborative cloud computing.

The availability of technology infrastructure and lack of resources for the successful implementation of blended learning in the Nursing Education Institution were identified by nursing education managers, educators, and students.

Guidelines were developed to assist the nursing education managers, nurse educators and students to address the gaps identified and to orientate new students and nurse educators to navigate the blended learning environment to assist them to adapt to new technologies and ways of learning and teaching.

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CHAPTER 1

1 INTRODUCTION

Changes in the health care system and the increased use of technology in the delivery of health care and health care education change the way in which nurses plan, deliver, document, and review clinical care (Barbour and Schuessler, 2019; Blaauw et al., 2014; Ross et al., 2018). Nursing students in the 21st Century need to be innovative, creative, able to solve problems, collaborate, think critically, be civilly engaged, and use information communication media (Hanekom, 2017) if they are to be able to keep up with the changes in health care and be literate, lifelong learners. They must become knowledge age workers who are able to use digital literacy skills for learning and working (Bruce, 2018). It is therefore necessary that nursing students are skilled in the use of information communications technologies to be relevant in their field of study.

Nursing Education Institutions not only need to assist students to keep up with changes in health care, but they also need to ensure that they operate within the prescripts of the post school education system The White Paper for Post-School Education and Training in South Africa, (2013), promotes the provision of mixed-mode programme delivery to expand access, reduce cost and improve quality, considering the needs of both students and the curriculum (Department of Higher Education and Training, 2014)

The New Media Consortium (NMC) Horizon 2017 report on Higher Education states in their executive summary that “If institutions do not already have robust strategies for integrating these now pervasive approaches (online, mobile and blended learning) they will simply not survive” (Adams Becker et al., 2018)

Blended learning is the thoughtful integration of different instructional methods that contains face-to-face and online components (Garrison and Vaughan, 2012; Porter et al., 2014; Stewart et al., 2013). Digital learning environments can stimulate deeper learning and skills that nursing students in the 21st Century need, such as critical thinking, problem solving, clinical judgement and inquiry (Berga et al., 2021; Bruce, 2018; Rajkoomar and Raju, 2016).

The benefits of blended learning include student centeredness; flexibility in terms of time, place, and pace of delivery; student engagement and active learning. (Poon,

2013) Blended learning also encourages interaction between students and between student and educator. (Fiock, 2020; Posey and Pintz, 2017; Tong et al., 2022)

Blended learning offers the ideal transition from traditional teaching and learning to using different formats and ways of teaching and research has shown that blended learning is beneficial to students (Alvarez, 2020; Polat et al., 2021; Poon, 2013; J. Singh et al., 2021); however not all lecturers and students are necessarily ready to teach and learn using technology (Namulondo et al., 2023; Rovai and Jordan, 2004). Higher Education Institutions should therefore assess educators' and students' readiness for blended learning prior to implementation to ensure success. (Adams et al., 2018). Readiness depends on several factors such as: technology skills; technology usage, technology availability, self-directed learning, computer and internet efficacy and students' attitude towards blended learning (Tang and Chaw, 2013).

Facilitation of learning by implementing a variety of teaching strategies and the skillful integration of information technologies in the teaching and learning process is stated as a competency for nurse educators (SANC, n.d.). However, most nurse educators were not exposed to technology during their training and do not necessarily have the skills to achieve this competency as they were products of traditional teaching. (Alvarez, 2020). Nursing educators must understand how students use and interact with technology during their learning experiences and adapt their teaching and learning strategies accordingly (Forneris and Tiffany, 2017).

While it is assumed that most nurse educators are not yet ready to introduce blended learning, and that students are likely to be more computer literate, it is essential to test this assumption prior to designing guidelines to assist in the introduction of blended learning.

The Community of Inquiry framework (COI) developed by (Garrison et al., 2000) was used as a research framework to provide guidelines for the implementation of blended learning in a NEI. Bozkurt et al, (2015) mentioned in his article on trends in Distance Education Research that the COI as a theory ranked as the most frequently used theoretical perspective and that it is widely used for online and blended course development, teaching and research as well a development tool for educators to assist them in the redesign of courses for blended and online use (Anderson, 2017; Bozkurt et al., 2015; Vaughan, 2010) The COI framework provides guidance for the implementation of online and blended learning courses (Ranjan, 2018). Cleveland

Innes (2018) names the COI as one of two main theoretical frameworks that can be used for the development of blended learning. It consists of three presences, social, cognitive, and teaching that together create an educational experience for the student (Cleveland-Innes and Wilton, 2018; Vaughan, 2010; Vaughan et al., 2013).

The Nursing Education Institution where the research was conducted is a public Nursing Education Institution. Although the intention at the institution is to implement blended learning, this has not yet been done. Facilitation of content is mostly conducted in big classrooms or auditoriums, using the traditional lecture method with PowerPoint as an instructional tool, although theory practice integration was implemented during structured clinical guidance periods in the clinical facilities. Some nurse educators used various other methods such as group discussions and presentations. Others used “WhatsApp” as a communication tool to inform students, about arrangements for clinical guidance or theory facilitation. Skills Development sessions around the implementation of Innovative teaching and learning were held to sensitize nurse educators about newer methods of facilitation including blended learning and the use of technology in learning and teaching.

During the Covid-19 lockdown nurse educators also used WhatsApp for facilitation by posting voice notes and worksheets to students. The institution also developed a Moodle platform during the Covid-19 lockdown, and all nurse educators were skilled in using the platform for remote teaching and learning, but most nurse educators did not make use of the platform for learning and teaching.

1.1 Problem statement

The use of technology and the integration of online learning in the nursing curricula in South Africa is limited but the National Strategy Direction for Nursing and Midwifery Education and Practice (2020) recognises the benefits of the inclusion of technology in nursing curricula and states that it is “crucial that nursing education and training embraces and invests in digital health technology to prepare the nurses for the realities of work.” (National Department of Health SA, 2020) The researcher proposes that blended learning should be incorporated as a method of choice to introduce technology and online education to nursing students due to the continuous development of healthcare technologies within the health care field and the need to prepare students to provide care in the 21st Century. Students are of the generation where they have

developed technological skills but may not have been exposed to using technology for learning prior to registering at a Nursing Education Institution. Few of the educators currently employed at the Nursing Education Institution have been exposed to technology in the teaching environment and may lack the skills and understanding of how to implement the online aspect of blended learning. The degree of readiness / preparedness on the part of both students and educators is unknown.

Little evidence of the use of blended learning in the public nursing educations institutions in the Gauteng province exist, and this research would provide a starting point for the implementation of blended learning in Gauteng public NEI's.

Establishing their current competencies with regards to readiness to implement blended learning is necessary to know how best to assist educators to implement blended learning in the college.

1.2 Research question

How can Nurse Educators and students best be prepared to introduce blended learning in a NEI in Gauteng?

1.3 Purpose of the study

The purpose of the study was to a). measure the readiness of students and nurse educators for the implementation of blended learning, using different technologies and b) develop guidelines on how nurse educators and students can best be prepared to implement blended learning in a NEI in Gauteng, and more specific, manage the technology for the online portion of blended learning.

1.4 Objective of the study

The objectives of the study are:

- To measure the readiness of staff and students for blended learning.
- To determine the need of nurse educators and students for training in various technologies needed for blended learning and online support during implementation of blended learning.
- To develop guidelines to prepare nurse educators for the implementation of blended learning in a Nursing Education Institution in Gauteng.

1.5 Research framework

The Community of Inquiry Framework (Garrison et al., 2000) was used as a conceptual model for determining the readiness for blended learning of students and educators in a nursing college in Gauteng as well as in the development of guidelines for nurse educators in the implementation of blended learning.

1.6 Operational definitions

Blended Learning

Blended learning, for the purpose of this study, means the mindful integration of online technologies and face-to-face teaching and learning in both academic and clinical nursing education environments to ensure meaningful interaction between nursing education facilitators and students and between students themselves, establishing communities of inquiry within their nursing courses.

Community of Inquiry

A group of nursing students involved in a process of interrogating a problem together to gain a better understanding of the problem at hand. They use their collective knowledge to understand and solve the problem.

Nurse Educator

A Nurse Educator is a Registered Nurse under Section 31 of the Nursing Act, 2005 (Act 33 pf 2005) with an additional qualification in Nursing Education (National Department of Health, 2019).

A Nursing Student

A Nursing Student is a student who is registered at a Nursing Education Institution (College of Nursing or University) and is registered as a student nurse with the South African Nursing Council.

Digital literacy

Digital literacy is the ability to use digital technologies, communication tools or networks confidently to locate, evaluate, use, and create information needed in a personal, professional, and societal environment effectively and critically.

Readiness

Readiness means to be fully prepared for something or the willingness to do something. The psychology online dictionary defines readiness as “the level of preparation for a given task sufficient to result in meaningful learning” (Sam, 2023).

Readiness for blended learning

Readiness for blended learning in this study therefore implies nursing students’ and nurse educators’ preparedness and willingness to take part in blended learning so that meaningful learning experiences can take place.

1.7 Conclusion

This chapter introduced the research and the process for the development of guidelines for the implementation of blended learning.

A brief discussion on the problem statement, research question, the purpose, and objectives of the study as well as the research framework and operational definitions were given.

CHAPTER 2

2 LITERATURE REVIEW

2.1 Introduction

The previous chapter introduced the study and explained the purpose of the study.

In this chapter, the changes that have occurred in the health care and health care education environment over the last two decades and the influence they have had on nursing education are reviewed. The concept of blended learning and its application in nursing education, as well as the need for support for nurse educators and students to develop their technology skills and online competencies in preparation for the implementation of blended learning in a nursing college in Gauteng are highlighted.

The literature review was done by searching for information by using key words such as blended learning, nursing education, e-learning, digital learning, theories for blended learning, nursing in the 21st century.

2.2 Changes in health care delivery

Global leaders at a recent World Health Assembly in Geneva expressed their concerns about the status of world health and the cost of health care for all. They are of the view that digital health is the most efficient, cost-effective way to meet the United Nations Sustainable Development Goals' health targets, and more particularly universal health coverage, where everybody can access quality of care without exorbitant costs (Aerts and Davis, 2019).

Nurses as health care workers are key in teaching their communities about the availability and use of health information to assist them in their health care and health information needs (Ahmad et al., 2018; Grinstead et al., 2022). However, nurses are not sufficiently prepared during their training to use available technology to offer quality patient care (Puckree, T, Maharaj, S, Mshunquane, 2015). It is essential that all nurses should acquire at least a foundational understanding of health informatics to cope in the networked health environment of the future (Nelson and Staggers, 2018).

Nurses who use Information and Communication Technology (ICT) effectively can improve the quality of health care in their communities by promoting patient centred health care, improve quality of care, and educate health care professionals and

patients (Mohmmed et al., 2017; Rouleau, Geneviève; Gagnon, Marie-Pierre; Cotè, 2015).

Successful ICT implementation in health care relies heavily on the nursing workforce. They should be included in the evaluation and development of ICT-based learning interventions and be trained to use the available technologies to their advantage. The use of ICT by nurses impacts on their nursing practice and can save time and resources, yet the implementation of ICT in nursing is slow, especially in the South African context. (Owolabi et al., 2016; Rouleau, Geneviève; Gagnon, Marie-Pierre; Cotè, 2015).

Nurses, as the largest health care provider group in South Africa, have the potential to deliver and coordinate care within their communities, but they have to deal with several challenges, including an increase in demand due to migration of people to South Africa, Rensburg (2021) commented on the inequality of health care provision in South Africa and states that the health needs of the people exceed the capacity to provide it and that most people are not aware of their health status and do not seek help in time. Lastly, he states that the way the health system is funded continues to cause inequality in the provision of health care to its people. Rispel (2020) concurs by stating that Covid-19 exposed the inequalities in healthcare.

The National Strategic direction for Nursing and Midwifery Education and Practice (2020) addresses 5 strategic goals to achieve the universal health coverage. One of the strategic goals includes investment and institutionalisation of digital technology in nursing education and practice. Digital technologies include information systems, e-learning platforms that support evidence-based decision making. The use of these technologies will increase access to nursing education and training.

Technologies used in health care today include technologies that can capture, process, store, exchange and predict information for the betterment of health, and should be integrated into national health care systems. This includes 1) electronic health records which is a database of patient information recording consultations, treatments, medication etc. 2) Clinical information systems that records all patients visits and disease profiles to plan and deliver care. 3) Mobile patient charts to record daily care when hospitalised. 4) Medical devices such as heart monitors, automated

intravenous pumps, and many more. (Technology in Nursing: How Nurses Use Technology every day, 2018)

To meet the increase in the demand for nurses and to bridge the divide between the needs of nurses and patients, a change in thinking is needed for health care education and training to improve the numbers, quality, and relevance of nursing in the 21st century.

2.3 Consequences of changes in the health care system for nursing education.

The changes in health care delivery are forcing nursing education institutions globally to relook at the way that nurses are trained.

Transformation in the higher education sector includes a demand for greater access to, and quality of education that is student driven and includes changing learning environments that provide access to powerful learning tools, knowledge bases, and scholarly exchange networks for the delivery of learning. (Garrison and Kanuka, 2004; Nelson and Staggers, 2018) The white paper on Post School Education South Africa states that the use of open learning and digital technologies should be used where and whenever possible to provide wider access and engagement of students in the higher education sector. Careful integration of technology into the existing curricula to support teaching and learning should be a priority (Department of Higher Education and Training, 2014)

Students should be able to use and operate electronic devices such as computers and smartphones, software, and the internet to communicate and collaborate with others and discover, use, and create information (Bolden, 2019), before they can successfully participate in a blended teaching environment that utilises online learning and teaching. Bolden also said that “educators must know how to successfully integrate technology with pedagogy” to prepare them for the future.

Information literacy is the ability to effectively search for, evaluate, create, and communicate information using a wide variety of digital technologies to live, learn, work, participate and thrive in a digital world. By using digital technologies in their education, nursing students learn how to assess and appraise information as well as to problem-solve and apply critical analytical decision making.

As nursing education institutions are getting ready to embark on the journey to take their place as Higher Education institutions, they should include technology, information literacy and digital competence in nursing curricula and make provision for innovative learning spaces to enable nursing students to embrace technology as a tool for life-long learning and for the provision of evidenced based nursing practice (Terry et al., 2019). Student access to technology is no longer a privilege but a necessity to allow students to participate and interact in digital learning environments that support the development of deeper learning (Mohmmed et al., 2017) .

Teaching and learning in an blended online environment should form a big part of the nurse educators' role today as students continue to expect and prefer learning online. The occurance and spread of the Covid-19 pandemic had serious implications for the education of all students as institutions of learning had to close down to curb the rate of infection. As a result, institutions were forced to change their way of teaching to offer remote teaching and learning, using various digital technologies. This included many medical and nursing students across the globe. (Bdair, 2021; Brown and Mayisela, 2010; Singh et al., 2021).

Even if research does not show a significant difference in the outcome between on-campus and online learning, teaching online supports the establishment of communities of professional practice, which enhances the learning experience of the student (Nursing Edge, 2013).

The researcher is of the opinion that blended learning is the method of choice for nurse education and training in South Africa because it offers nursing students the opportunity to meaningfully engage with others, the nurse educator and the learning material while gaining the necessary technology skills needed in the 21st century environment in which they live and work. The recent shift to online teaching and learning because of the Covid-19 pandemic is making this even more prudent. However, care should be taken to evaluate and understand the methods and technologies to determine their feasibility and acceptability to both student and educators (Singh et al., 2021)

2.4 Blended learning

According to Garrison et al, "Blended learning is the thoughtful integration of classroom face-to-face experiences with online experiences." It can be either simple

or complex in nature, depending on the educational purpose and design. (Garrison and Kanuka, 2004).

Blended learning aims to extend time for learning and provide an opportunity for students to reflect on their learning. It supports authentic learning initiatives, such as project-based learning, challenge-based learning, and competency-based learning. Blended learning is applied or active learning, where students learn by experiencing, doing, and creating. Blended learning can be included in various levels of teaching, such as on an activity level, course level, programme level or institutional level (Garrison, 2011).

According to (Caputi, 2017), innovative nurse educators have regular conversations with fellow, educators, nursing professionals and students about the changes they would like to see in nursing education. They investigate new ways of teaching and theory practice integration using new available technologies or resources. Innovative nurse educators have always used new technologies in their classrooms when they became available. Earlier innovations include chalkboards, movies, overhead projectors and more recently whiteboards, video data projectors, personal computers, laptops and smartboards, tablets, and mobile and web technologies. All these technologies, past and present, forms part of the educator's arsenal.

Nursing students today demand engaging educational experiences where they can explore, interact, and collaborate in a relevant, active, and useful manner (Adekola et al., 2017). Recent developments in technology and the availability of the internet introduced online learning and opened opportunities for educational institutions to move parts of their courses online.

There are three primary models of blended learning. In the Supplemental model online content is added to existing curriculum content to enrich learning, add flexibility and to improve time efficiency. It is also often used for remediation (review and repetition). The Emporium model replaces all or part of the traditional face-to-face classes with collaborative, active learning classrooms where work is done in a learning resource centre with full connectivity. The Replacement model is the most widely used model of blended learning implementation in which online content and activities are substituted for portions of class time. The remaining face-to-face meetings are used for interactive activities and collaboration (Pesavento et al., n.d.)

Blended learning has been widely used and researched over the last decade and is constantly growing in popularity. It has the potential to transform teaching and learning environments forever.

Research has proven that blended learning is more effective than face-to-face learning. Blended learning results in higher student success, satisfaction, and sense of community. It is fast becoming the way of teaching in institutions of Higher Education. (Adams Becker et al., 2018; Adams et al., 2018; Alammary et al., 2014; Moskal et al., 2013; Poon, 2013) The New Horizon report of 2017 stated, in the executive summary, that “if institutions have not implemented or do not have a sure plan for the implementation of blended leaning, they will be left behind”. (Adams Becker, et al., 2017).

Various frameworks exist for blended learning Cleveland-Innes (2020) describes 2 major theories that are suitable for blended learning, namely 1) the Complex Adaptive Blended Learning System (CABLS) which consist of six (6) elements each with their own subsystem with the learner at the centre. The six elements are the learner, the teacher, technology, content, learning support and the institution. Each of the subsystems are related to one another and the relationships are both dynamic and integrative. 2) The Community of inquiry framework (COI). The community of inquiry consist of 3 presences which intercept with one another to create an educational experience in the middle (Cleveland-Innes and Wilton, 2018). The framework will be discussed in detail in Chapter 3.as it was the chosen framework for this research.

The Community of Inquiry model was developed by Garrison and Anderson (2000) and is said to be one of the best frameworks for the implementation of blended learning and has been used and cited by many researchers as mentioned in the work of Anderson (2017) and Bozkurt et al, (2015). Blended learning can be used in different configurations such as a **blended face to face** class where some of the class activities are replaced by online activities. It may also take the form of a **blended online class** where most of the activities happens online, but students are required to attend some classes such as simulation or demonstration. The **flipped classroom** is another example whereby the traditional classroom activities are done in the online environment and case studies or problem-based learning takes place in the classroom. The **rotation model** involves students rotating between various stations

of which one station is based online. Blended learning is usually facilitated using any form of learner management system that supports collaborative learning whereas face to face-to-face learning uses traditional classrooms, simulation activities and skills laboratories, assessments, and presentations (Anthony et al., 2022; Cleveland-Innes and Wilton, 2018).

The effective integration of technology in the classroom should aim to promote interaction amongst students to improve learning outcomes and to create a sense of engagement in a community of inquiry and learning. (Garrison & Kanuka, 2004).

The components required to produce meaningful learning experiences are described in the Community of Inquiry framework. These components include the social, cognitive, and teaching presences, which create the educational experience at their intersection with one another.

The importance of inquiry-based teaching and learning is greater than ever, both as a method for learning and as a subject for learning how to learn. This originated from the works of Dewey (1938) and Vygotsky (1997) who considered the creation of one's own knowledge structures and the application of personal experience as essential to engagement and learning outcomes. (Cleveland-Innes and Wilton, 2018)

Learning through cognitive engagement, which is also known as inquiry-based learning, in contrast to content-based learning gives students more influence over how they build their knowledge base. The facilitation of inquiry-based learning then focuses more on providing meaningful engagement opportunities rather than direct instruction (Cleveland-Innes and Wilton, 2018).

The most important idea is that blended learning requires a complete rethink of the course design in terms of content, delivery, and contact hours. It could be used as a tool in the learning process, as a leaning environment (Learner Management System) or as an interactive learning medium, using online applications.

2.5 Blended learning in nursing education

Nurse educators need to prepare nurses to deliver health promotion and care to their communities amidst the demand for a more responsive and modern health care

delivery. Nursing curricula are not coordinated with these demands and need to be updated to include modern technologies such as simulation, personal digital assistants, web conferencing, podcasting and the use of learner management systems.(Mohmmed et al., 2017)

The integration of technology in and outside of the classroom have the potential to change the teaching strategies of nurse educators to be more engaging and encourage active participation of students that will lead to a deeper understanding of concepts using technology such as websites, podcasts, videos, and multimedia. Technology, when used correctly with solid pedagogy/heutagogy, can enhance student learning for the benefit of the students and patients. The role of the nurse educator must change from teaching content to a facilitator of learning where students are co-creators of knowledge (Forneris and Tiffany, 2017).

The National League of Nursing, in their 2015 Vision Statement for Nursing, emphasised that it is necessary that nurse educators rethink the way nurses are taught and how they (nurses) engage and care for their patients in the connected age of health care. Nurse educators must understand how students use and interact with technology during their learning experiences to adapt their teaching. (Forneris and Tiffany, 2017). The use of technology in education is changing both student and teacher roles and responsibilities.

The World Health Organisation states in their Nurse Educator Core Competencies, (World Health Organization, 2016) Competency 2.7, that “Nurse Educators must incorporate and engage learners with the use of appropriate Information Technologies including e-learning and e-health in the teaching and learning process”. It is also prescribed by the South African Nursing Council in their competencies for nurse educators, under the heading “facilitation of learning” Point 1.1.5 “Uses information technologies skilfully to support the teaching-learning process.”(SANC, n.d.).

The COI framework creates opportunities for self-reflection, active cognitive processing, interaction, and peer-teaching. and can be used by the nurse educator to plan and implement learning activities.

Blended learning offers the ideal transition to digital learning and research has shown that it is beneficial to students; however not all lecturers and students are necessarily ready to teach and learn using technology.(Adams et al., 2018; Forneris and Tiffany,

2017). The willingness and readiness of educators and students to adopt blended learning influences the effectiveness of blended learning in an institution (Antwi-Boampong, 2020). Higher Education Institutions should therefore assess students' readiness for blended learning prior to implementation to ensure success.

Readiness for blended learning depends on several factors such as: technology skills, technology usage, technology availability, self-directed learning, computer and internet efficacy and students' attitude towards blended learning. (Adams et al., 2018; Tang and Chaw, 2013).

2.6 Readiness of the Nurse Educator for blended learning

Although facilitation of learning by implementing a variety of teaching strategies and the skillful integration of information technologies in the teaching and learning process is stated as a competency for nurse educators (SANC, 2014) most nurse educators were not exposed to technology during their training. They may not necessarily have the skills to reach this competency.(Moran et al., 2018; Puckree, T, Maharaj, S, Mshunquane, 2015)

Nurse educators face definite challenges when it comes to the integration of technology into their teaching as they are not sufficiently adept and comfortable with current technology. Limited knowledge of how to integrate technology in the nursing curriculum constitutes the biggest barrier for the implementation thereof. Other barriers include resistance to change, time and access to technology, a lack of funding and a lack of academic support (Gonen et al., 2016; Williamson, 2018).

Nurse Educators must be trained and supported to adopt a variety of teaching strategies that will challenge students to become critical analytical thinkers, innovators, collaborators, and life-long learners (Dziuban et al., 2018; Forneris and Tiffany, 2017) and to equip them for the demands of the 21st century.

The nurse educator teaching a blended course requires knowledge of both face to face and online teaching strategies and online teaching methods, with some experience in the use of web-based tools. Support and continuous professional development should be provided to nurse educators to teach blended learning courses or modules. (Singh et al., 2021) They should be conversant in the use of a Learning Management System and know how to use it to teach effectively in order to create a

teaching environment that will forster an educational experience for students. It is therefore necessary to evaluate nurse educators' levels of knowledge in technology and teaching and learning strategies before they start to teach in an online environment.

Nurse Education Institutions should prioritise formal and informal learning for all new and existing nurse educators to assist them to become proficient in the use of technology and online teaching and learning. This should be an ongoing initiative to ensure that staff members keep up with new technologies.

2.7 Readiness of Nursing Students

Students have shown enthusiasm towards using technology for learning and they value blended learning during face-to-face and online environments. They perceive blended learning as beneficial and more enjoyable than any other form of teaching (Dziuban et al., 2018; Forneris and Tiffany, 2017). Liu Qian (Liu et al., 2020) found that the use of blended learning in health care education had a consistently positive effect in comparison with no intervention, and that it is more effective than or at least as effective as non-blended instruction.

The inclusion of blended learning also has the potential to improve the clinical competencies of nurses as well as establishing a basis for Evidence Based Practice in nursing by encouraging reading, discussion, and research. (Liu et al., 2020). By using blended learning, students can take responsibility for their own learning by exploring content online and collaborate with others on solving problems. whilst gaining different competencies.

Self-directed learning forms part of blended learning, however, not all students are ready to take charge of their own learning, while others may not know how to operate and learn/work with others in an online environment. Successful implementation of blended learning is reliant on student and educator readiness for blended learning. (Adams et al., 2018) categorize readiness for blended learning into 6 main factors namely, a) technology skills; b) technology usage; c) technology availability; d) self-directed learning; e) computer and internet efficacy and f) students' attitude towards blended learning.

Student readiness for blended learning should be assessed before implementation to ensure that all students are equipped for blended learning and to address any limitations and fears. (Adams et al., 2018; Tang and Chaw, 2013).

The Blended Learning Readiness Engagement Questionnaire (BLREQ®) to gauge students' readiness for learning was developed by Adams et al., 2018. The BLREQ® was used in this research to determine the readiness for blended learning amongst nursing students and nurse educators in a nursing college in Gauteng.

2.8 Conclusion

In Chapter 2 the changing landscape within health services and higher education systems have been discussed. The incorporation of technology within health care and higher education sectors creates the need for nursing education institutions to follow suit. A brief introduction on blended learning and the benefits thereof in nursing education was given. For the successful implementation of blended learning, it is important to establish the readiness of nurse educators and students for blended learning in a nursing education institution.

In the following chapter the research methodology to establish readiness for blended learning in the Nursing Education Institution is described.

CHAPTER 3

3 RESEARCH METHODOLOGY

3.1 Introduction

In this chapter the research methodology is discussed, including the research design, research setting, population, sampling, data collection and data analysis for all phases of the study.

3.2 Research design

A mixed method design was used in this study. Mixed method research is the use of a combination of different research methods to gain a better understanding of the topic. It consists of the collection of both quantitative and qualitative data followed by

interpretation and combining the results to provide a solution to the research question. The order or grouping of the research procedures in the research design provide reasons and guidelines for conducting the study. (Creswell and Plano Clark, 2018)

A mixed method design (quant-QUAL) was used for the researcher to gain deeper understanding of the concepts (Gray and Grove, 2021). The researcher has been attempting to facilitate the use of Information technology (IT) in the institution for some time but was concerned at the lack of capacity of lecturers to use IT in their teaching during the Covid epidemic but saw an opportunity to build on the skills and motivations obtained during that period to provide more accessible, cost-effective learning in the institution.

The first phase of the study consisted of a quantitative survey to determine the readiness of both students and nurse educators in a nursing college. This was followed by conducting focus groups with members of college management and nurse educators to explore how best they can be supported before, during and after the implementation of blended learning within the facility. Guidelines for the introduction of blended learning in a nursing college in Gauteng were then developed from the results of the of the survey, focus groups and literature by means of triangulating the results.

The survey to establish readiness for blended learning was preparatory to the main purpose of the study, which was to develop guidelines for the implementation of blended learning, so the study was a quant-QUAL design.

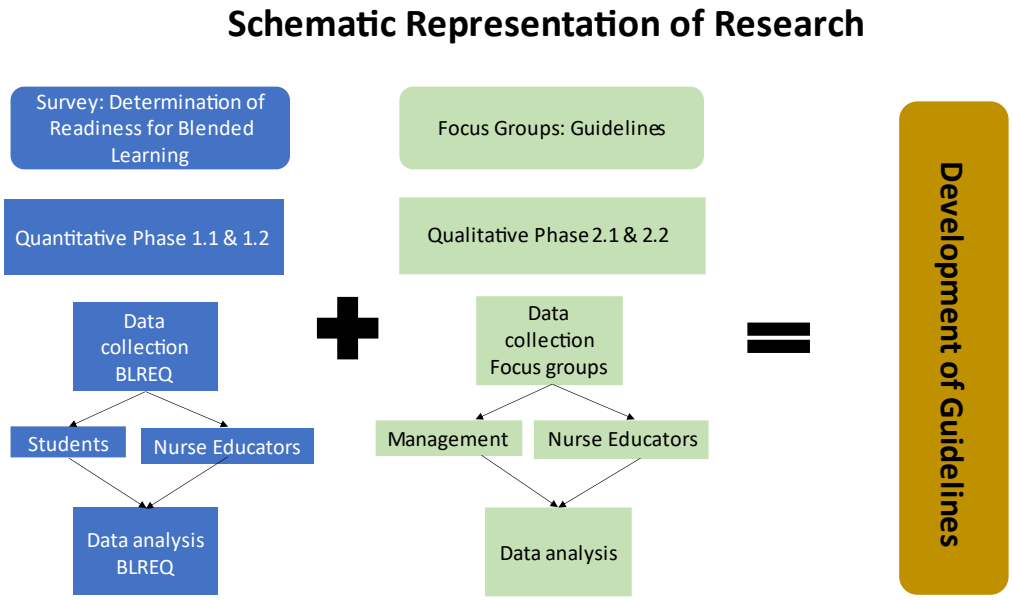


Figure 3-1: Schematic representation of research

3.3 Research framework

The Community of Inquiry Framework (Garrison et al., 2000) was used as a conceptual model for determining the readiness for blended learning of students and educators in a nursing college in Gauteng as well as in the development of guidelines for nurse educators in the implementation of blended learning.

3.3.1 The Community of Inquiry Framework

The COI theoretical framework (Fig 3.2) is used to create deep and meaningful learning experiences for students by using three interdependent elements namely social, cognitive and teaching presences.

Garrison, Archer, and Anderson, (2000) developed the Community of Inquiry theoretical framework (COI) to assist educational developers in the organisation of online and blended educational experiences. It is based on a collaborative-constructivist approach to learning and derived from the work of John Dewey (Garrison et al., 2000).

The COI framework describes how learning takes place through the educational experience that occurs at the intersection of social, cognitive, and teaching presences

for a group of students in online and blended learning environments, integrating the shared opinions and personal reflection of students and facilitator in a constant process of inquiry, fostering critical thinking, inquiry, and discourse (Garrison et al., 2000).

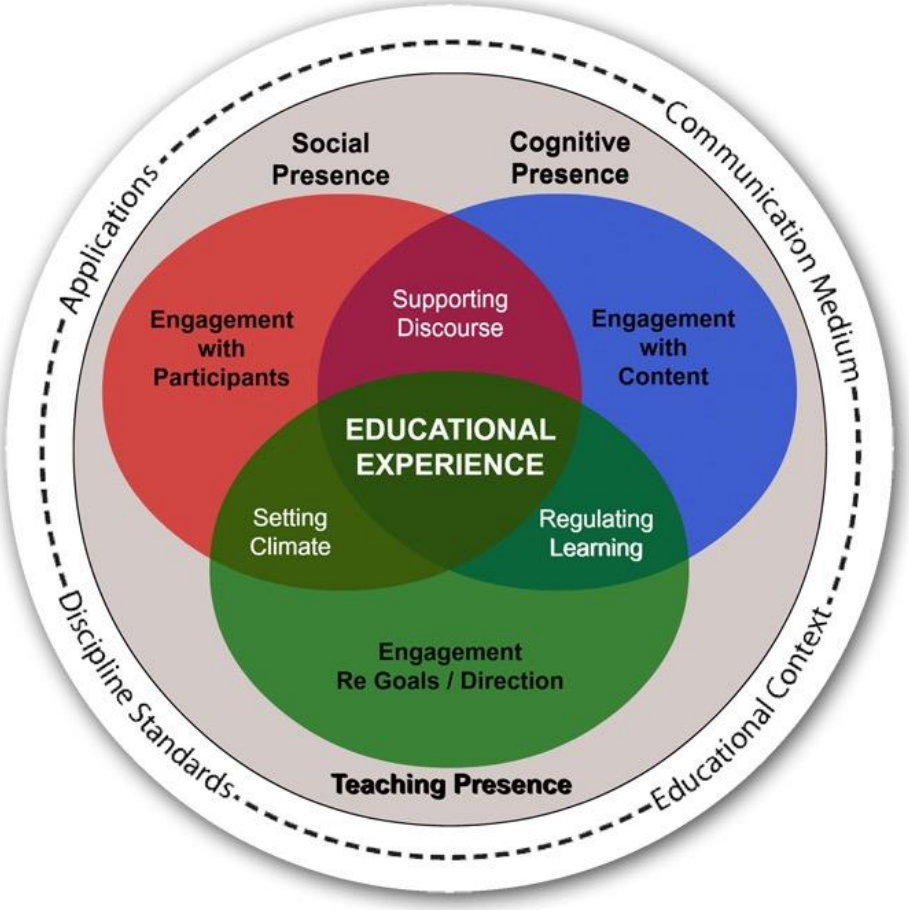


Figure 3-2 Community of Inquiry framework

The Community of Inquiry framework. Image used with permission from the Community of Inquiry website and licensed under the CC-BY-SA International 4.0 license (https://creativecommons.org/licenses/by-sa/4.0/). The original image is located at https://www.thecommunityofinquiry.org/framework.

The COI framework is widely used and cited as a framework and research tool for online learning course development (Anderson, 2017; Bozkurt et al., 2015; Fiock, 2020). The COI framework has emerged as an ideal framework for the implementation of blended learning because of the ability of blended learning to effectively facilitate

communities of inquiry (Garrison and Kanuka, 2004). The applicability for the use of the COI framework for nursing education was explored by Smadi et al, (2019) and it was found that the core concepts of the COI was applicable for nursing education and that the COI framework is relevant for implementation in blended, face to face and online education.

Table 3-1: COI presences, categories, and Indicators

Elements	**Categories**	**Indicators**
Social presence	Open communication Group cohesion Affective expression	Risk free expression Encourage collaboration Emotions
Cognitive Presence	Triggering event Exploration Integration Resolution	Sense of puzzlement Information exchange Connecting ideas Apply new ideas
Teaching Prescence	Design and organisation Facilitating discourse Direct instruction	Setting curriculum & methods Sharing personal meaning Focussing discussion

Social Presence (SP) represents students introducing themselves as a real people (Rourke et al., 2001) to other students in the community to allow the formation of personal and purposeful relationships through effective, open communication and group cohesion. To show the importance of academic discourse in a community of inquiry, a new definition of SP was given that emphasises the importance of participants' ability to identify with the group or course of study and to contribute purposefully within a safe environment whilst building personal and affective relationships by showing their individual personalities. (Garrison, 2023)

To be a successful community of inquiry, social presence must progress from a purely socio-emotional and personal relationship to one of cohesion with an intellectual focus and mutual respect. It is important to provide structure and to encourage social

interaction early in the course to set the tone and to achieve quality interaction to achieve common educational goals (Garrison, 2007).

Cognitive Presence is the collaboration and reflection within a community of inquiry, where students explore, integrate, resolve, and confirm their understanding of concepts. The practical inquiry model attempts to explain the process of critical thinking and discourse. (Garrison et al, 2000) where students move from understanding the problem to exploring possible solutions using learned concepts and finally apply the knowledge to solve the problem in real life. In table 3.1 the categories are named, the triggering event, exploration, integration, and resolution. The process can be repetitive and does not always follow the sequence.(Garrison and Arbaugh, 2007). (Caskurlu, 2018) mentioned that previous research indicated that students have difficulty moving beyond the exploration phase and that the possible reason for students' inability to resolve a task could be in the nature of the course design and facilitation thereof. Direction and facilitation are needed to help establish group cohesion and growth. Well-designed tasks are crucial in the successful functioning of a COI (Garrison, 2007). The development of effective questioning on the part of both the educator and the students is important in the development of the cognitive presence.

Teaching presence allows for management of the environment, facilitation, and planning for learning (Garrison & Kanuka, 2004).

The teaching presence is an essential element in the success of any online learning, and it is evidenced that the teacher presence is a determinant of student satisfaction, perceived learning, and sense of community. This construct consists of three categories namely design, facilitation, and direct instruction.

Meaningful educational experiences happen at the intersection of the three elements of the COI model. It is here where students connect with others, participate in discourse, think, and reflect together and individually, while using internet information and communication technology to evaluate and test information and ideas and build on their writing and critical thinking skills. It is important to note that connecting with others is essential to achieve a community of inquiry that is characterised by reflective

written or spontaneous verbal communication (Buckley et al., 2024; Garrison and Kanuka, 2004; Graham et al., 2013; Smadi et al., 2019)

The effective implementation of blended learning depends on the design used. It is not just integrating or adding technology to an already overcrowded curriculum. It requires a total redesign of a course to facilitate and nurture critical, creative, and complex thinking skills. Educators need to be open to learn and experiment together with their students to use present and emerging technologies to their advantage in the learning environment (Anderson, 2017; Nelson and Staggers, 2018).

The COI framework promote social interaction, academic discourse, and facilitation in both face to face and online environments and is therefore well suited for the design of blended courses. (Anderson, 2017)

Factors that influence the implementation of blended learning include support from management, the availability of finances and other resources and skilled personnel. (Graham et al., 2013).

3.4 Research Setting

The research setting was a public Nursing Education Institution (NEI) in the Gauteng Province of South Africa that was offering the following courses at the time of the study:

a) Diploma in Nursing for registration as a General Nurse (R.171)
b) Diploma in Nursing for registration as a Nurse (General, Psychiatric and Community) and Midwife (R.425)
c) Bridging course for registration as a General Nurse (R.683)
d) Post Basic qualification for registration as a Primary Health Nurse (R.48).

The Nursing Education Institution had recently applied for and been granted accreditation as a Higher Education Institution, and as a result the R.171 programme for qualification as a Nurse, as prescribed by the SANC, was approved. The students that participated in the survey were the first cohort of R.171 students.

The other programmes (R.425, R.683 and R.48) were being phasing out in compliance with the new Regulation for Nursing Education and Training in South Africa.

3.5 Population and Sampling

3.5.1 Population

3.5.1.1 Phase 1.1 Students

The population for phase 1.1 was the students enrolled at the Nursing Education Institution. This included all the students registered for the legacy programmes, Diploma in Nursing for registration as a Nurse (General, Psychiatric and Community) and Midwife, Bridging Course for registration as a General Nurse, and the post basic diploma in Health assessment, treatment and care and the current Diploma in nursing programme. The total number of students enrolled at the Nursing Education Institution during 2020/2021 period was:

Table 3-2: Total number of students enrolled per course.

Course	**Number of students**	**Course name**
R.171 Level 1 2020	50	Diploma in Nursing for registration as a General Nurse
R.425 Level 2 2020 Level 3 2021	60	Diploma in Nursing for registration as a Nurse (General, Psychiatric and Community) and Midwife
R.425 Level 3 2020/21 and Level 4 2021/2022	257	
R.425 Level 4 2020/2021 (Completed Jan 2021)	267	
R.683 level 1	50	Bridging Course for registration as a General Nurse
R.683 level 2	71	
R.48	61	Post Basic Diploma in health assessment, treatment, and care
	833	**Total**

3.5.1.2 Phase 1.2 Nurse Educators:

The population for phase 1.2 was all the academic staff employed by the NEI during 2020/2021. The academic staff were all in possession of a minimum of a bachelor's

degree with a nursing education degree and consisted of both managers and educators.

Table 3-3: Total number of staff per category.

Staff Category	Number
Management	
Campus Head	1
Deputy Campus Head	1
Heads of Departments	7
Nurse Educators	90
Total	**99**

3.5.2 Sampling: Survey Phase 1.1 and 1.2

3.5.2.1 Phase 1.1: Survey of Students

A simple random sampling method was applied. The sample consisted of a random selection of undergraduate students registered in the Diploma in Nursing for registration as a General Nurse (R.171) and Diploma in Nursing for registration as a Nurse (General, Psychiatric and Community) and Midwife (R.425) programmes. (n=651).

To calculate the sample size, the researcher used the Rao-soft online calculator to determine a sample size. According to the online calculation using the Rao-soft online calculator (http://www.raosoft.com/samplesize.html) a sample of 242 students was needed to achieve a 95% confidence interval, with a 5% sampling error and with a 50% response distribution.

A sampling frame was designed in MS Excel 365 listing all the students in the R171 and R425 undergraduate programmes in alphabetical order. The fields used in the sampling list included the Students' Surname, Names, Student No, and e-mail address. The number of students divided by the sample indicated that every 3rd student should be selected (651/242) = 2.69. To ensure that all the students had an equal chance of being selected, a random starting point was selected and a simple numbering system of 1-3 was applied throughout the list. A sorting function within MS Excel was used to filter all the students with a No 3 allocation to be included in the sample. The filtered list was used to invite students to participate in the research and to complete the online survey designed in REDCAP (Wits).

As only n=42 students responded to the online survey, the researcher repeated the process when the students were physically in the institution after the Covid-19 lockdown had ended. The researcher asked permission from the Heads of Departments and the class lecturers of R171 level 1 and R.425 Level 2,3 and 4, to engage the students after lectures to explain the research again and to ask them to participate in completing the BLREQ. and obtained a further 95 completed questionnaires. To ensure that students who had responded online did not complete a questionnaire again the researcher asked them not to complete another survey.

The total sample taken from undergraduate students registered in the R.171 and R.425 programmes from both online and paper-based completion surveys was:

R.171 level 1 (n=18) and R.425 Level 2-4 students (n=119). Total number of participants = 137 (21%).

A total of 137 students out of a possible 651 (21%) students participated in the study. According to the Raosoft online calculator, this represented a 6.88% margin of error with a confidence interval of 93% with a 50% response distribution.

3.5.2.2 Phase 1.2: Survey of Nurse Educators

The number of nurse educators and managers in the Nursing Education Institution was n=99, of which ninety 90 were Nurse Educators and nine (9) were Nursing Education Managers.

A total sample of Nursing Educators employed at the Nursing Education Institution were invited to take part in the survey. The survey was posted to staff members using the REDCAP (Wits) software program. The online responses were extremely poor and only twelve (12) nurse educators responded online.

When covid restrictions were lifted nurse educators were also approached, when they returned physically to the research site, to complete hard copies of the questionnaire. A total of thirty questionnaires from 99 nurse educators (30%) were collected.

3.5.3 Sampling Focus Groups Phase 2

3.5.3.1 Phase 2.1: Nurse Education Managers

A convenience sample from the Nurse Education Managers (n=9) was done. All managers were invited to take part in the focus group for managers. The realised sample consisted of four members from the management team.

3.5.3.2 Phase 2.2: Nurse Educators

Nurse Educators currently employed in the Nursing Education Institution teaching in the undergraduate programmes were included in the sample. n=93. A purposively selected sample of 7 nurse educators took part in the focus group.

A sampling framework was used for the purpose of selection to ensure that the participants included those with less than 2 years' experience, those that had more than 2 years' experience and those teaching in the R.425 and R.171 courses, respectively. A total of seven nurse educators participated in the focus group.

3.5.4 Data collection

Permission to conduct the survey in a Nursing Education Institution of the Gauteng Department of Health was requested and granted by the Gauteng Department of Health: Directorate of Nursing Education and Training, and the college research committee Protocol No 202003021. (Annexure 1).

Study data was partly collected and managed using REDCap electronic data capture tools hosted at WITS. REDCap (Research Electronic Data Capture) is a secure, web-based software platform designed to support data capture for research studies, providing 1) an intuitive interface for validated data capture; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for data integration and interoperability with external sources (Harris et al., 2019).

Microsoft Excel was used to capture and analyse the data collected manually and the data from Red Cap was transferred to MS Excel to have a compete dataset with which to work.

3.5.4.1 Phase 1: Research instrument

The Blended Learning Readiness Engagement Questionnaire (BLREQ®), as developed by Adams et al., 2018, was used to determine students' readiness for blended learning. (Annexure 3, Student and Nurse Educator Questionnaires). Permission was obtained from the author to use the BLREQ® in this study (Annexure 2, Permission to use BLREQ ®).

Section A of the BLREQ® contains six items and deals with demographic information: the level of study, gender, ethnic identity, age, type of schooling and qualifications prior to current studies. Changes made to the content of Section A included changing the term University to Nursing Education Institution to fit the context of the study. The section on schooling was adapted to fit the South African context and schooling types. Any American and British spellings were changed to South African spelling convention for ease of understanding.

Section B formed the main part of the questionnaire with forty-one (41) items using a 4 Point Likert scale ranging from strongly disagree (1) to strongly agree (4). The questionnaire measured six dimensions of readiness for blended learning. The six dimensions consisted of technology skills (11 items), technology usage (8 items), technology availability (4 items), self-directed learning (6 items), computer and internet efficacy (8 items), and attitude (4 items). Section C contained an open-ended question to establish students' and nurse educators' feelings towards the implementation of blended learning in the Nursing Education Institution. While not intended for analysis, this open-ended question was answered extensively by many and was thus analysed qualitatively.

- ***Phase 1.1, Student survey***

The survey was administered to nursing students at the Nursing Education Institution to establish their readiness to engage with blended learning. The survey questionnaire consisted of an information and consent page and the 3-sections of the questionnaire namely demographic information, readiness for blended learning and attitude towards blended learning.

At the time of data collection student access to the campus was limited due to the Covid-19 lockdown. The method of data collection was changed to an online

questionnaire using Red Cap software Harris et al., 2019) and distributed electronically to students according to the sampling methodology.

The response to the redcap invitation to take part in the survey was not satisfactory, and students were approached to complete a printed hard copy questionnaire in the Nursing Education Institution during January/February 2021 after the relaxation of the Covid-19 lockdown protocol.

Students in the R.171 programme and students in the R.425 programme in their respective levels of study were approach to participate in the survey in a pre-arranged venue on a specific date and time that suited both students and class educators. Information sessions were held by the researcher for students to explain the purpose of the study before distributing the printed hard copies of the BLREQ®.

The questionnaire was distributed to every third student in the venue by the researcher and the class facilitator. Students who did not wish to participate were excused.

Phase 1.2, Nurse Educator survey

The survey was administered to nurse educators at the Nursing Education Institution to establish their readiness to engage with blended learning. The survey questionnaire consisted of an information and consent page and the 3-sections of the questionnaire namely demographic information, readiness for blended learning and attitude towards blended learning.

At the time of data collection nurse educators were working from home due to the Covid-19 lockdown. The method of data collection was changed to an online questionnaire using Red Cap software and distributed electronically to nurse educators according to the sampling methodology.

The response to the redcap invitation to take part in the survey was not satisfactory, and nurse educators were approached to complete a hard copy questionnaire in the Nursing Education Institution during January/February 2021 after the relaxation of the Covid-19 lockdown protocol. Nurse educators were invited to an information session at the Nursing Education Institution after which the survey instrument was given to those willing to participate.

3.5.4.2 Phase 2

Phase 2.1 Focus Group with managers.

All the nurse education managers were invited to take part in a focus group for nurse education management. Four nurse education managers agreed to participate in the focus group.

The focus group with nurse education managers was conducted with four (4) participants in a suitable venue on the college premises. Participants signed an attendance register and completed a consent form, indicating their willingness to participate in the focus group. The purpose and the goal of the session were to discuss ideas and guidelines to prepare nurse educators for the implementation of blended learning in the institution, was explained on commencement of the group. Permission was obtained to audio record the conversation after completion of the information session. (Annexure 7, Consent Form Focus Groups)

Focus group with Educators.

A purposively selected sample of seven (7) nurse educators from the R.171 and R.425 programme was invited to attend a focus group to inform them on the preliminary outcomes of the BLREQ® on students and staff members and to engage them on how they can be supported to offer blended learning.

The focus group were held in a classroom with nurse educators positioned in a circle to encourage conversation. Consent forms were signed and permission to audio tape the session was obtained. The session lasted for an hour and a half, until no new comments were forthcoming. The moderator of the session was a senior lecturer with a master's degree in nursing education.

The outcomes of the focus group were used to identify the interventions needed to best prepare academic staff to implement blended learning in the nursing college in Gauteng.

3.6 Data analysis

Data analysis for the qualitative part of the study was done by template analysis, using the Community of Inquiry framework.

In this study the three (3) presences of the Community of Inquiry were interpreted as follows:

Social Presence refers to the establishment of personal and purposeful relationships and includes interaction between students and between students and Nurse educators. In the COI framework, students recognize that they are not there for purely social reasons and the model identifies three main aspects of social presence, viz. effective communication, open communication, and group cohesion. (Garrison, 2023)

Cognitive Presence refers to the students' and nurse educators' attitudes about blended learning (internal reflection) and application of blended learning in the Nursing Education Institution. In the Community of Inquiry model, the cognitive presence goes further and includes exploration, construction, resolution, and confirmation of understanding through collaboration and reflection in a community of inquiry. (Garrison, Anderson, and Archer, 2000; Vaughan, 2010; Anderson, 2017

Teaching Presence refers to issues related to the curriculum, facilitation of learning and teaching as well as assessment methods. The Nursing Education Institution environment, infrastructure, and the availability of resources was also included in this theme. In the COI framework, it is emphasized that while interaction and discourse play a key role in learning, this will not occur without structure (or design) of the curriculum and leadership, which includes facilitation and direction.

Table 3.4 provides a template for the coding of data.

Table 3-4: Coding template.

Presence	**Description**
Social Presence	Everything that indicates social interaction or communication with peers or lecturers
Cognitive Presence	Reflection on blended learning
Teaching Presence	Everything that indicates the teaching environment, curriculum, resources, or issues of support.

The data from Section C of the BLREQ® from both students and nurse educators was put in a MS Excel spreadsheet and sorted according to themes and subthemes, and categories were derived from the data until nothing new could be identified. The data

from the transcriptions of the focus groups held with Nurse Education Managers and Nurse Educators were added into the existing themes.

3.7 Development of guidelines

Guidelines were developed using the outcome of the survey phase 1 on the readiness for blended learning and the phase 2 focus groups with managers and nurse educators. The data from these two phases was further analysed to develop lessons learned from this data and the literature reviewed in Chapter 2. Using an iterative process, together with the researchers' supervisor, the lessons were then developed into guidelines and structured according to the COI framework. Where there were gaps in the available data the researcher used additional literature sources to provide sufficient guidance.

3.8 Ethical Considerations

Ethical considerations deal with the responsibility of the researcher to act ethically and adhere to the basic principles and ethics of research to protect the rights of research participants, enhance research validity and to maintain scientific or academic integrity (Bhandari, 2023).

The research proposal was presented to the Department of Nursing Education for peer review after which a letter of approval was obtained from the Post Graduate Committee of the University of Witwatersrand.

Ethical clearance was obtained from the Human Research Ethics Committee of the University of Witwatersrand (Annexure 4) Protocol Number: H19/11/46, and approval to conduct the research at a Nursing Education Institution in Gauteng was granted by the Department of Health: Nursing Directorate. (Annexure 1).

The following principles of ethics were applied in this study:

3.8.1 Principle of Justice

The principle of justice deals with participants' right to fair treatment, selection, and treatment as well as their right to privacy.(Brink et al., 2012). Selection of participants was fair and students had an equal chance to take part in the study. All students in the R.425 and R.171 programmes attended the information sessions, and no student was

prevented from participation. Students who were included in the research sample had free choice of participation and could at any time withdraw from participating in the survey.

3.8.2 Principle of Beneficence and non-maleficence

The principle of beneficence emphasises the duty of a researcher to act in the interest of humanity and to prevent harm and exploitation.(Pollit and Beck, 2017). The human rights that require protection include the right to self-determination, anonymity and confidentiality, fair treatment and protection from harm and discomfort (Gray and Grove, 2021).

The study can be classified as minimal risk, because there is no direct involvement other that completion of a survey, or participation in a focus group.

The purpose of the study and the benefits for future students were explained. The study was conducted in the safety of the educational institution at a time and venue that was suitable to all participants. The heads of departments and lecturers were consulted for a date and time that would not interfere with their programmes. The research and research process were explained to the students prior to conducting the survey. Participation was voluntary and students who did not wish to participate in the survey were excused from the classroom. The survey was conducted in a classroom, where students attended lectures, after their program was concluded for the day. Participating students completed the questionnaire while the researcher was available to answer questions.

3.8.3 Respect for Human Dignity

Respect for Human Dignity involves the right to self-determination and the right to full disclosure (Pollit and Beck, 2017). Self-determination means that persons have the right to decide for themselves and to live their lives as they choose to do so and therefore, they need to be treated as autonomous agents during information sessions. Participants' right to self-determination may be violated if a researcher was not open about the data collection, if participants were coerced into participation, or if they were wilfully misinformed about the purpose of the study. (Gray and Grove, 2021).

Participants were informed of the study during information sessions held at the Nursing Education Institution during a pre-arranged time that suited both students and lecturers. The information session took the form of a presentation where the researcher informed participants on the aim of the study and their rights to participate or not without any consequence. It was also explained that they would not receive any benefit other than future implementation of blended learning in the institution. Students then had the option to leave or not accept a survey form if they so wished. Separate information sessions were held for nurse educators and nursing students. Participation was voluntary and participants could decide to withdraw at any stage during the research. A separate information sheet with all the details of the research and contact number of the researcher, supervisor and Ethics person was supplied to all participants. Written consent was obtained from the participants after they have been briefed on the content of the research (Annexure 5, Participant information and Annexure 6 Consent sheet.).

3.8.4 Anonymity and confidentiality

Anonymity means that a person's response may not be linked to his or her identity. Confidentiality occurs when the identity of a person cannot be linked to the response, and the researcher safeguards the confidentiality by ensuring that the information is not shared with others (Gray and Grove, 2021). Anonymity and confidentiality were maintained by not using any identifiable information during data analysis and reporting. Codes and numbers were assigned to participants for the BLREQ® and participants in the focus groups. Participants in the focus groups were reminded that the content of discussions should be treated as confidential.

3.8.5 Informed Consent

Informed consent requires that participants had received adequate information and explanation on the research being performed and what the goals of the research entailed. Participants must have the understanding that participation is voluntary and that participation is their choice (Brink et al., 2012).

Information sessions were held with all participants where the researcher presented the aims of the research and what was required from the participants. All participants

received a consent form (Annexure 5) with all the necessary information as well as a separate form to indicate their willingness to participate in the study by signing it.

3.8.6 Reliability

The reliability of an instrument represents the stability in which an instrument measures an attribute, concept, or situation within a study (Gray and Grove, 2021). The researcher used the Blended Learning Readiness Engagement Questionnaire (BLREQ®) with permission from the researcher(s) that developed it. Minor changes were made to the demographic section of the questionnaire to reflect the context of the study. e.g., University was replaced with Nursing Education institution; the type of schooling was added to determine background of students.

The BLREQ® is a reliable instrument for the following reasons:

- A good one-dimensional measure with the index of raw variance above the standard of 40%.
- Real person reliability index of 0.94 indicating that response consistency was particularly good.
- Cronbach Alpha coefficient of 0.97 indicating good psychometric consistency.
- A person separation index (4.00) and an Item separation index (9.01) further validate the BLREQ® as a fit and reliable instrument for measuring blended learning readiness. (Adams et al., 2018).

3.8.7 Validity

The validity of an instrument indicates the extent to which it reflects or its ability to measure the construct being examined. The reported reliability of the instrument is indicative of its validity.

The BLREQ® has been validated to measure the readiness of students for blended learning. In this study, nurse educators were also surveyed to evaluate their responses against those of the students.

3.8.8 Trustworthiness

According to Lincoln and Guba, in Polit and Beck, 2017, trustworthiness involves establishing credibility, transferability, dependability and conformability. This was applicable to the qualitative phase of the study, phase 2.

3.8.9 Credibility

Credibility determines the truthfulness of the data and the interpretation thereof. Credibility can be established by using the following techniques.

- **Prolonged engagement:**

  The researcher spent time with the data by reading and re-reading comments and discussions in the focus groups to gain in-depth understanding of the concepts arising from the discussions.

- **Triangulation:**

  Triangulation in mixed methods research uses data from multiple points and types to verify the results (Gray and Grove, 2021). The data from Section B of the BLREQ® was checked against the concepts/themes derived from section C of the BLREQ® during phase 1.1 and the concepts derived from the focus groups phase 1.2 to prepare the guidelines for the implementation of blended learning in the Nursing Education Institution.

- **Peer debriefing:**
  Peer debriefing and consultation was used to confirm understanding of the research process. During peer debriefing, the researcher discussed the research process and findings with fellow researchers to debrief and confirm the process.

3.8.10 Transferability

Transferability refers to the degree to which the results can be applied in different settings. (Polit & Beck, 2017). Transferability was ensured through detailed description of the demographic data, sampling process, and data saturation.

3.8.11 Dependability

Dependability establishes the research findings as consistent and repeatable (Polit & Beck, 2017). Dependability was assured by careful notation of the process and procedures followed to ensure repeatability of the study. The findings and conclusions were also compared to similar studies.

3.8.12 Confirmability

Confirmability safeguards the opinions of participants by making sure that the findings, conclusions, and suggestions of the study correlate with the actual information provided by the participants. The researcher spent time analysing the data by revisiting, consulting, and amending, ensuring neutrality. (Brink et al., 2012). Conclusion

In this chapter the research design for the study on guidelines for the implementation of blended learning in a nursing college was discussed. The next chapter discusses the results of the BLREQ® survey and focus groups.

CHAPTER 4

4 RESEARCH ANALYSIS

4.1 Introduction

In this chapter the results of Phase 1.1. and 1.2, the BLREQ® survey, as well as the results of focus groups Phase 2.1 and Phase 2.2, relating to the implementation of blended learning in the Nursing Education Institution, are discussed.

4.2 Results

4.2.1 Phase 1.1: BLREQ ® Section A Demographic data - Students

The sample was n=137 students.

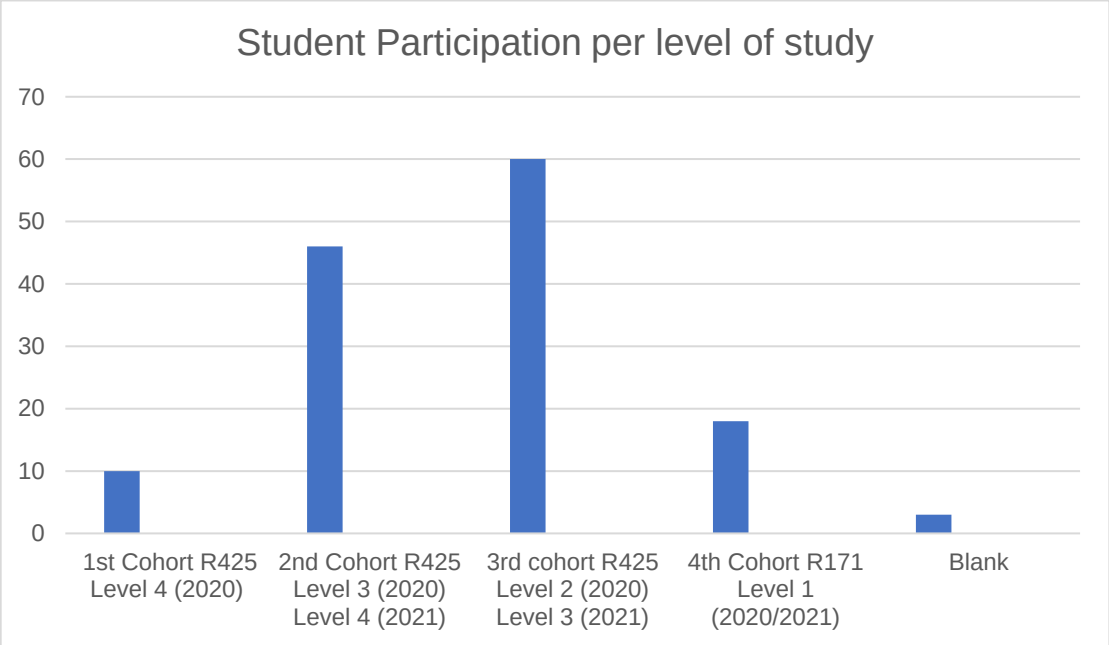


Figure 4-1: Participation of students per programme.

4.2.1.1 Participation of students per programme and level of study.

Students in the Diploma programme for registration as a nurse (General, Psychiatric and Community) and Midwife (R.425), a four-year course, participated in the in the survey. There was no intake of first year students in the R.425 programme during 2019 as the program were phasing out. The level

2 students (Level 2 2020) n=60 became Level 3 students in 2021, followed The Level 3 group (2020/21) n=274 of which 46 participated in the research. and lastly the fourth year (level 4 2020 students) with 10 students participating in the online survey. The level 4 students completed in January 2021. Due to student unrest and the Covid-19 period, students had to extend their programme, and some of the levels overlapped. hence the data label describes the R.425 as being in the second year in 2020 and moved to the third year in 2021 as well as the Level 3 group in 2020 moved to Level 4 in 2021. Data analyses was done with the same group of students over the period of 2 years.

The students in the newly offered Diploma in Nursing for registration as a general nurse (R.171) also participated in the survey, n=18. A total of three (3) unrecorded forms were handed in.

4.2.1.2 Gender

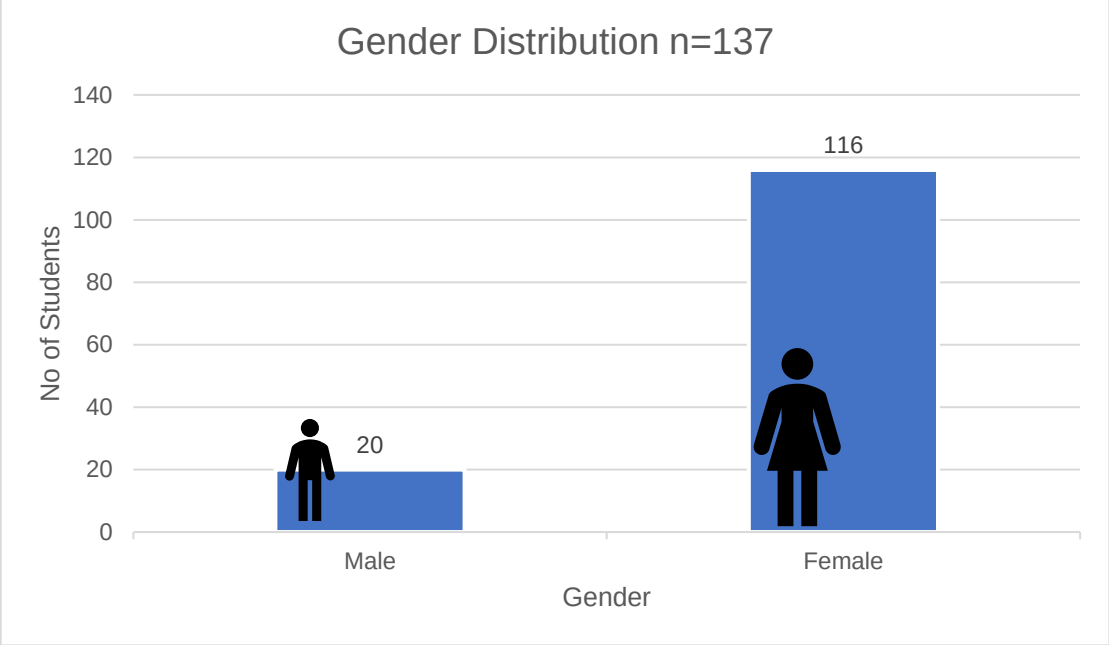


Figure 4-2: Gender distribution.

Of the one hundred and thirty-seven (n=137) participants, one hundred and sixteen (n=116, 84.7%) were female and twenty (n=20, 14.6%) were male. One (n=1, 0.7%) did not indicate a gender. The gender distribution was reflective of the true gender distribution in the nusing education institution and nursing practice as nursing remains a female dominated profession. (Rabie,2023)

4.2.1.3 Race

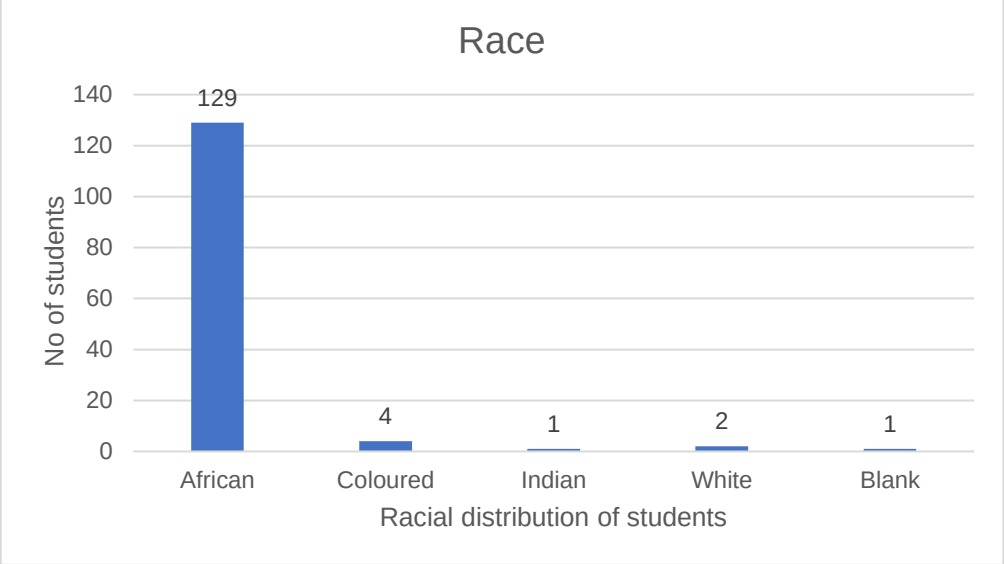


Figure 4-3 Racial distribution of students 1

The distribution of race was Black students (n= 129, 94.2%), followed by Coloured students (n=4, 2.9%), white students (n=2, 1.5%) and Indian students (n=1, 0.7%). Not recorded or incomplete answers equalled (n=1, 0.7%).

4.2.1.4 Age:

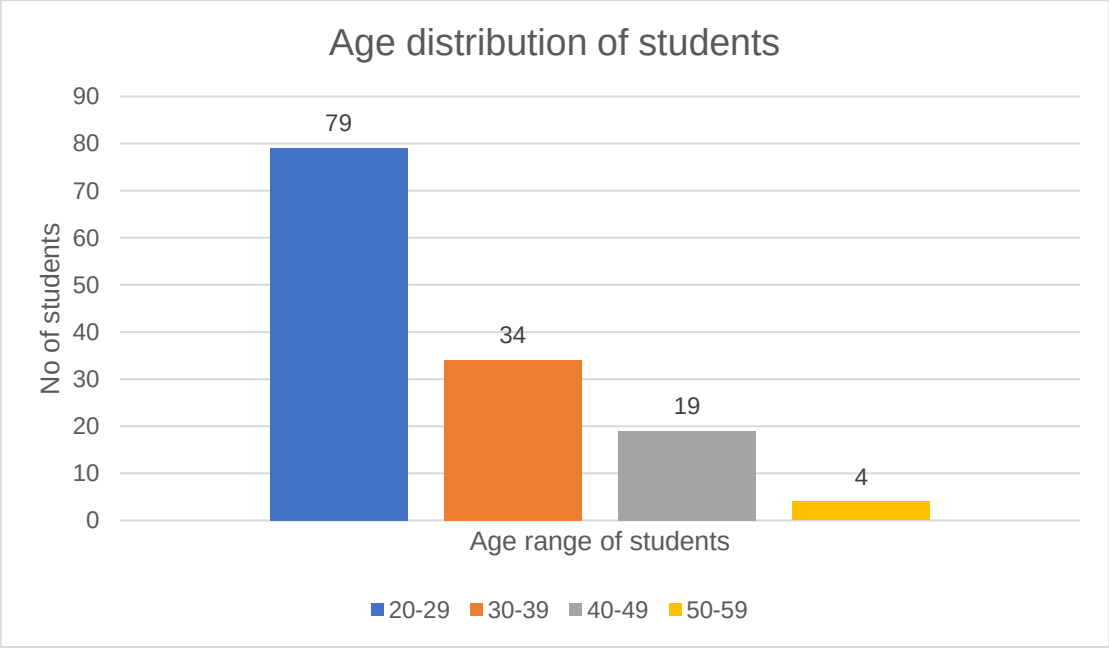


Figure 4-4: Age distribution of students.

The age distribution of the participants shows that the majority of students (n=79) is in the 20-29 age group, followed by n=34 in the 30-39 age group and n=19 in the 40-49 with n=4 over 50 years of age. The older students represent students that have completed a previous qualification and those participants who upgraded their qualification through the Recognition of Prior Learning programme (RPL).

0.7% of the participants (n=1) did not complete this question.

4.2.1.5 Type of Schooling

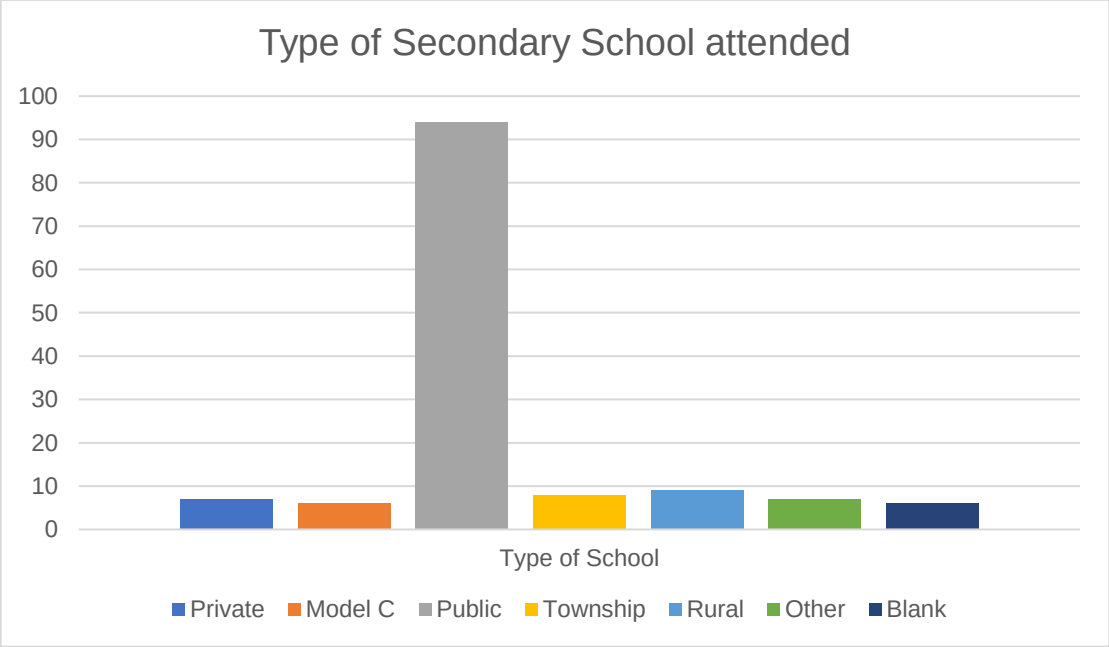


Figure 4-5: Type of secondary school attended.

The largest number of participants (n=117 or 85.4%) came from the Public School system, which includes Model C, Public, Township and Rural schools. Participants who attended private schools were n=7 (5.1%), while 7 participants indicated other type of schooling. (5.1%).

4.2.1.6 Qualification:

Qualification means any qualification prior to their current studies. The choices were a bachelor's degree, master's degree, a Diploma or other. Participants with a bachelor's degree n=7, none of the participants had a master's degree, n=27 indicated that they had a Diploma and n=67 indicated "other"

qualifications. Qualifications mentioned in the other category are listed in the table 4.1 underneath.

The NQF 4 Vocational, National Senior certificate and Senior Certificate are an admission requirement to study nursing at the college.

Table 4-1: Other qualifications mentioned.

NQF 4 Vocational	1
National Senior certificate	45
Senior certificate	2
Higher Certificate	10
Certificate in enrolled nurse	4
certificate	4
One year certificate	1

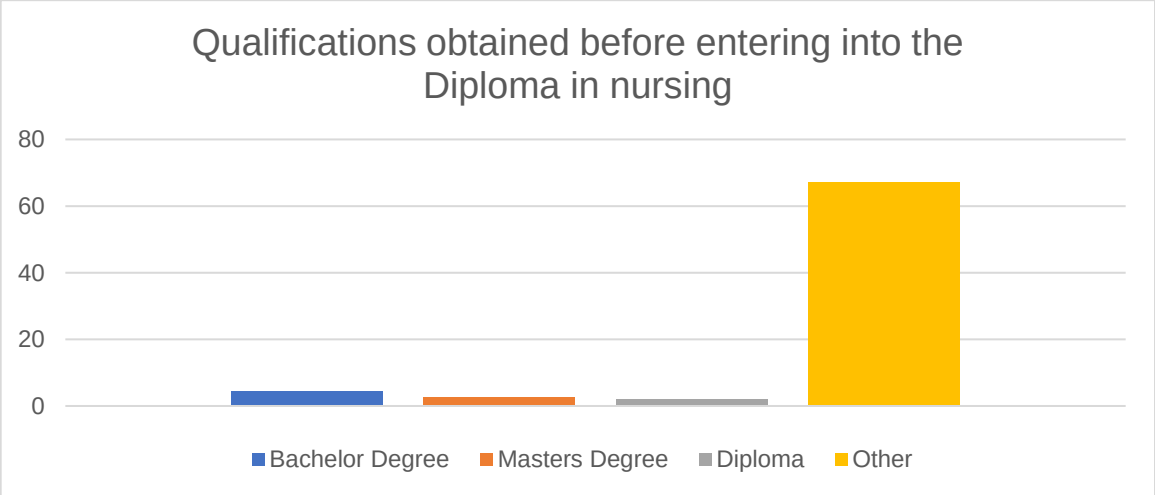


Figure 4-6: Other qualifications.

4.2.2 Phase 1.1 BLREQ ® Section B: Questionnaire: Students

Section B of the BLREQ® consist of forty-one (41) questions that deal with the six (6) areas of technology literacy. The six areas are technology skill, technology availability, technology usage, computer and Internet efficacy, self-directed learning, and attitude towards blended learning.

The questions dealing with the different areas of technology literacy in the BLREQ® were dispersed throughout the questionnaire, but for the purpose of reporting and analysis the researcher grouped the questions according to the

six areas of technology literacy. A breakdown of the areas of technology literacy gives greater insight into students' technological ability.

4.2.2.1 Technology skills

The following eleven (11) items from the BLREQ® were designed to measure technology skills. All the questions in the questionnaire that starts with "I know" measured technology skill.

Table 4-2: Technology skills - students

Item #	Technology Skills	Mean	Standard Deviation
1	I know the basic functions of computer/laptop and its peripherals like the printer, speaker, keyboard, mouse etc.	3.50	0.74
7	I know how to save and open documents from a hard disk or other removable storage device.	3.36	0.78
13	I know how to open and send email with file attachments	3.45	0.69
19	I know how to log into Wi-Fi.	3.46	0.64
25	I know how to navigate web pages (go to the next or previous page).	3.22	0.92
29	I know how to download files using web browsers (e.g., Google Chrome, Internet Explorer, Mozilla Firefox) and view them	3.26	0.89
31	I know how to access an online library or database	2.74	0.89
35	I know how to use word processing software (e.g., MS Word)	3.07	0.88
37	I know how to use presentation software (e.g., MS PowerPoint	2.99	0.97
39	I know how to use spreadsheet software (e.g., MS Excel, Calc).	2.77	0.96
41	I know how to open several applications at the same time and move easily between them.	3.10	0.93
	Average across all items	**3.17**	**0.85**

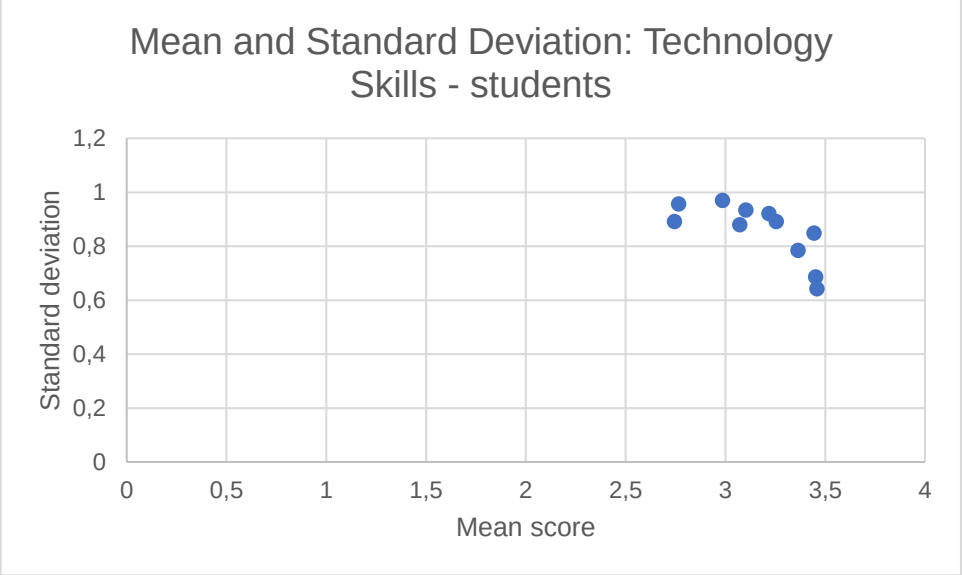
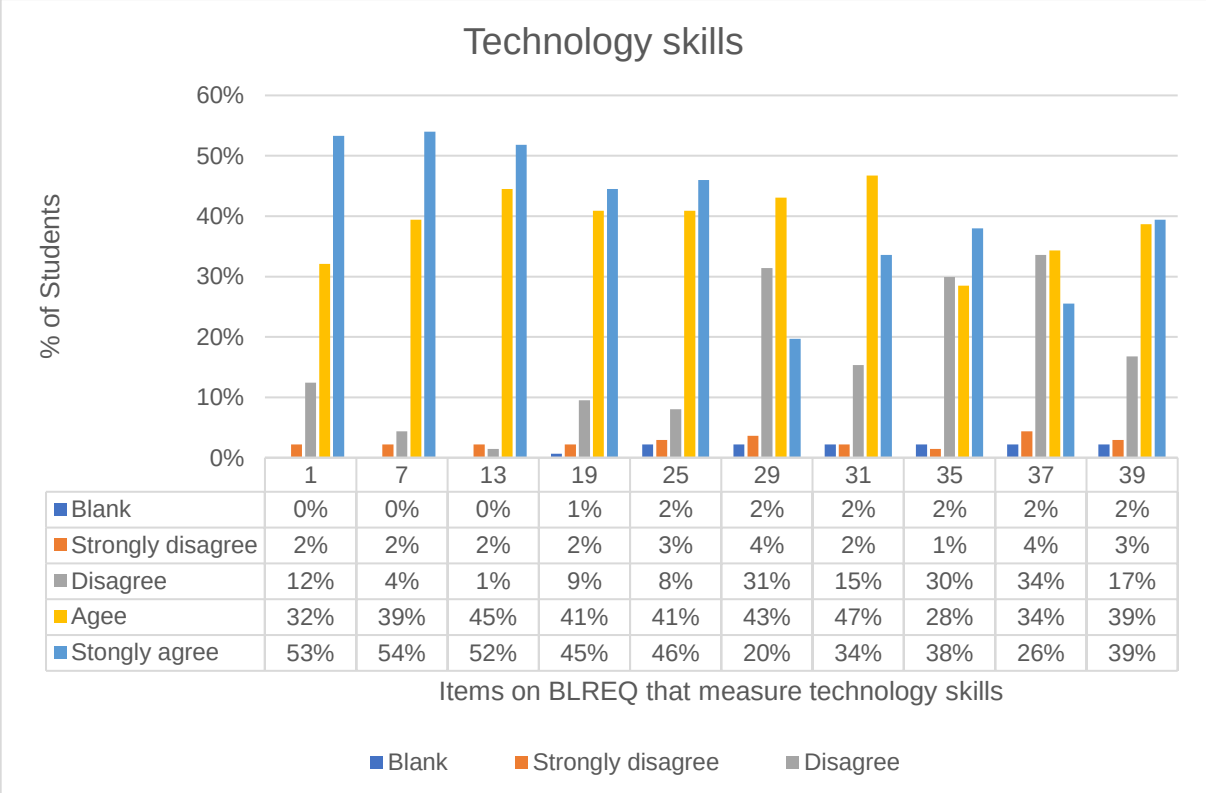


Figure 4-7 Mean and Standard Deviation Scores: Technology skills – students



	1	7	13	19	25	29	31	35	37	39
Blank	0%	0%	0%	1%	2%	2%	2%	2%	2%	2%
Strongly disagree	2%	2%	2%	2%	3%	4%	2%	1%	4%	3%
Disagree	12%	4%	1%	9%	8%	31%	15%	30%	34%	17%
Agee	32%	39%	45%	41%	41%	43%	47%	28%	34%	39%
Stongly agree	53%	54%	52%	45%	46%	20%	34%	38%	26%	39%

Figure 4-8: Technology skills - students

The mean score across the eleven (11) items in the technology skills area was 3.17, which indicates that the participants perceived themselves as having the necessary technological skills to participate in a blended or online learning environment.

Forty-two percent (42%) of the students chose the “strongly agree” and “agree” (38%) options (figure 4.8), while 20% of students felt that they did not have the necessary technology skills to participate in an online and blended learning environment.

The students were less confident about their ability to download information from a web browser (Item 29) or to access online databases (Item 31), use application software such as MS Word (Item 35), MS PowerPoint (Item 37), or MS Excel (Item 39). Students also indicated that they were less proficient in using multiple programmes simultaneously (Item 41).

4.2.2.2 Technology Usage

The following eight items of the BLREQ® in the table below measure technology usage. The questions indicating usage start with “I often use...”

Table 4-3: Technology usage - students.

Item #	Technology Usage	Mean	Std Dev
2	I often use internet to find information	3.61	0.66
8	I often use e-mail to communicate	3.14	0.86
14	I often use office software (e.g., MS Word, MS PowerPoint, MS Excel, or similar programmes)	3.17	0.79
20	I often use social networking sites to share information (e.g., Facebook, Twitter, Instagram, Snapchat).	3.14	0.94
26	I often use instant messaging (e.g., WhatsApp, Viper, WeChat, Line, Telegram)	3.36	0.86
30	I often use cloud-based file hosting services to store or share documents (e.g., Google Drive, One Drive, Dropbox)	2.69	0.97
32	I often use a Learning Management System (LMIS)	2.42	0.84
36	I often use mobile technologies (e.g., smartphone, tablet) to communicate	3.47	0.81
	Average	**3.13**	**0.84**

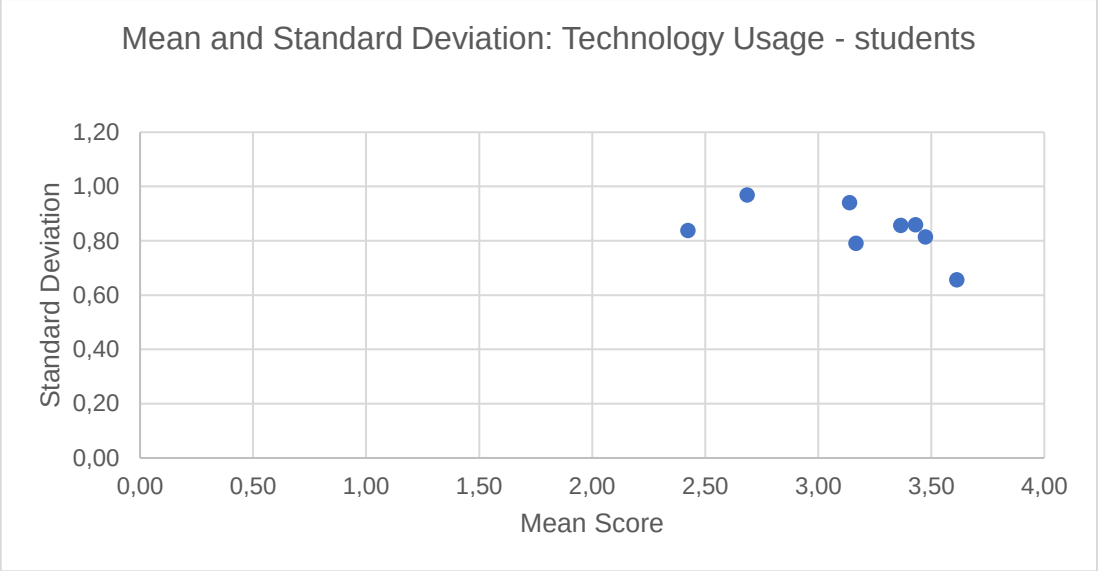
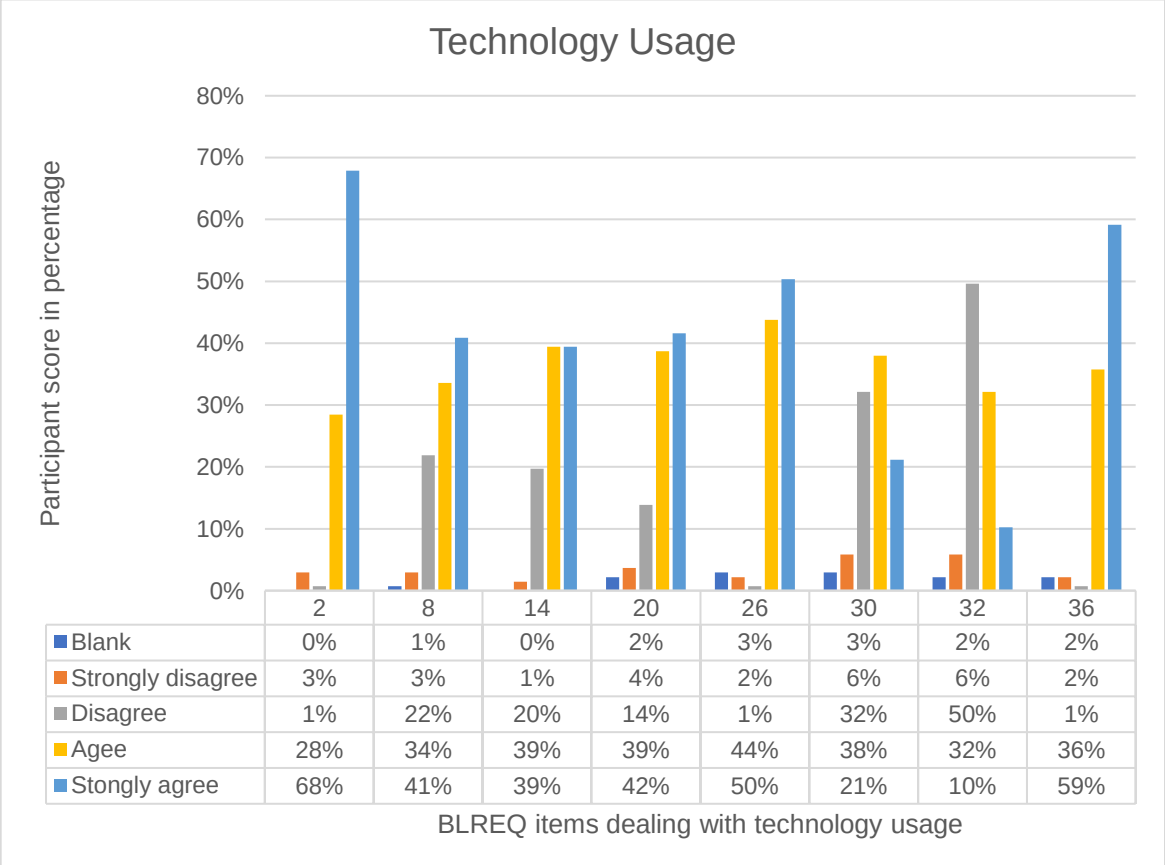


Figure 4-9: Mean and Standard Deviation, Technology Usage - students



	2	8	14	20	26	30	32	36
Blank	0%	1%	0%	2%	3%	3%	2%	2%
Strongly disagree	3%	3%	1%	4%	2%	6%	6%	2%
Disagree	1%	22%	20%	14%	1%	32%	50%	1%
Agee	28%	34%	39%	39%	44%	38%	32%	36%
Stongly agree	68%	41%	39%	42%	50%	21%	10%	59%

Figure 4-10: Technology usage - students

Figure 4.10 indicates the responses of the nursing students on their use of technology.

Nursing students indicated that they used technology in their everyday lives and studies. Most students Strongly agreed (41%) or agreed (36%) that they used the internet to find information and to communicate with others. They preferred using mobile technologies to communicate: (59%) strongly agreed and (36%) agreed with the statement “I often use mobile technologies (e.g., smartphone, tablet) to communicate” (Item 36).

The mean score for technology usage was 3.16 across all items indicating that students do use technology, however, for Items no 8, 14, 20 and 30 many of students disagreed or strongly disagreed to the following statements.

Item No 8 “I often use email to communicate”: (22%) of students disagreed and 3% strongly disagreed indicating that email might not be the choice of communication for them. Alternative communications used by students included WhatsApp, Chat, or other social media applications.

Item No 14 “I often use office software (e.g., MS Word, MS PowerPoint, MS Excel, or similar programmes)”, (20%) of student participants disagreed with this statement and 1% strongly disagreed.

Item No 20 “I often use social networking sites to share information (e.g., Facebook, Twitter, Instagram, Snapchat)”: (14%) disagreed and (4 %) strongly disagreed.

Item no 30 “I often use cloud-based file hosting services to store or share documents (e.g., Google Drive, One Drive, Dropbox)”: 32% of students disagreed and 6% strongly disagreed with the statement. This indicated that a high percentage of students do not often use cloud-based services.

Item no 32 “I often use a Learning Management Information System (LMIS)” was concerning as 50% of students disagreed and 6 % strongly disagreed with the statement. This might indicate that the students are not familiar with learner management systems or that the nursing education institution did not use one. Students’ have been exposed to a Moodle learning site during Covid-19 lockdown, where they attended orientation sessions in small numbers once strict lockdown were lifted.

4.2.2.3 Technology Availability

The following four items of the BLREQ® dealt with technology availability. The questions in this group start with “I have a…”

Table 4-4: Technology availability - students

item	Tech Availability	Mean	St Dev
3	I have a computer/laptop with an internet connection	3.18	0.90
9	I have a computer/laptop with adequate software for learning (e.g., Microsoft Office)	3.01	0.92
15	I have speakers for courses with video presentations	2.76	1.00
21	I have a computer/laptop and its peripherals like the printer, speaker, keyboard, mouse etc.	2.89	0.99
	Average	**2.96**	**0.95**

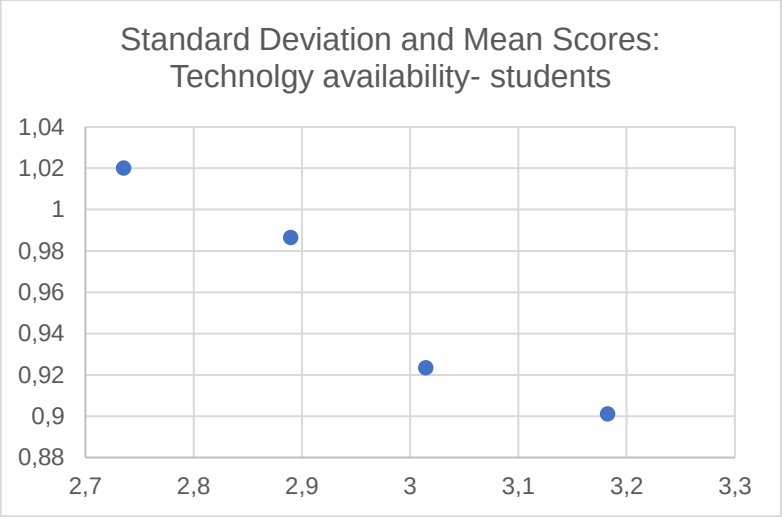
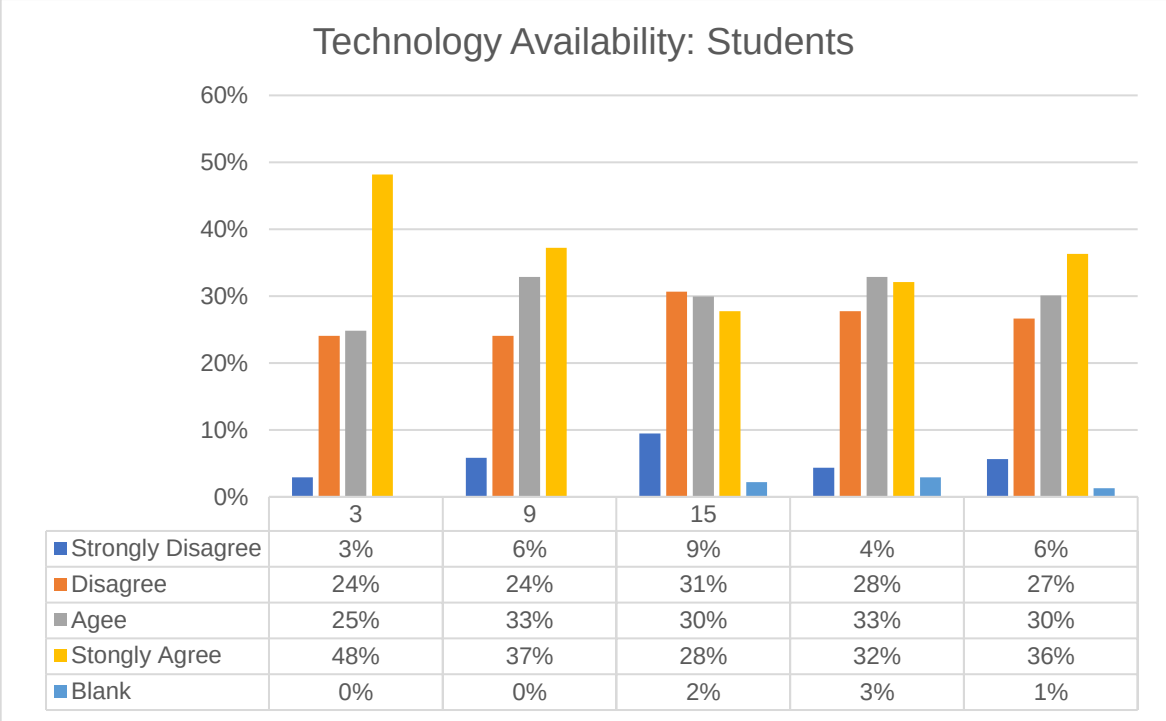


Figure 4-11: Standard deviation and mean scores of technology availability of students.



	3	9	15		
Strongly Disagree	3%	6%	9%	4%	6%
Disagree	24%	24%	31%	28%	27%
Agee	25%	33%	30%	33%	30%
Stongly Agree	48%	37%	28%	32%	36%
Blank	0%	0%	2%	3%	1%

Figure 4-12: Technology availability- students.

Figure 4.12 above shows the students responses to the items on technology availability in percentages. Seventy three percent (73%) of the students agreed or strongly agreed that they had a computer or laptop with an internet connection and that they had the necessary software for learning. (Item 3 and 9). The mean scores = 3.18 and 3.01 respectively indicating a positive response. The nursing education institution has a computer laboratory and access to computers in the institutions library which are internet enabled during college hours. Limited after-hours services were available to students on request.

More students indicated that they did not have a computer /laptop with peripherals such as printers, speakers, keyboard, and mouse. Forty percent (40%) of students disagreed (thirty one percent (31%) strongly disagreed and nine percent (9%) disagreed) with the statement “I have speakers for courses with video presentations”. 28% of students disagreed and 4% strongly disagreed with the statement “I have a computer/laptop and its peripherals like the printer, speaker, keyboard, mouse etc”. The mean score for items 15 and 21 were lower than the mean score for the technology availability group.at 2.76

and 2.89, respectively. The standard deviation for this group varies between 0.9 and 1, indicating less consensus on the availability of technology.

4.2.2.4 Computer and Internet Efficacy

The following items from the BLREQ® evaluated Computer and Internet Efficacy of respondents.

Table 4-5: Computer and internet efficacy – students.

	Computer and Internet efficacy	**Mean**	**Std Dev**
5	I feel confident in using online tools (e.g., e-mail, internet chat, instant messenger) to communicate effectively with others.	3.33	0.72
11	I feel confident in expressing myself (e.g., emotions and humour) in my Nursing College's learning Management System (e.g., Moodle)	2.81	0.80
17	I feel confident in posting questions in online discussions.	2.76	0.82
23	I feel confident in performing the basic functions of word processing software (e.g., MS Word).	3.12	0.84
28	I feel confident in performing the basic function of presentation software (e.g., MS PowerPoint)	2.95	0.91
34	I feel confident in performing basic functions of spreadsheet applications (e.g., MS Excel)	2.70	0.89
38	I feel confident in using web browsers (e.g., Google Chrome, IE, Mozilla Firefox) to find or gather information for online learning	3.23	0.93
40	I feel confident in using a computer, tablet, or mobile phone for online learning.	3.12	1.01
	Average	**3.00**	**0.87**

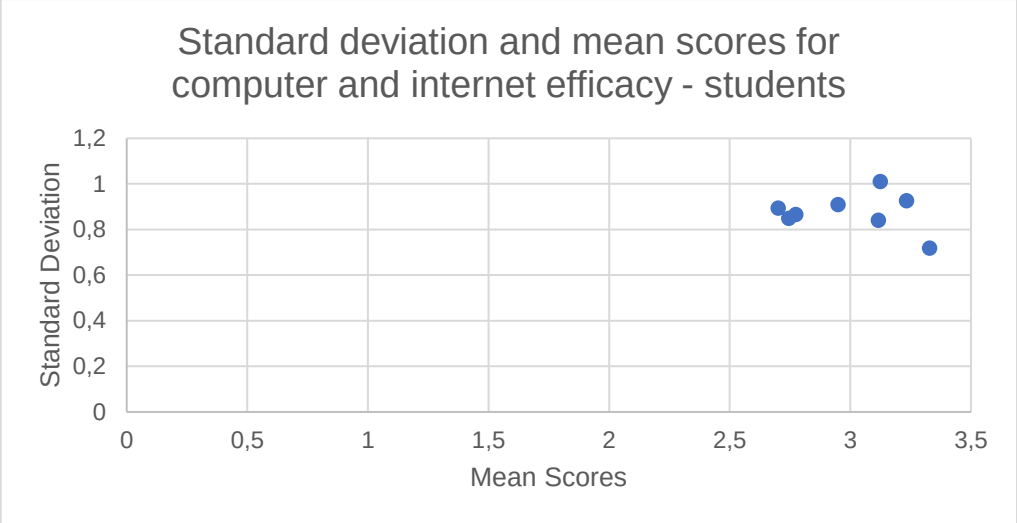


Figure 4-13: Mean and standard deviation scores for Computer and Internet efficacy – students.

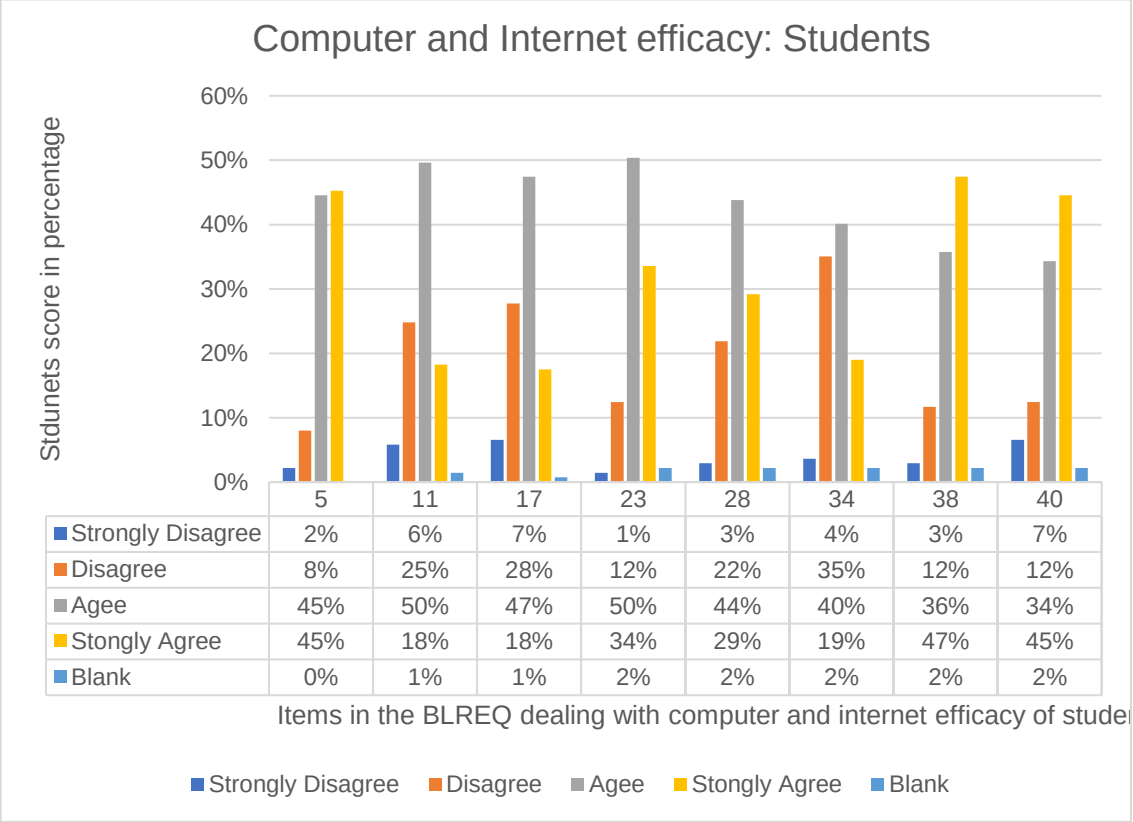


Figure 4-14 Computer and internet efficacy: Students

Students expressed that they were confident in using online communication tools, by choosing the agree (45%) or strongly agree (45%) options with a mean score of 3.33, but they were less sure about expressing themselves in an online learning platform (mean score of 2.81), agree (50%) or strongly agree (18%) or posting questions in online discussions forums (mean score of 2.76), agree (47%) strongly agree (18%).

Although they indicated that they felt confident in performing the basic functions of MS Word or equivalent software, (mean score of 3.12) they were less confident in MS PowerPoint (mean score 2.95) and MS Excel (mean score 2.70).

4.2.2.5 Self-Directed Learning

Table 4-6: Self-directed learning - students

Item	Self-Directed learning	Mean	St Dev
4	I am a highly independent learner	3.12	0.79
10	I am able to learn new technologies	3.37	0.67
12	I am interested to participate in Blended Learning activities.	3.19	0.67
16	I do not need direct lectures to understand materials.	2.34	0.87
27	I am not distracted by other online activities when learning online (e.g., Facebook, Gaming, Internet Surfing)	2.47	0.96
33	I can read the online instructional materials on the basis of my needs	3.26	2.6
	Average	**2.96**	**1.09**

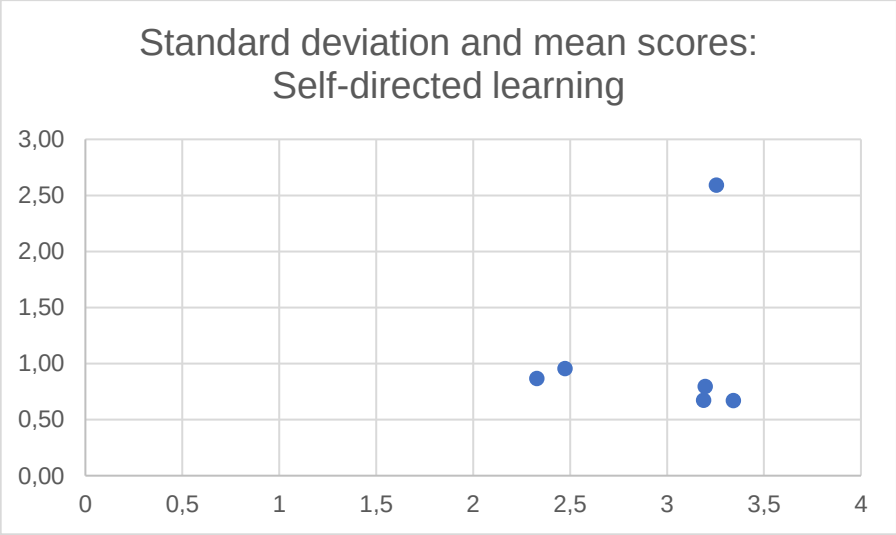


Figure 4-15: Standard deviation and mean scores: Self-directed learning

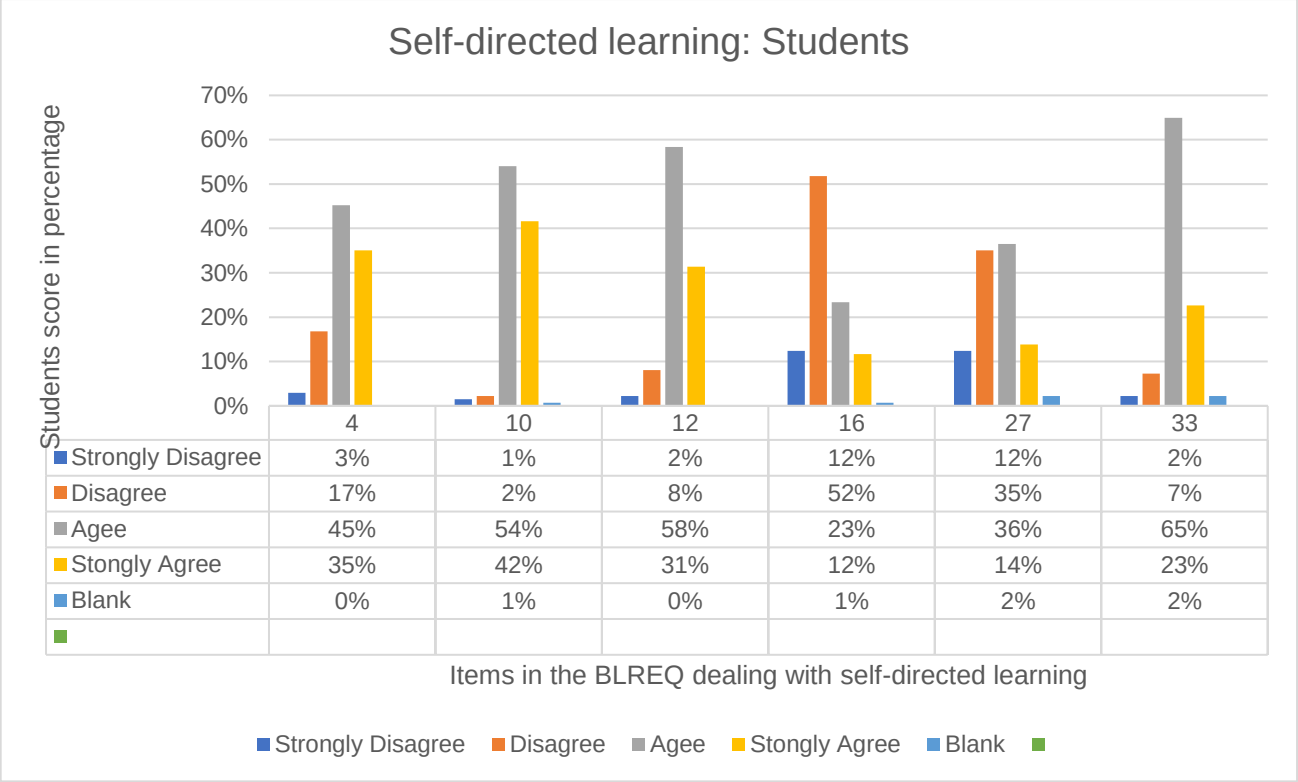


Figure 4-16: Self-directed learning: Students

Most students saw themselves as independent self-directed learners. The average mean score across the Self-directed dimension indicated a mean score of 2.96. Many students indicated that they disagreed with the statement “I do not need direct lectures to understand materials” (mean score 2.34) and that they were distracted by other online activities when learning online (mean score 2.47 on item 27).

A mean score of 3.26 on item 33, “I can read the online instructional material on the basis of my needs” indicated that most students agreed with the statement, but more students chose the option “agreed” (n= 89, 65%) rather than “strongly agreed” (n= 31, 23%) while (n=3, 6%) strongly disagreed and n=10, 7%) disagreed, indicating that 9% of students were having difficulty reading online material and would need support.

4.2.2.6 Attitude towards blended learning

Table 4-7: Attitude towards blended learning - students

	Attitude	Mean	St Dev
6	I think blended learning is useful for Nursing Education	3.20	0.79
18	I find using blended learning technologies simple.	2.33	0.87
22	I would describe myself as a self-starter in learning using technology	2.88	0.87
24	I would recommend blended learning as one of the alternatives for the traditional teaching-learning approaches.	2.99	0.77
	Average	**2.84**	**0.83**

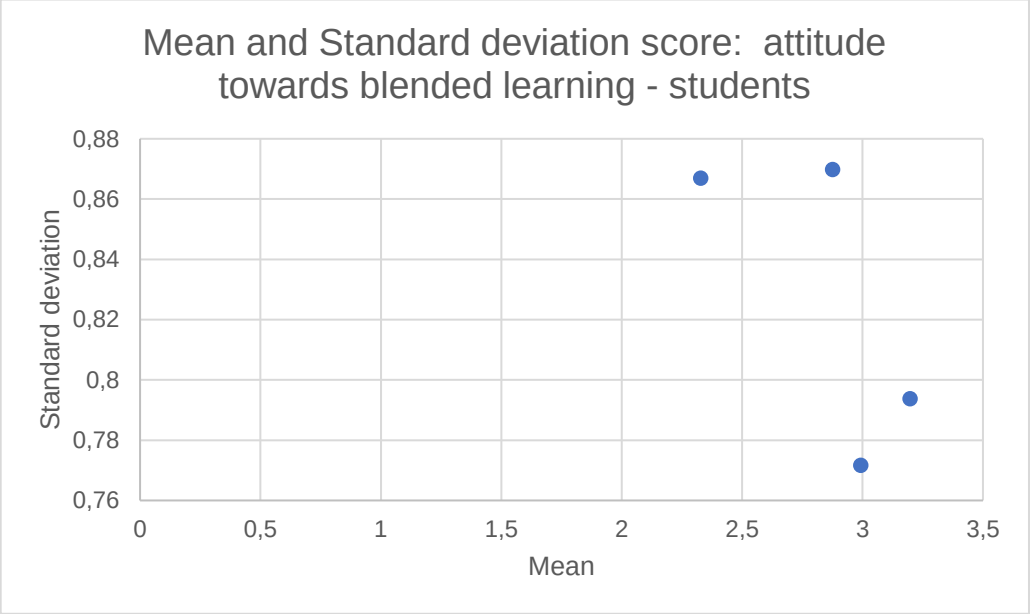


Figure 4-17: Mean and Standard deviation score

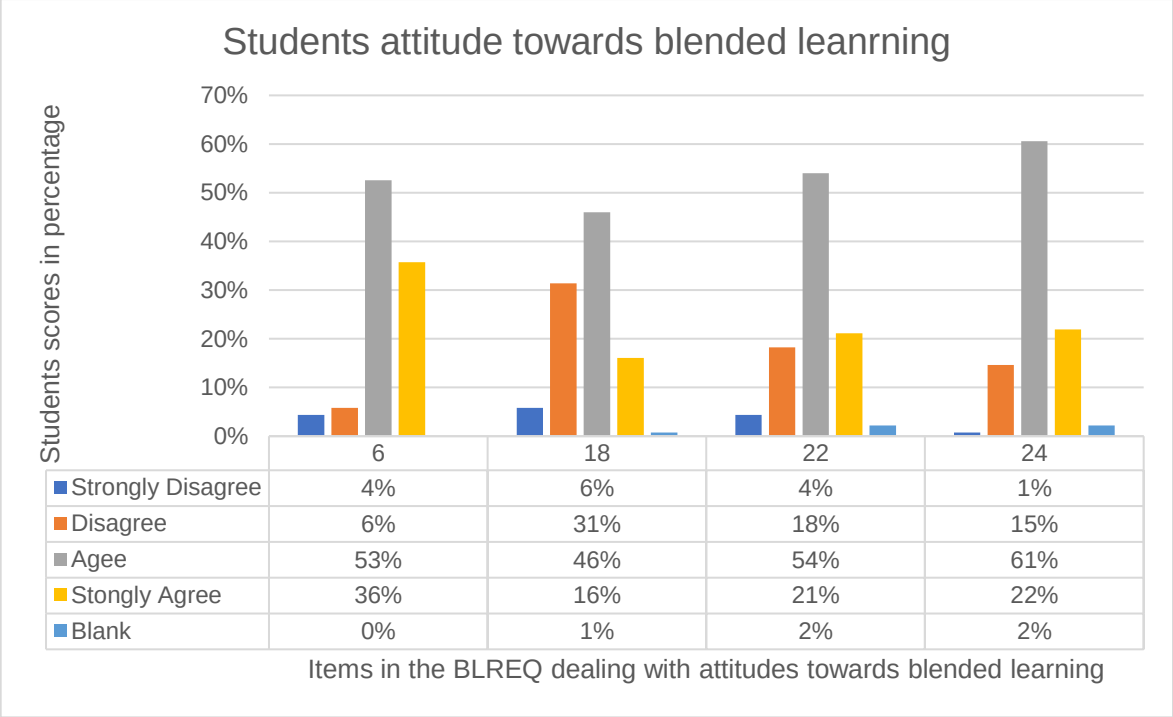


Figure 4-18: Students attitude towards blended learning.

The mean score for the attitude towards blended learning is lower than the other dimensions at 2.84.

Most students had a positive attitude towards blended learning (mean score of 3.22), 53% of students agreed and 36% strongly agreed with the statement “I think blended learning is useful for Nursing Education”. 37 % of students did not find blended learning technologies easy by choosing I disagree (31%) or strongly disagree (6%).

Seventy-five percent (75%) of students indicated that they see themselves as self-starters in leaning using technology by selecting the agree (54%) and strongly agree (21%) options for the statement “I would describe myself as a self-starter in learning using technology”.

4.2.2.7 Summary of students' survey results across the 6 dimensions

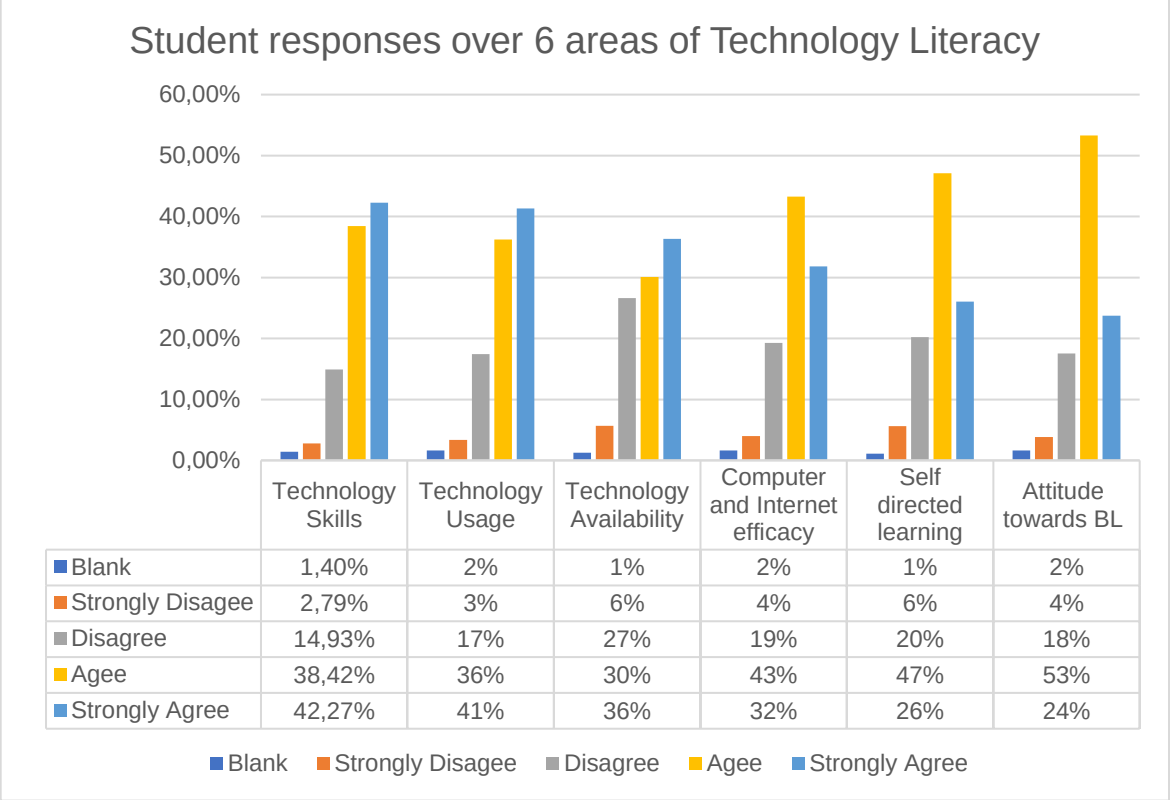


Figure 4-19: Student responses across 6 areas of technology literacy.

Students indicated that they could use information technology to work and study and that they were able to access information online (eighty-two percent). Sixty-six percent of students indicated that they had access to technology. Students perceived themselves as adequate when it came to computer and internet efficacy. The score for across "agree" and "strongly agree" was seventy five percent (75%). Students scored themselves lower over working with spreadsheets and working with others in an online environment.

Most of the students agreed or strongly agreed that they were self-directed learners (seventy-three percent 73%), where twenty-seven (27%) declared that they were easily distracted in an online environment and needed a more directed approach to learning. Seventy-eight percent of students showed a positive response towards blended learning by choosing to agree or strongly agree in the attitude area of technology literacy.

4.2.3 Phase 1.1: BLREQ ®: Section A Nurse Demographic data – Nurse Educators

Only 30% (n = 30) of the nurse educators of the Nursing Education Institution participated in the survey.

4.2.3.1 Ethnic Identity: Nurse Educators

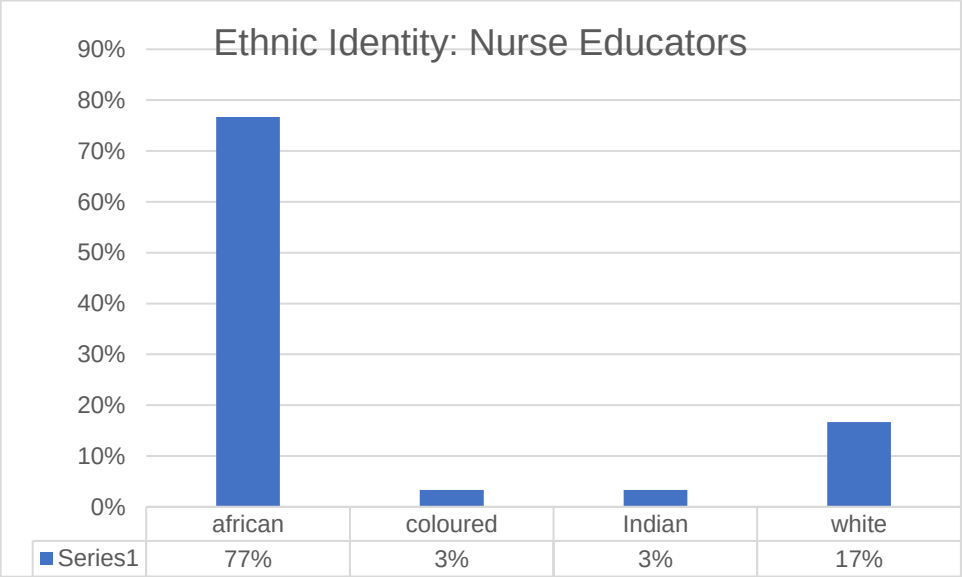


Figure 4-20 Ethnic Identity of Nurse Educators

Seventy-seven percent (77%) (n=23) of the participants identified as Black, 17% (n=5) White and 3 % (n=1 each) Indian and coloured

4.2.3.2 Age Distribution: Nurse educators

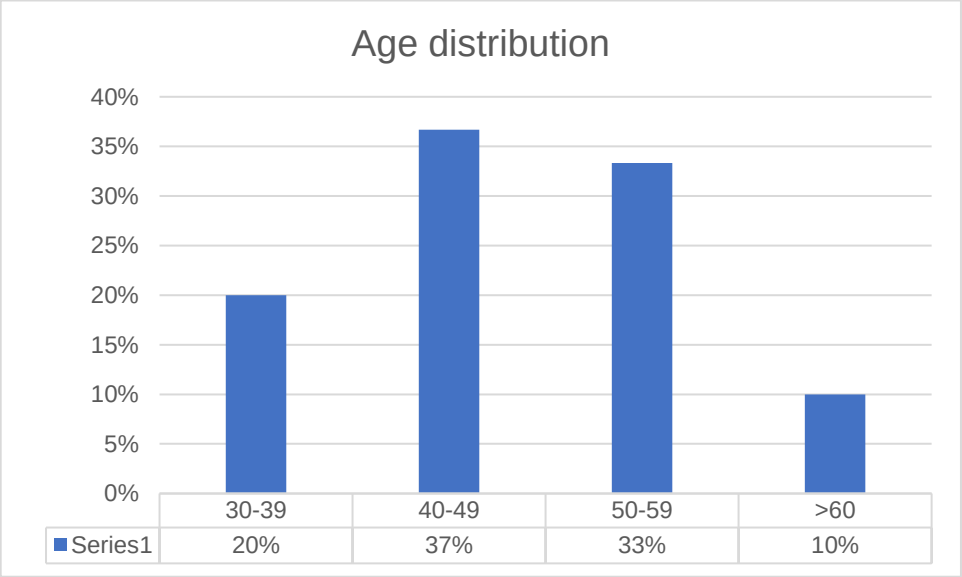


Figure 4-21 Age distribution of nurse educators

The participating nurse educators' ages ranged from 32 to 64 years of age. The age group 40 -49 had the most participants n= 11 (37%), followed by the nurse educators in the 50 to 59 age group n=10 (33%). Six nurse educators in the age group 30-39 (n= 6; 20%) participated in the study and 3 lecturers over the age of 60 (10%).

4.2.3.3 Gender distribution: Nurse educators

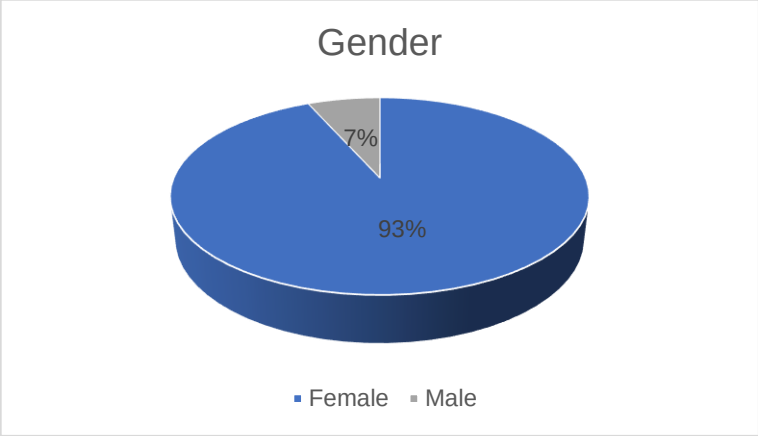


Figure 4-22: Gender distribution of Nurse Educators

Ninety-three percent (93%) (n=28) of Nurse Educators were Female and 7%(n=2) were male.

4.2.3.4 Level of qualification: Nurse educators

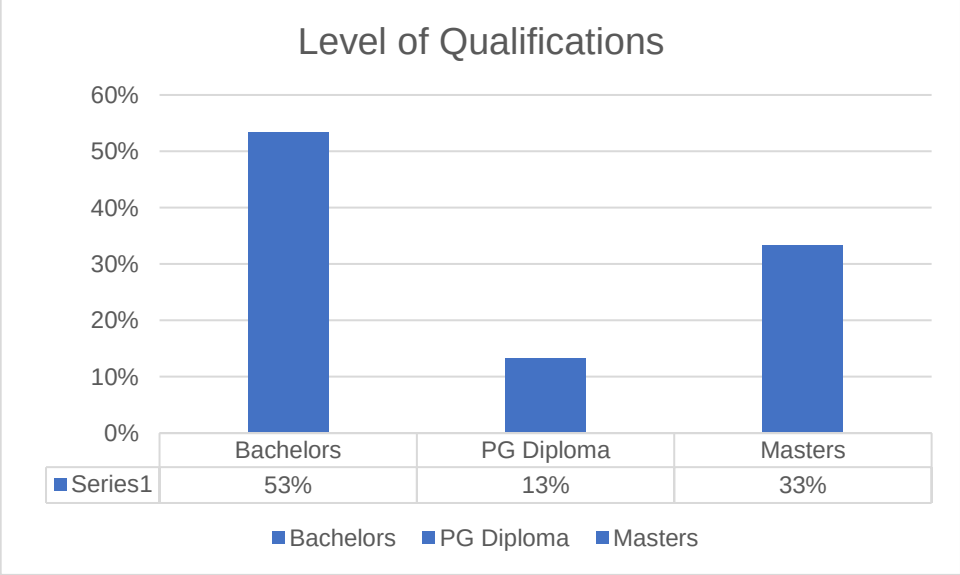


Figure 4-23: Level of qualifications of nurse educators

54% of the sample of Nurse Educators had a basic degree in Nursing, including Nursing Education.

Thirteen percent (13%) had a Post Basic Qualification in Nursing, and thirty-three percent (33%) of the Nurse Educators had a master's degree in nursing.

4.2.3.5 No of years' experience in Nursing Education.

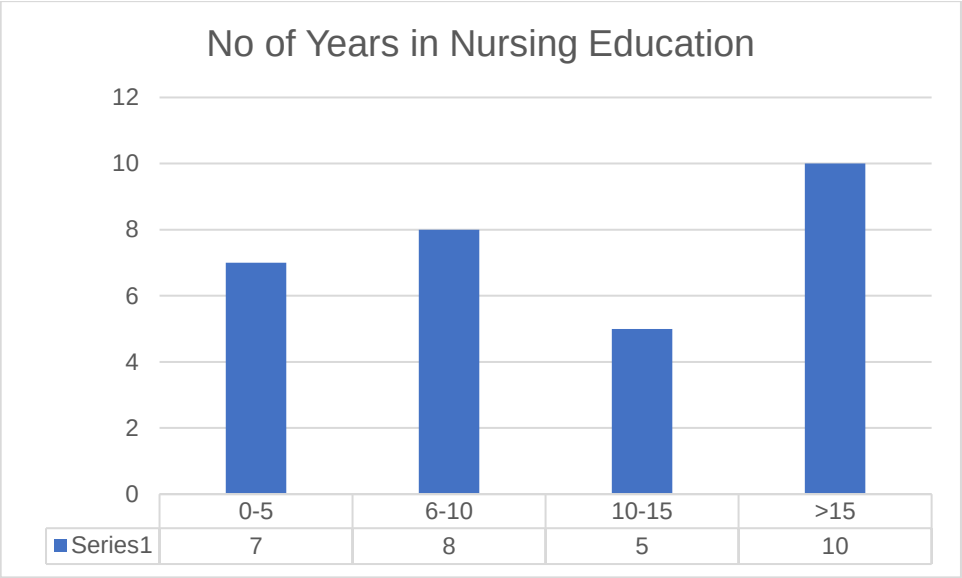


Figure 4-24: No of years' experience in nursing education

Fifteen (15) Nurse Educators had ten (10) or more years' experience in Nursing Education with eight (8) nurse educators that had between six and ten (6-10) years' experience, and seven (7) nurse educators with five (5) years or less experience.

4.2.4 Phase 1.1 BLREQ® Section B: Nurse Educators.

4.2.4.1 Technology skills: Nurse Educators

Table 4-8: Technology skills: Nurse Educators

	TECHNOLOGY SKILLS	**Mean**	**Std Dev**
1	I know the basic functions of computer/laptop and its peripherals like the printer, speaker, keyboard, mouse etc.	3.38	0.82
7	I know how to save and open documents from a hard disk or other removable storage device.	3.38	0.78
13	I know how to open and send email with file attachments	3.51	0.76
19	I know how to log into Wi-Fi.	3.47	0.68
25	I know how to navigate web pages (go to the next or previous page).	3.24	0.81
29	I know how to download files using web browsers (e.g., Google Chrome, Internet Explorer, Mozilla Firefox) and view them	3.36	0.68
31	I know how to access an online library or database	3.18	0.74
35	I know how to use word processing software (e.g., MS Word)	3.55	0.56
37	I know how to use presentation software (e.g., MS PowerPoint	3.70	0.45
39	I know how to use spreadsheet software (e.g. MS Excel, Calc).	2.69	0.94
41	I know how to open several applications at the same time and move easily between them.	2.94	0.92
	AVERAGE	**3.31**	**0.74**

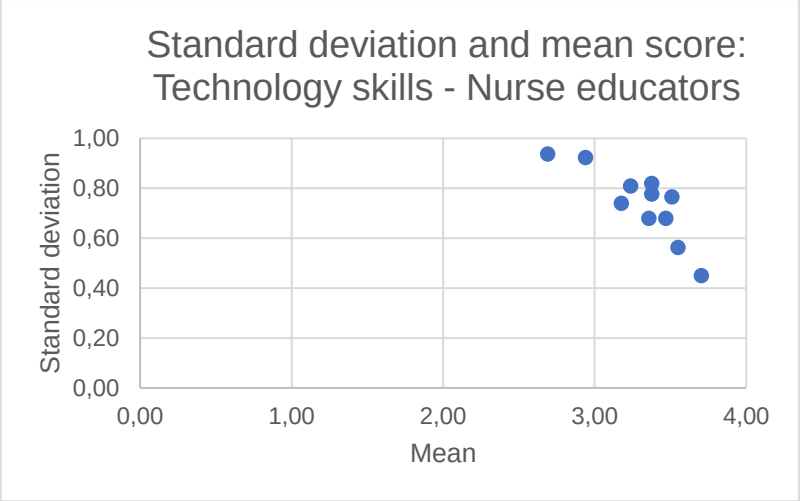
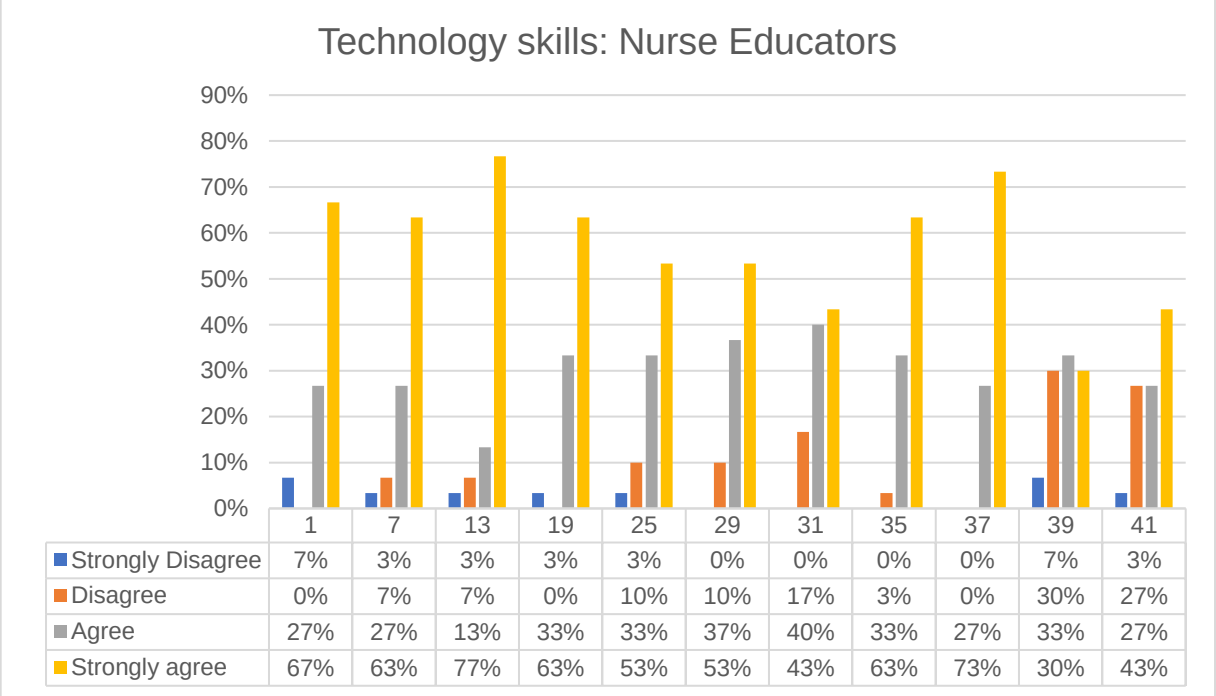


Figure 4-25: Mean and standard deviation scores of Technology skills for nurse educators.



	1	7	13	19	25	29	31	35	37	39	41
Strongly Disagree	7%	3%	3%	3%	3%	0%	0%	0%	0%	7%	3%
Disagree	0%	7%	7%	0%	10%	10%	17%	3%	0%	30%	27%
Agree	27%	27%	13%	33%	33%	37%	40%	33%	27%	33%	27%
Strongly agree	67%	63%	77%	63%	53%	53%	43%	63%	73%	30%	43%

Figure 4-26: Technology skills - nurse educators

Most nurse educators expressed that they had the necessary computer skills and that they could work in an online environment (average mean of 3.31). They saw themselves as proficient in MS Word and MS PowerPoint or similar programmes, 37% indicated that they were not confident in using MS Excel and disagreed (30%) or strongly disagree (7%) with the statement “I know how to use spreadsheet software (e.g., MS Excel, Calc) (mean score 2.69). Thirty percent (30%) of nurse educators disagreed with the statement “I know how to

open several applications at the same time and move easily between them" with disagree (27%) and strongly disagreed (3%) (mean score 2.94).

4.2.4.2 Technology Usage

Table 4-9: Technology usage - Nurse educators.

	Technology Usage	**Mean**	**Std Dev**
2	I often use internet to find information	3.42	0.73
8	I often use e-mail to communicate	3.56	0.71
14	I often use office software (e.g., MS Word, MS PowerPoint, MS Excel, or similar programs)	3.50	0.67
20	I often use social networking sites to share information (e.g., Facebook, Twitter, Instagram, Snapchat).	2.67	1.11
26	I often use instant messaging (e.g., WhatsApp, Viper, WeChat, Line, Telegram)	3.37	0.63
30	I often use cloud-based file hosting services to store or share documents (e.g., Google Drive, One Drive, Dropbox)	2.67	0.95
32	I often use a Learning Management System (LMIS)	2.65	0.77
	AVERAGE	**3.12**	**0.8**

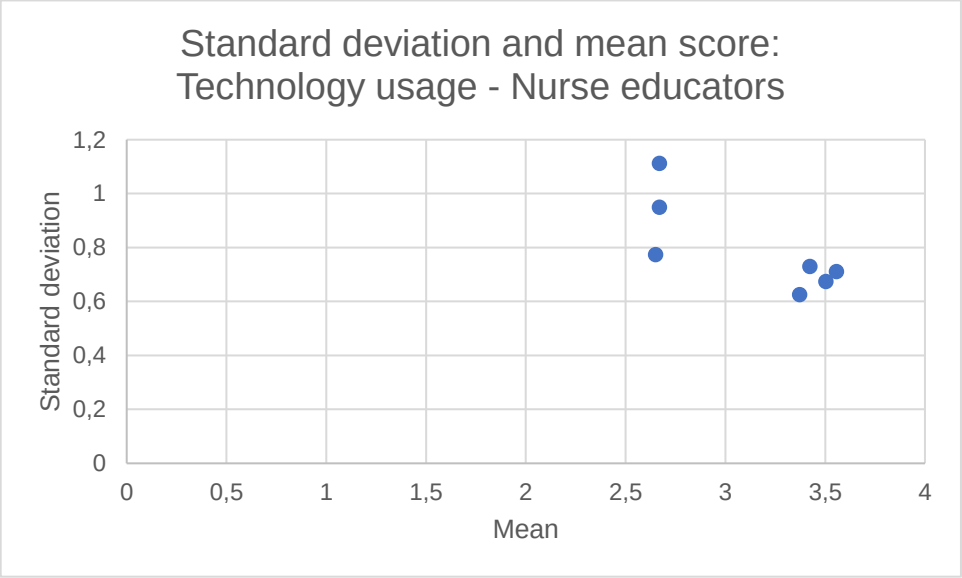
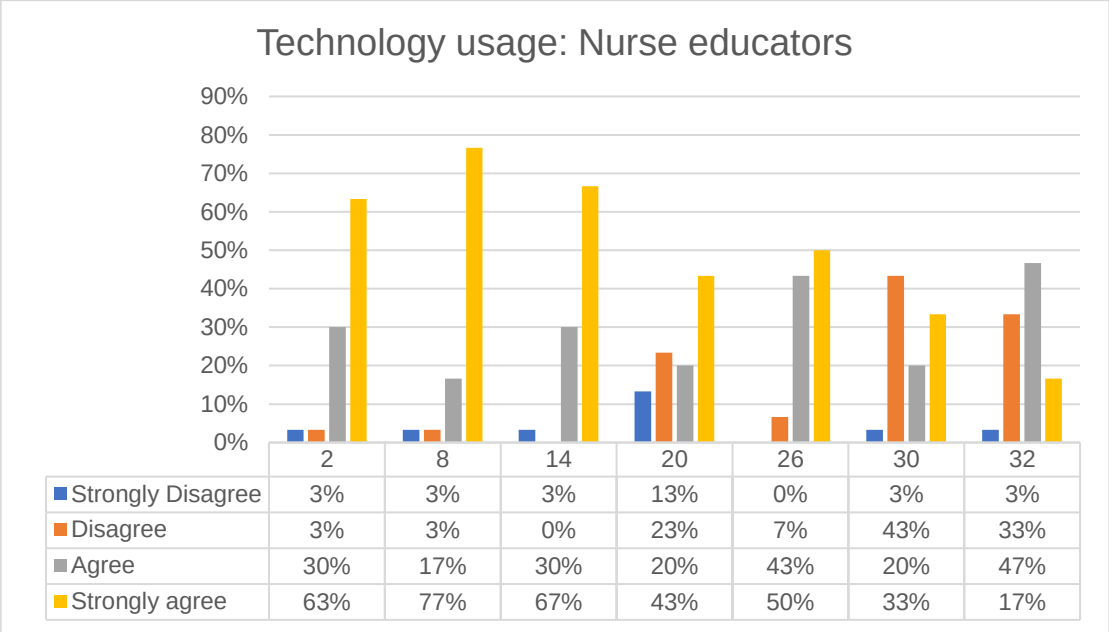


Figure 4-27: Mean and Standard deviation scores of technology usage of nurse educators.



	2	8	14	20	26	30	32
Strongly Disagree	3%	3%	3%	13%	0%	3%	3%
Disagree	3%	3%	0%	23%	7%	43%	33%
Agree	30%	17%	30%	20%	43%	20%	47%
Strongly agree	63%	77%	67%	43%	50%	33%	17%

Figure 4-28: Technology usage of nurse educators

Nurse Educators indicated that they used technology to find information, used email to communicate with others, and that they used applications such as MS Word, MS PowerPoint, and MS Excel in their daily activities. They were also familiar with instant messaging applications such as WhatsApp.

They were less inclined to use social media programmes such as Facebook, Twitter, or Instagram to share information (mean score 2.67). The standard deviation on this item is greater than one (1), meaning that there is no consensus.

Their use of cloud-based services (mean score 2.67) and Learner management systems (mean score 2.65) is also less than other technologies. Forty-three percent (43%) of nurse educators disagreed and three percent (3%) strongly disagreed they often used cloud-based services, and thirty-three (33%) of nurse educators disagreed and three (3%) strongly disagreed that they often use Learner management systems.

4.2.4.3 Technology availability

Table 4-10: Technology availability of nurse educators

	Technology availability	**Mean**	**Std Dev**
3	I have a computer/laptop with an internet connection	3.44	0.81
9	I have a computer/laptop with adequate software for learning (e.g., Microsoft Office)	3.38	0.82
15	I have speakers for courses with video presentations	2.63	1.12
21	I have a computer/laptop and its peripherals like the printer, speaker, keyboard, mouse etc.	3.21	0.89
36	I often use mobile technologies (e.g., smartphone, tablet) to communicate	3.54	0.62
		3.24	**0.85**

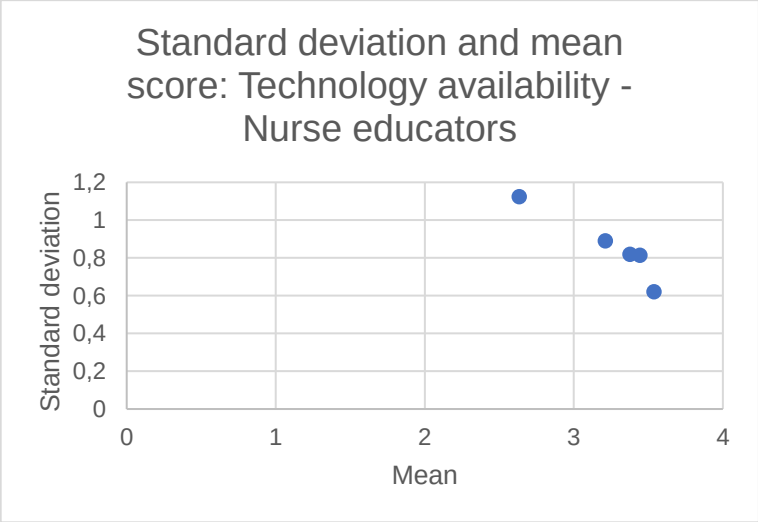
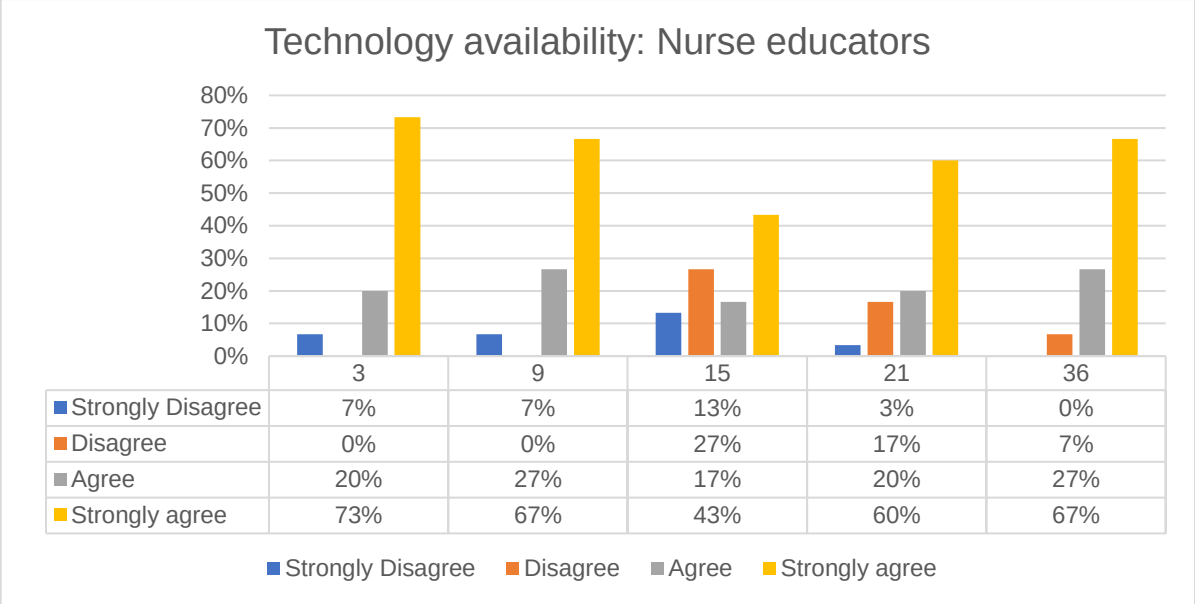


Figure 4-29: Mean and standard deviation scores - Technology availability of Nurse Educators



	3	9	15	21	36
Strongly Disagree	7%	7%	13%	3%	0%
Disagree	0%	0%	27%	17%	7%
Agree	20%	27%	17%	20%	27%
Strongly agree	73%	67%	43%	60%	67%

Figure 4-30: Technology availability - Nurse educators.

Most nurse educators indicated that they had the necessary technology (average mean score of 3.24). The only technology that was less available was speakers for video or audio. The standard deviation on that item is also greater than 1 (1.12).

4.2.4.4 Computer and Internet Efficacy

Table 4-11 Computer and Internet Efficacy – Nurse educators.

	Computer and Internet Efficacy	**Mean**	**Std Dev**
5	I feel confident in using online tools (e.g., e-mail, internet chat, instant messenger) to communicate effectively with others.	3.31	0.77
11	I feel confident in expressing myself (e.g., emotions and humour) in my Nursing College's learning Management System (e.g., Moodle)	2.69	0.90
17	I feel confident in posting questions in online discussions.	2.87	0.89
23	I feel confident in performing the basic functions of word processing software (e.g., MS Word).	3.63	0.48
28	I feel confident in performing the basic function of presentation software (e.g., MS PowerPoint)	3.54	0.62
34	I feel confident in performing basic functions of spreadsheet applications (e.g., MS Excel)	2.74	1.03
38	I feel confident in using web browsers (e.g., Google Chrome, IE, Mozilla Firefox) to find or gather information for online learning	3.16	0.88
40	I feel confident in using a computer, tablet, or mobile phone for online learning.	3.31	0.72
		3.16	**0.79**

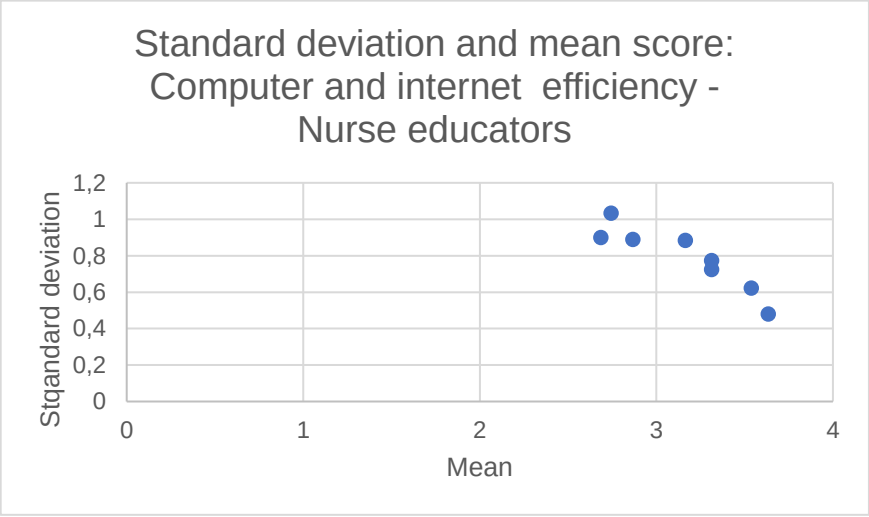
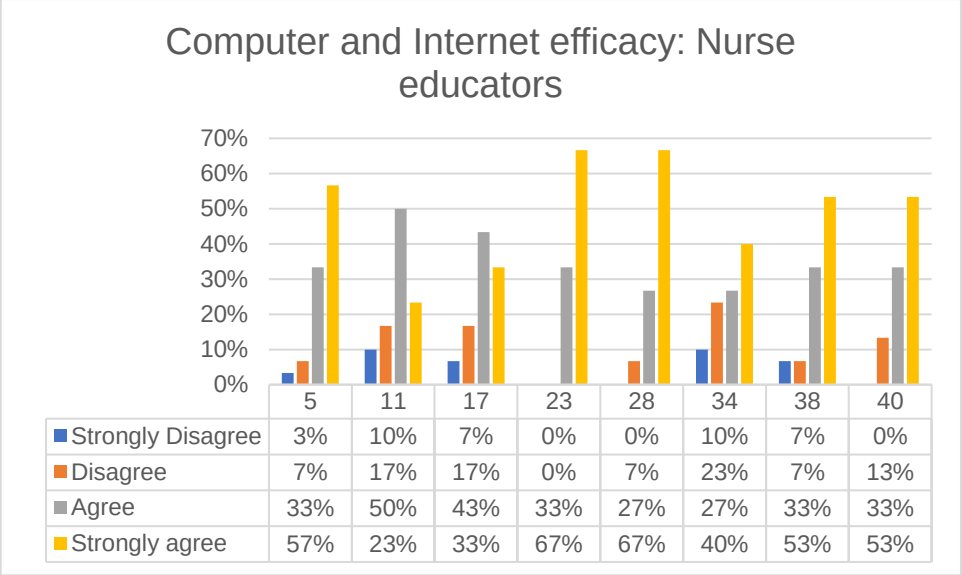


Figure 4-31: Mean and Standard deviation scores: Computer and internet efficacy of nurse educators.



	5	11	17	23	28	34	38	40
Strongly Disagree	3%	10%	7%	0%	0%	10%	7%	0%
Disagree	7%	17%	17%	0%	7%	23%	7%	13%
Agree	33%	50%	43%	33%	27%	27%	33%	33%
Strongly agree	57%	23%	33%	67%	67%	40%	53%	53%

Figure 4-32: Computer and internet efficacy of nurse educators

The nurse educators indicated that they felt confident in using online tools to communicate effectively with others (mean score 3.31), and that they could perform basic functions in MS Word (mean score 3.63) and MS PowerPoint (mean score 3.54). They also felt confident in using a web browser(s) to find and gather information (mean score 3.16) and they could use a computer, tablet, and mobile phones for online learning. They felt less confident in expressing themselves (using emotions and humour) in a learning management system (mean score 2.69) and to post questions in online discussions (mean score 2.87).

Twenty-three percent (23%) of nurse educators disagreed and 10 % strongly disagreed with the statement “I feel confident in performing basic functions of spreadsheet applications e.g., MS Excel (mean score 2.74 with standard deviation of 1.03).

4.2.4.5 Self-directed learning: Nurse Educators

Table 4-12: Self-directed Learning - nurse educators.

	Self-directed leaning	**Mean**	**Std Dev**
4	I am a highly independent learner	3.46	0.73
10	I am able to learn new technologies	3.29	0.72
12	I am interested to participate in Blended Learning activities.	3.54	0.67
16	I do not need direct lectures to understand materials.	2.97	0.94
27	I am not distracted by other online activities when learning online (e.g., Facebook, Gaming, Internet Surfing)	3.01	0.91
33	I can read the online instructional materials on the basis of my needs	3.12	0.71
	AVERAGE	**3.23**	**0.78**

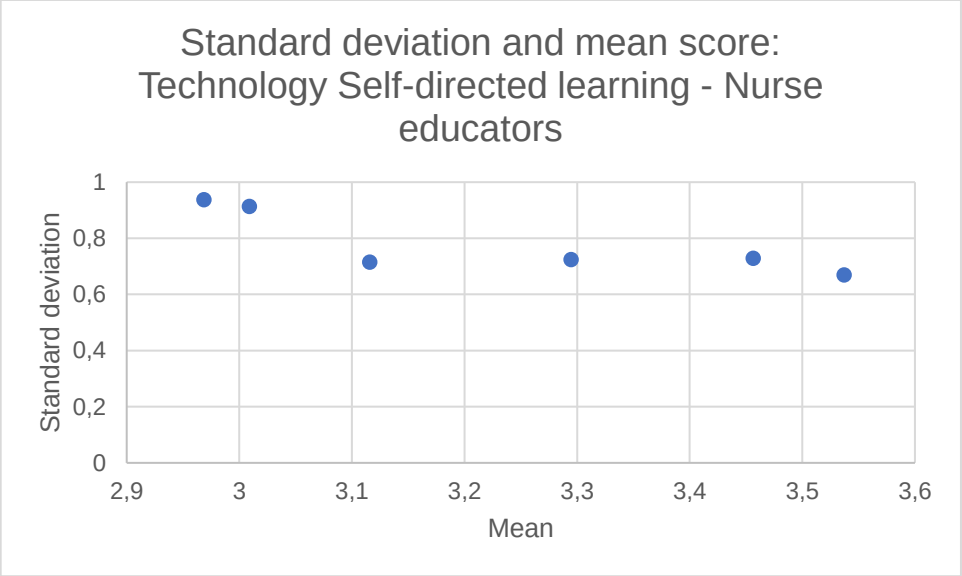
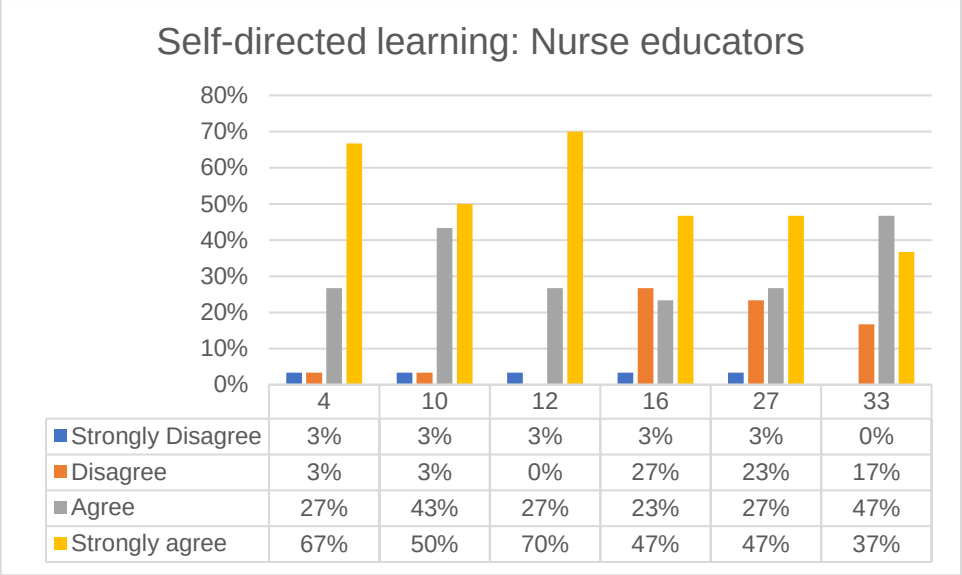


Figure 4-33: Mean and standard deviation scores for self-directed learning of nurse educators.



	4	10	12	16	27	33
Strongly Disagree	3%	3%	3%	3%	3%	0%
Disagree	3%	3%	0%	27%	23%	17%
Agree	27%	43%	27%	23%	27%	47%
Strongly agree	67%	50%	70%	47%	47%	37%

Figure 4-34: Self-directed learning of nurse educators

Most nurse educators indicated that they were independent learners who could learn new technologies. They were interested in participating in blended learning activities. There was a larger minority of nurse educators that disagreed and strongly disagreed on items no 16, 27 and 33.

Item no 16 states “I do not need direct lectures to understand lectures”. Forty-seven percent (47%) of nurse educators strongly agreed and 23% agreed while 27% disagreed and 3% strongly disagreed.

Item No 27 states “I am not distracted by other online activities when learning online (e.g., Facebook, Gaming, Internet Surfing)”. Nurse educators strongly agreed (47%) or agreed (27%) with the statement, while twenty three percent (23%) of nurse educators disagreed and three (3%) strongly disagreed. with the statement.

Seventeen percent (17%) of nurse educators indicated that they disagreed with the statement (Item No 33) “I can read the online instructional materials on the basis of my needs.

4.2.4.6 Attitude towards blended learning

Table 4-13: Attitude towards blended learning of nurse educators

	Attitude	**Mean**	**Std Dev**
6	I think blended learning is useful for Nursing Education	3.11	0.99
18	I find using blended learning technologies simple.	2.91	0.87
22	I would describe myself as a self-starter in learning using technology	3.04	0.73
24	I would recommend blended learning as one of the alternatives for the traditional teaching-learning approaches.	3.61	0.61
	AVERAGE	**3.17**	**0.80**

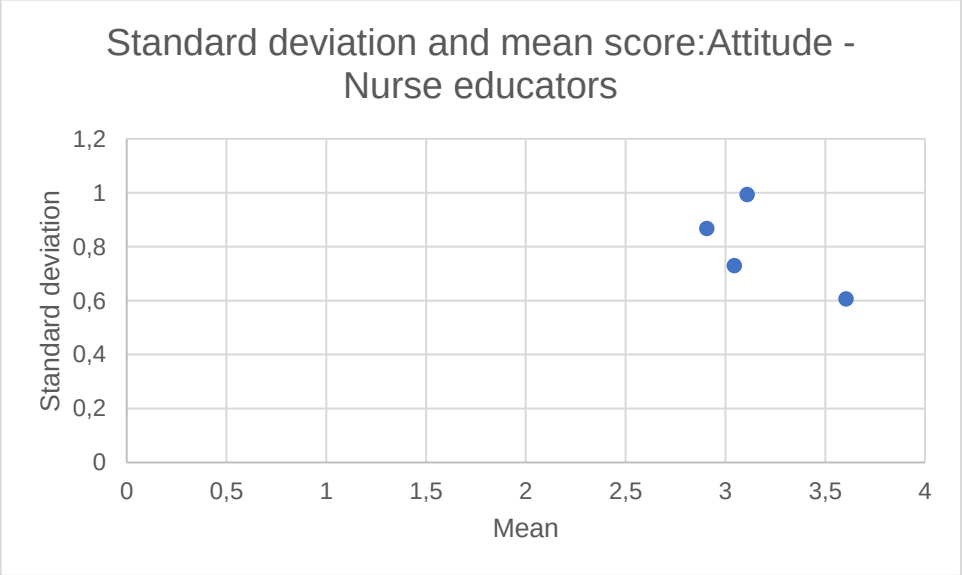
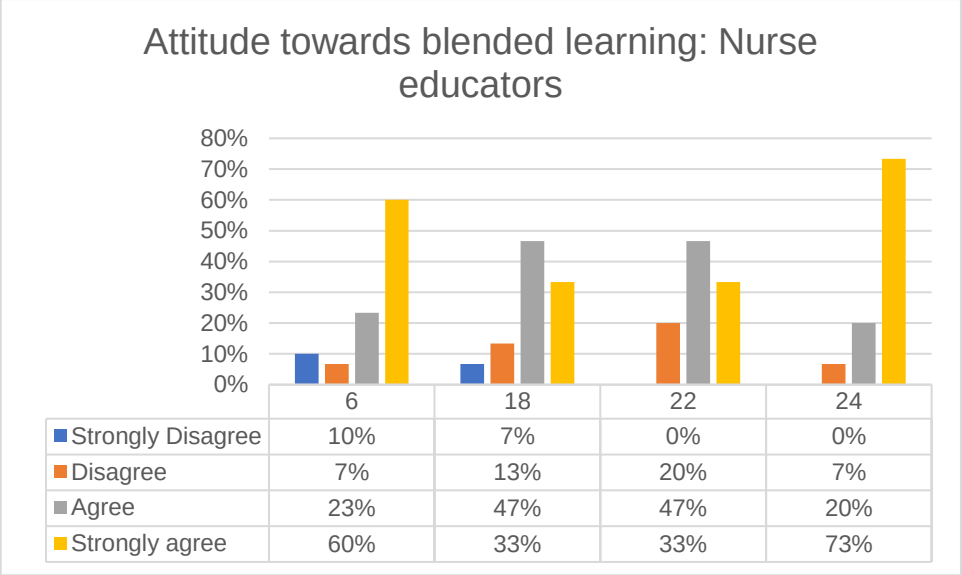


Figure 4-35 Mean and Std Deviation Scores for attitude towards blended learning: nurse educators.



	6	18	22	24
Strongly Disagree	10%	7%	0%	0%
Disagree	7%	13%	20%	7%
Agree	23%	47%	47%	20%
Strongly agree	60%	33%	33%	73%

Figure 4-36 Attitude of nurse educators towards blended learning.

A mean score of 3.11 indicates that the Nurse educators think that blended learning would be useful for Nursing Education, and they would recommend blended learning as an alternative for traditional learning and teaching. 47% of nurse educators agreed and 33% strongly agreed that they saw themselves as self-starters in learning using technology (mean score 3.04), yet some of the nurse educators did not think that the blended learning technologies were simple (mean score 2.91) where 13% disagreed with the statement “I find using blended learning technologies simple” and 7% strongly disagreed.

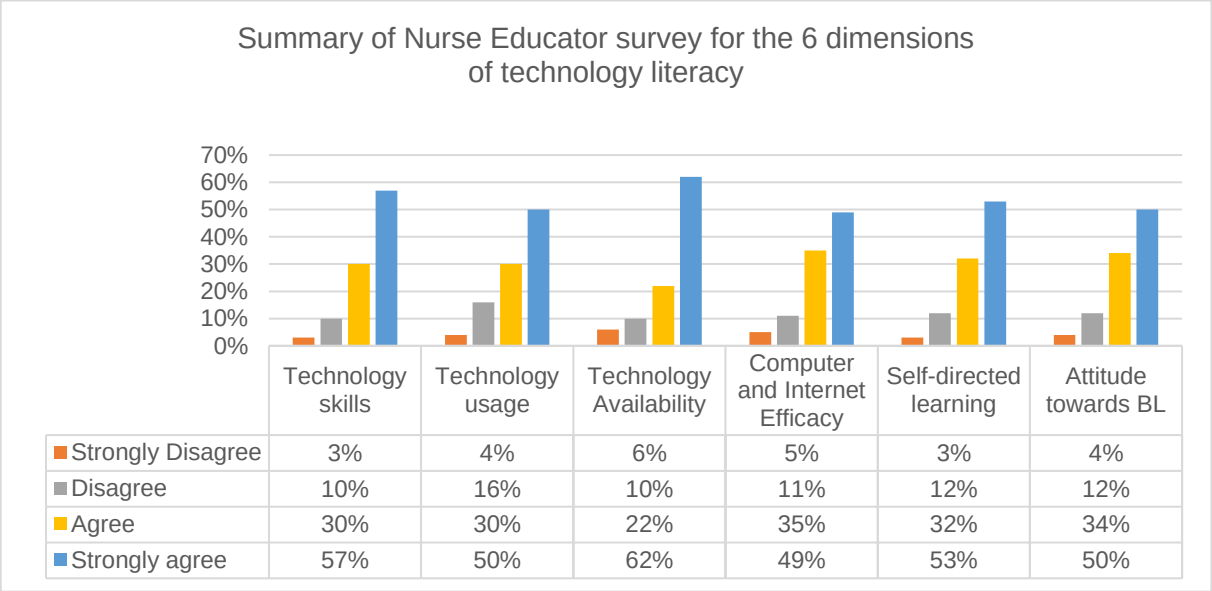
Summary of Nurse educators’ responses.

The breakdown of the questionnaire into the six (6) different areas of technology literacy revealed that nurse educators perceived themselves as having the necessary technology skills (87%) for the implementation of blended learning.

They indicated that they used technology frequently (80%) and that they had adequate access to technology (84%). The nurse educators indicated that they were self-directed learners themselves (85%) and that they had a positive outlook around the implementation of blended learning in the Nursing Education Institution.

Some nurse lecturers showed that they still needed support with application software such as MS Excel, accessing and using cloud-based services and learner management software.

The overall results for the Blended learning Readiness Engagement Questionnaire showed that 84% of Nurse Educators “Strongly Agreed” and “agreed” on all the items on the BLREQ®, showing a positive attitude towards blended learning. Sixteen percent (16%) of nurse educators disagreed or strongly disagreed.



	Technology skills	Technology usage	Technology Availability	Computer and Internet Efficacy	Self-directed learning	Attitude towards BL
Strongly Disagree	3%	4%	6%	5%	3%	4%
Disagree	10%	16%	10%	11%	12%	12%
Agree	30%	30%	22%	35%	32%	34%
Strongly agree	57%	50%	62%	49%	53%	50%

Figure 4-37 Summary of the responses from Nurse Educators across the 6 areas of technology literacy

4.3 Phase 1.2: Qualitative phase

As explained in Chapter 3, phase 2 of the study consisted of the qualitative phase, where the answers from section C of the blended learning readiness questionnaire were used to determine the thoughts of students and nurse educators on the implementation of blended learning in the Nursing Education Institution. Separate focus groups were held with managers and with educators to establish how best nurse educators could be supported in the readiness for implementation of blended learning.

Four managers and seven nurse educators participated in the focus groups. In addition, the survey described in the previous phase gave the students and nurse educators the opportunity to comment on the implementation of blended learning. This data was included in the total data set for analysis of the qualitative data.

The researcher used the Community of Inquiry framework (Garrison et al., 2000), to analyse the qualitative data from the Section C of the BLREQ®. The data was analysed according to the three (3) presences of the COI framework namely the Social, Cognitive and Teaching presences.

The participants' responses are coded as follows. Students = Participant, Nurse Educator (NE), Nurse Educators participating in focus groups = NE Respondent and Nurse Education Managers participating in the focus group as Nurse Education Manager

4.3.1 Findings

The BLREQ indicated that most of the participating students and nurse educators (84%) felt that they are ready for the implementation of blended learning in the nursing education institution. Participants were asked how they felt about the introduction of blended learning in the Nursing Education Institution.

The three (3) themes described above and used in the template analysis generated eight (8) sub-themes with four (4) categories under the Social Presence and three (3) categories under the Cognitive Presence as shown in table 4.14 below.

Table 4-14: Themes, subthemes and categories identified.

Theme	Sub-theme	Categories
Social Presence	Formal support	• Orientation to technology • Cooperative learning
	Informal support	• Consultation
Cognitive Presence	Positive feelings	• Future proofing • Convenience • Miscellaneous
	Ambivalence	
	Negative feelings	
Teaching Presence	Availability of resources	
	Facilitation	
	Possible challenges	

4.3.1.1 Social Presence

The Social presence theme generated two (2) subthemes highlighting issues of support, both formal and informal.

Formal and informal support means the academic, psycho-social, spiritual and career development services offered by the student counselling and development department of the NEI.

Formal support for technology skills means scheduled programs where orientation to technology is facilitated, using a blended learning approach to support students in the campus to communicate and work in teams as well as how to use online technology to continue working and collaborating in an online environment.

Informal support is rendered on an ad hoc basis where students or staff members consults outside of the facilitated programs.

The categories were chosen from the results derived from the analysis of the qualitative data (Section C of the BLREQ and the focus groups) and grouped according to categories, subthemes and sections.

a) Subtheme Formal support

i. Category: Orientation to Technology

Several students commented on the need for support and training in using information technologies and blended learning (21,70,41,44). Participant forty-one (41) disclosed the following: *"I personally feel that in order for individuals like me to be confident in using blended learning, proper and thorough training needs to be given to us. Not just for one day, but at least once a week so we are confident and understand blended learning. Change is good but it becomes scary when you do not even know how to adapt to recent changes like blended learning. Please provide training*." Nurse Educator 18 felt that *"rigorous frequent capacitation is needed for us as lecturers so that we are confident, also looking at where our students are in terms of technology"*, and Nurse Educator 17 pleaded for time for the skills development team to *"…assist nurse educators to acquire the necessary skills"* as well as to build their confidence in using blended learning*, "…blended learning champions to assist in building confidence in the utilizing of blended learning strategies. Technical staff to assist during on-campus facilitation."*

The need for training and technical support also came out strongly in the focus group with nurse educators where Nurse Educator Respondent one (1) said "…*but it is supposed to be the institution who must initiate and train the lecturers (nurse educators) because we have different generations of lecturers*". She further commented that *"…technology is forever changing and that it (training) should be an ongoing thing."* She also said that "*We do not have an IT department and there is so many restrictions on using equipment and we are not trained to use it…."*

Nurse managers thought that the best way to support nurse educators was to provide champions in each department to train, encourage and motivate others to change. *"Each department should have champions so that they can help each other during the implementation of blended learning* (Nurse Manager 1)*.* They also thought that student leaders and peer counsellors/tutors must be trained to support students "*Peer tutors or student leadership should be empowered to help their fellow students in the clinical areas and residences* (Nurse Manager 1). Nurse manager two (2) agreed by saying *"Student leadership to provide support for students in the clinical areas".*

ii. Category Cooperative Learning

NE Respondent 3 commented that *"for blended learning nurse educators should sit together and plan their classes to see what will work e.g., blogging*", forming their own community of inquiry where a facilitator can assist them in moving towards the resolution of their own learning needs.

Nurse education managers agreed that lecturers should identify champions to lead the change process and assist others*. "…then identify champions in every department because you know that when it is time for development, not everybody is able to be there, but if there is a champion that can assist or offer a helpdesk…."* (NM 2) Nurse Manager 1 agreed and said, *"I think empowerment must be standard bi-monthly to get everyone on the same page".*

One of the aims of cooperative learning is the sharing of ideas and resources. Participant fifty-one (51) appreciated the sharing of resources and information on the various platforms while Participant fifty-seven (57) said blended learning *"…appears to be helpful and it will assist the educators and students to do better because studying with all the resources can be quite and intently helpful"*.

b) Subtheme Informal support

Informal support is support from people you know without any formal arrangements in place. In the Nursing Education Institution informal support can be lecturer consultations, assistance from fellow student or from a peer counsellor/tutor on request.

Students asking questions in class can sometimes feel intimidated and some may prefer to ask questions using a one-on-one communication with the nurse educator in the online environment. Participant 104 said that *"It will also encourage students to consult more because you feel less anxious or scared when there isn't a huge class staring at you as you ask for clarity in class".*

As part of life-long learning nurse educators must engage with one another (forming a community of inquiry) whilst learning and experimenting with the concept of blended learning to support each other and develop together. NE Respondent 1 said that *"We*

need the older generation to share their knowledge of nursing with us, the younger generation, we are from technology, but we need them so we can plan together to incorporate the knowledge with technology".

P114 added that *"it will help a lot where lecturers are not physically available that students can contact them online"*, but Participant 14 disagreed with that statement saying that *"it is difficult to us to ask questions on the lecturers in the online environment".*

4.3.1.2 Cognitive presence

The cognitive presence theme generated three categories and several sub-categories as seen in table 4.14. Student participants showed a positive disposition around the implementation of blended learning.

a) Category Positive

i. Future proofing

One of the reasons why participants were positive was because they considered that blended learning would prepare students for the future, often referred to as the fourth industrial revolution by students (participants 1, 42,137, Nurse Educator 1,16 and 17), or that it was appropriate for this day and age where technology is in common usage. Participant sixteen (16) summarized these ideas, *"I feel that it would be a great initiative and will be beneficial for nursing training in association with the fourth industrial revolution. We have a lot of technology equipment in facilities that only selected individuals can operate so blended learning will ensure that technology knowledge is enforced in the nursing profession."*

Participant P110 explained the appropriateness of blended learning for this day and age by saying, "*Blended learning is a good initiative and it is in line with the fast changing digital world we live in*" and participant forty three (43) referred more to preparing students for the future saying, *"Blended learning in the nursing education institution would be effective, because it will help students to gain access to a world of information to help them with these studies".* Participant twelve (12) took this idea even further saying, "*it is good, it will help us. it will change our life*."

ii. Convenience

Another reason for being positive about blended learning was that participants felt this method was convenient. One of their reasons for believing it is convenient was that the learning material would be easily and **quickly accessible** (P19, P134; P19 & 130; NE14) as explained by participant thirty-four (34) who said*, "It is easier and quick. One is always using a phone and a computer so it would be nice to use it for purposeful activities …." Although P19 cautioned that the convenience would be dependent on one's ability to use the technology, "I feel that it will save time and it can be accessed easily. I am confident in the use of computer for online learning."*

Convenience extended **to where one could learn** if using blended learning Participant 31 saying, *"It feels so good as it makes our lives easier, we can even study and write tests from home, that is wonderful"*, and Participant 122 saying, *"Blended learning can be a good idea in nursing education because it can give some time off to do work while learning from home …"* . Participant 136 agreed saying, *"Nursing would be transformed because students will not have to come every day to college. Tasks will be done online."* Participant 131 believes blended learning saves time saying, *"I think it will much more effective than only contact learning as one will be able to get enough time for studying."*

Students also considered blended learning to be **flexible** both in terms of access and in terms of individual learning styles. Participant 130 said*, "Blended learning will reach all the students regardless of whether you were able to attend online class or not due to being able to save for later use. I agree to it and feel it would be beneficial for both students and lecturers." Participant 120 argued that "I think it will highly improve nursing education, especially facilitation. This means students can also learn remotely since people learn effectively differently. Other people do not grasp a lot of information during lectures but prefer doing it on their own."* Nurse Educator 8 *agreed saying, "it is the best way of teaching and learning as it can take place in the comfortable area and multiple sources of information are used and students can learn anywhere not just in the classroom."*

iii. Miscellaneous

Miscellaneous reasons were given for having a positive attitude towards blended learning.

Several participants were clearly positive about blended learning without clarifying the reasons for their positive feelings. Participant P94 and NE4 was *"excited"* while Participants 133 and 17 were *"ready to participate"* in blended learning. Participants P19, P41, P52, P137 felt *"confident"* about using blended learning and Participant 128 "*felt at ease".* Participant P81 *"is looking forward to a new challenge".*

Some participants specifically referred to the positive benefits blended learning would have on learning. Participants (P31, P73, P81 P108, P115, P124 P127, and P128) agreed that "*it would make nursing education easier and more interesting"*. Other participants commented on the positive effect it would have on the environment by cutting down on the use of paper and transport, whilst saving money for the Nursing Education Institution. (P26, P90, P100, NE1, NE14 and NE18). Participant 106 believed that blended learning would change students' lives by virtue of introducing them to the world of technology. *…"it will also assist them at home and everywhere to be able to access online learning easily and effectively and adapt to the new learning method."*

a) Category Ambivalence

Several of the students appeared ambivalent about the introduction of blended learning and saw the positive aspects of it but clearly had reservations. Participant P44 said that *"I feel blended learning is good in the nursing education institution but on my side, it is still challenging to use technology and I hope in future I will learn more about the technology."* Participant P98 reflected on her experience during the Covid-19 pandemic where online learning was implemented. *"The WhatsApp learning was not the best, I think Moodle was a bit better I even thought it was introduced late"*, while Participant P65 said *"I'm not sure as yet…*" Participant P129 go further to say that *"although it is a new method of teaching, students will get used to it".*

b) Category Negative

Some nursing educators and participants were clearly not in favour of blended learning and preferred the traditional way of teaching and learning. Participant P18 explained

"I don't agree with online learning because some of us we need a lecturer in front of us to lecture us as we are taking things slowly." Participant P20 preferred face-to-face learning as she struggled with online learning. *"I personally prefer learning in class by listening rather than looking at a screen the entire day, it is definitely not something I will look forward to."*

One Nurse Educator (NE7) gave her reason for not believing blended learning to be beneficial as nursing is a practical profession and cannot be taught online. Participant P110 agreed with the statement.

Another participant, who viewed blended learning in a negative light, referred specifically to the way it was introduced during the COVID epidemic. She said, *"I experienced the online learning during Covid-19 as stressful. The notifications were overwhelming, and I was finding myself stressing…"* (Participant P116)

4.3.1.3 Teaching Presence

a) Subtheme: Availability of resources

Participants were aware of the need for resources for blended learning to be successful and referred to the availability of resources in the institution as well as those available to them personally and sometimes bemoaned their lack of skill when using resources when they were available.

This was illustrated by both participant P35 and P126. Participant P35 said *"we are not used to new technology, and we don't have even materials like computer and laptops".* Participant P126 agreed by saying that *"it can be a great idea, only if proper materials can be afforded to learners, learners should be given tools that are needed for online learning*".

The non-availability was not limited to computers but also to other equipment. Participant 111 said "…*the library needs more stuff like printing machines that print colour and have different page sizes, besides, most of the time the printers do not work. The library had no WIFI or new models of computers. One of the biggest problems is Internet data at home is not as much for other people."*

The shortages impacted on participant P37 opinions about blended learning to the extent that she felt traditional learning would have to continue. "*Colleges are lacking*

resources for the blended learning, no structured apps or website that can support blended leaning."

The problems extended to the residences and hospitals as pointed out by participant P88 who said, "*blended learning could work effectively if network connectivity is in all areas*".

Nurse education managers shared the student's concerns in this regard believing that access to data, network and Wi-Fi should be investigated *"Because the majority will tell you that they did try, but they did not have data"* (NM1). Nurse education manager three (3) felt that the college could and should do something to alleviate the lack of data *"…so if the college can do something there would not be this thing".*

During Covid-19 online teaching strategies were deployed and some students commented on the suitability of the platforms that was used. *"The correct platforms need to be utilised for the blended learning"* (P110, P129). The nurse educators used mainly WhatsApp for learning and teaching, although they were orientated on using the Moodle platform that was created during Covid-19 lockdown, the usage thereof was low.

b) Facilitation

Some of the responses indicated a recognition of the importance of facilitation in blended learning and that facilitation included not only human intervention but the access to more than one source of information.

"*Blended learning if used effectively, can produce better results as students will be able to browse other additional information being taught during the lecture*" (Participant P104). Participant P66 and P68 believed blended learning would assist them to understand more of the human anatomy and physiology, by using pictures and videos. Nurse educator NE7 believed that blended learning would facilitate learning in the clinical area too. She said, *"Nursing is a practical subject, and our students need to be placed in the clinical settings most of the time in order to merge what they have learned in theory into practical."*

There was an overlap between the cognitive presence and the teaching presence when it came to discussions about facilitation.

Nurse Educator NE17 touched on the importance of changing the method of facilitation to allow students to collaborate through discourse and collectively solve the learning problem. *"The presentation of formal lectures needs to be reduced for the students to interact with the learning material with the hands-on facilitation of the lecturer. The time for passivity is over. The responsibility of the lecturer becomes more intense to source content, such as activities, quizzes, video, journal articles, etc., to make the engagement on or off campus more stimulating and exciting."*

There was clear understanding that the change from formal teaching to facilitation would not be easy. Nurse Manager NM2 mentioned that *"It is difficult for nurse educators to move from the old, because we are still seeing slides with lots of text, and "we" (students) still sit in rows."* Nurse Manager NM1 said *"nurse educators still feel the need to spoon feed students, and that they (nurse educators) have socialised students from the beginning, so there is an expectation that the lecturer will dictate and provide the information. If it does not happen, students become frustrated*."

Participant P104 said that *"online learning if used effectively can produce better results as students will be able to browse other additional information…"*. *"Traditional methods were for traditional times. Blended learning needs to be implemented as soon as possible as it would change our approach as students to learning"* (Participant P109). Nurse Manager NM3 agreed saying *"the students did much better in the test written post lockdown (after they had online facilitation) than in the other tests"* Nurse Educator 11 said that she had practiced blended learning and *"as a facilitator I am able to clarify, add information where necessary*" and that *"she is able to cover a lot of content in a day"* using blended learning.

Several of the participants (P77, P82, P86, P122, NE12) realised that they needed to take responsibility for their own learning and feels that blended learning will assist them in becoming responsible, independent self-directed learners. Participant P77 said *"I think this will enhance sense of responsibility of learners when it comes to their studies"*, Participant P84 believed that "*this mixture will help students to know that they can rely on their lecturers (nurse educators) and on themselves also*".

c) Challenges

Although many participants were positive about the implementation of blended learning, they identified some challenges such as lack of knowledge or technical skills

that would hamper the successful implementation of blended learning in the Nursing Education Institution if not addressed. (P70, P100, P116). Participant P110 explained that *"…and for nursing students, not all of them are computer literate so it would pose a need to first train them on how to use computers before implementing blended learning"*. Participant P21 feels similarly *"…it is a great idea, but unfortunately I don't know much about laptop and computers"* and participant P42 said that *"I feel not good about blended learning because some of us are not well orientated in online or technology, so that make those of us who are not privileged to technology to lose education or information".*

It became clear that even if the students were able to use technology, the lecturers may not be. Participant P111 said *"the students are ready, but the lecturers (nurse educators) are not, our lecturers don't really know much about technology and software."* Participant P124 agreed and said, *"lecturers are not willing to learn about blended learning"* indicating that this was delaying the implementation process. Nurse educators agreed to the above statement by admitting that they do not have the necessary knowledge and need training and support from the Nursing education institution. (NE17 & NE18). A Nurse Educator NE 1 also commented *"they (Nurse Educator Managers) want us to use the technology, but we are not trained in this"*. The technology is not always ready for use because *"…sometimes, people just unplug everything and when you go the classroom, you cannot access the sound or video and you do not know how to connect it. We are not technicians."* (NE 2)

Several students alluded to the fact that online/mobile learning can be distractive. (Participant P20, P25, P75, P99, P116). Participant P75 said *"I feel as if a lot of students will suffer academically because there is a lot of distraction online and they won't concentrate on the class"*. Another student, participant P99, fails to focus on schoolwork only. *"I end up opening other apps, e.g., Facebook therefore this leads to procrastination in my schoolwork and me having too much pressure to complete the work when it is due for submission."*

Other challenges included the availability of network and data as well as electricity to keep devices charged. Nurse Educator 1 said that not everyone was lucky enough to have access to internet and electricity, especially students from the rural areas.

4.4 Discussion of findings

Bokolo et al (2020) said that “Technological innovations such as blended learning are rapidly changing teaching and learning in higher education where blended learning integrates face to face with web-based learning”.

This study set out to determine the readiness for blended learning from both nursing students and nurse educators with the aim to develop guidelines for the implementation of blended learning and to support nurse educators and students during the implementation thereof.

The researcher used the community of Inquiry framework (COI) see Figure 4-1 to discuss the results of the BLREQ ® questionnaire as well as the findings of the focus groups.

The COI framework is widely used in a variety of disciplines, including nursing, as a framework to design blended learning courses. Caskurlu (2018) confirmed the constructs validity of the three presences of the COI framework and proposed that the COI model can assist in the implementation of inquiry-based, social-constructivist approaches in teaching and learning. The COI model is relevant for use in blended learning, because of its focus on interactive learning and collaboration (Smadi et al, 2019)

All three presences of the COI, social, cognitive, and teacher presences must exist in the blended environment for learning to take place (Parker and Herrington, 2015). In the diagram below, the presences are depicted at the apexes of the triangle that shows the educational experience in the middle. The ring on the outside connects the presences together with the elements of “setting the climate”, “supporting discourse” and “selecting content” which, in the original diagram, were the intersections between the Teaching and Social presence, the Social and Cognitive presence, and the Cognitive and Teaching presence. The subthemes identified in the research are shown by circles attached to the presence and the categories are rectangles with text.

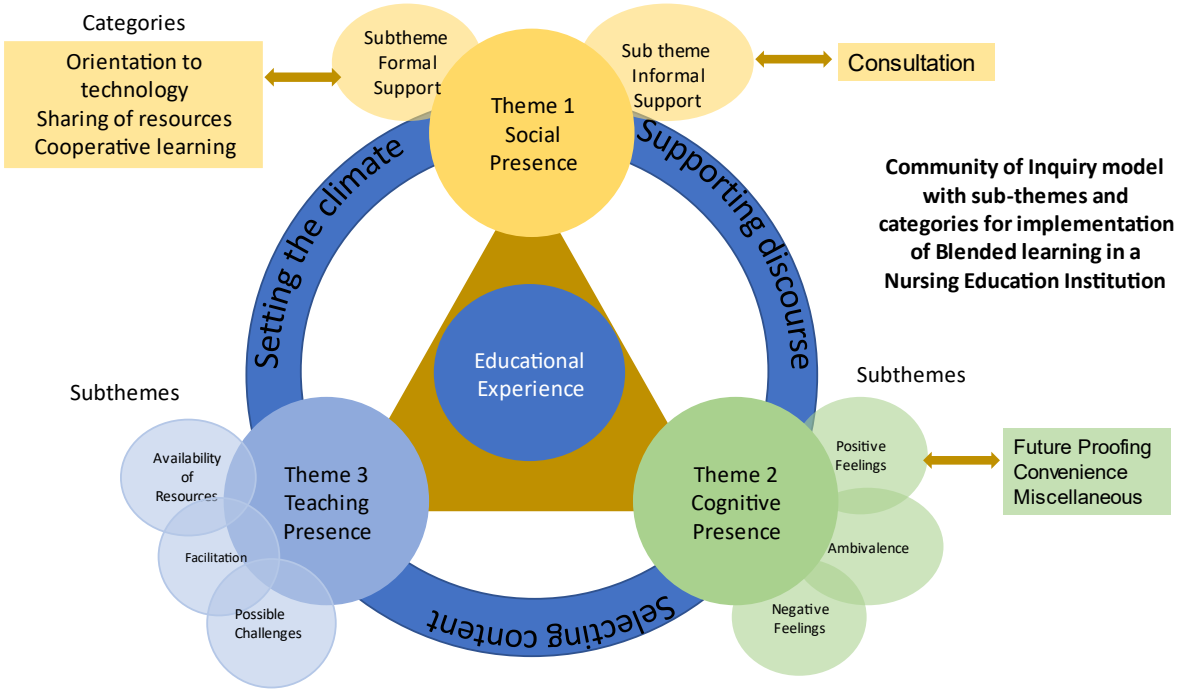


Figure 4-38 The COI framework as adapted showing themes, sub themes and categories.

4.4.1 Setting the climate

In the Community of Inquiry framework, setting the climate for learning and teaching occurs at the intersection of the social presence and the teaching presence, indicating that both presences need to be represented to set the right atmosphere for learning and teaching.

4.4.1.1 Lessons learned from the data:

Although nursing students and nurse educators indicated that they were confident in using online technologies, they were less confident in expressing themselves (mean score of 2.81, 2.69) or posting questions (mean 2.76, 2.87) in an online blended learning environment. They would need support to move from a personal to purposeful relationships and group cohesion within the online community of inquiry to allow for effective learning and facilitation to take place. In a study done by Smadi et al, (2019), on the applicability of COI framework to online nursing education, students commented that “students must show a willingness to interact and engage with the learning resources and others to show their identity in an online course”, while others

feel that the facilitator must initiate and facilitate the creation of the course participants personal identity by modelling the necessary behaviour.

From the qualitative data it became clear that students and nurse educators need formal and informal support and orientation on blended learning and the use of the learning management system of the Nursing Education Institution. Namulondo et al, (2023) agrees by stating that several nurse educators are still unsure of how to use blended learning because of several barriers such as psychological, technological, infrastructure and readiness that affects successful implementation. Janse van Rensburg & Oguttu, (2022) found there is no common understanding of the concept of blended learning in South Africa and that academics are often left to their own interpretation and implementation of blended learning. This orientation should happen at regular intervals to ensure that all students and nurse educators are familiar with, and competent in, face-to-face and online learning and facilitation using the relevant learning platforms and technology. Topics such as ethical use and integration of technology and resources as well as the creation of psychological safety in online environments could also be discussed.

a) Constraints

The nurse educators and students are not familiar with the LMS used by the Nursing Education Institution and need orientation to the system. Nurse educators are not familiar with designing courses and course material for the blended/online environment and need to be skilled in the correct way of presenting information in an online environment. This statement is supported by research done by Tshabalala et al., (2014) who identified that many educators do not understand blended learning concepts and perceived blended learning as difficult to implement due to a lack of institutional policies, lack of ICT training and knowledge as well as a lack of confidence of educators to engage in blended learning initiatives. The academic programme is remarkably busy, because of the block and semester system applied in public nursing colleges where students attend a theory block where content are covered and assessed, followed by work integrated learning where learners need to gain experience and are being assessed on skills learned. It is often difficult to find sufficient time for the orientation and development of students and nurse educators on blended learning and the use of technologies for learning and teaching. Blended learning

courses could be designed to assist both students and nurse educator to become familiar with blended learning concepts and technology.

The changing nature of technology is also a source of frustration for some students and nurse educators that warrants continuous support and encouragement. (Rouleau et al., 2017). Continuous support for nurse educators and students will reduce their frustration and allow them to improve their digital competencies. (Timotheou et al., 2022)

Wi-Fi / internet is not available in the residences of students, the cost of data is high and access to internet in certain areas is poor. The NEI needs to investigate the possibility of providing students with data or invest in an LMS that have offline capabilities to assist students in areas where internet access is limited. Students can then download the necessary resources at campus for offline access at home.

b) Enablers

The NEI has the necessary infrastructure to support blended learning. There is a library and computer laboratory that is internet enabled. Wi-Fi is available throughout the institution. All the classrooms are equipped with audio video equipment and internet capabilities for blended learning. Nurse Educators have the equipment and software needed to design and offer the online component of blended learning.

There are some nurse educators who are able to give others support and guidance for the implementation of blended learning in the Nursing Education Institution.

The students and nurse educators have a positive attitude towards the implementation of blended learning and the inclusion of technology.

4.4.2 Social Presence

Social Presence is the ability of participants to project their personality and characteristics within a community of inquiry to display their real self to others to make connections and participate in online discussions (Rourke et al., 2001). Social presence can be defined as the manifestation of affective expression, open communication, and group cohesion within a blended or online learning environment. Personal identity and relationships should be allowed to develop naturally and should not be forced on students, they must first feel secure and experience the climate as conducive before they will identify with the group. The students in the NEI are used to

face-to-face mode of teaching and are familiar with each other, especially in smaller groups where they are placed for work-integrated learning. The transition to blended and online collaboration should not interfere with their ability to communicate with each other or the facilitator.

The development of group cohesion is more dependent on the group and will develop over time (Akyol and Garrison, 2019). In essence social presence is engaging with one another in a risk-free environment that encourages collaboration.

4.4.2.1 Lessons learned from the data:

Students' readiness for blended learning depends on various factors such as gender, ethnicity, age, course level and financial status (Adams et al, 2018). The demographic data of the students showed that the population are mostly black female students between the ages of 20-49 with a small number of students older than forty-nine (49) and most students having attended the public schools. The younger students are more adept at using technology due to their exposure to technology in secondary schools and their use of mobile technology.

Students and nurse educators indicated that they have the necessary skill to participate in an online environment. They know how to open and send emails with file attachments; they often use e-mail to communicate, and they use social networking sites to share information. Students also use instant messaging to communicate with others using mobile technologies.

a) Constraints:

Some students and nurse educators resist the implementation of blended learning. This could be because or students' perception that face-face learning is better than blended learning or that they think they will not be able to cope in the online environment. (Janse van Rensburg et al., 2022). Students indicated that they are not happy about moving some of the content online because they find it difficult to communicate in an online environment. The assumption that 21st century students can navigate e-platforms is not entirely correct because of the diverse background of students in higher education institutions. Students also did not appreciate the requirement of students to participate in online discussions (Tekane et al., 20220). Nurse educators mentioned a lack of support and training from the NEI, lack of

equipment and human resources to implement blended learning. Janse van Rensburg et al., (2020) also include the following barriers for the implementation of blended learning: a) issues of connectivity, b) limited understanding of the benefits of blended learning by academics and students. Students and nurse educators mentioned that they prefer face-to-face classes and maintain that nursing cannot be offered online because it is a very practical course.

b) Enablers:

Students perceive themselves as ready for the implementation of blended learning. Students know one another in the face-to-face environment, and it should be easier for them to reach a point of group cohesion quicker than purely online students.

Students are excited because they feel that blended classes are more flexible and will allow them to study at their own time and pace and it will save them time and money because they do not need to travel to class. Tekane et al., (2020) confirms that students found blended learning to be flexible, allowing them to study, revise and practice learned concepts at their own pace and convenience. Rouleau et al., (2017) mentions that e-learning reduce cost of education and save time for students and educators.

4.4.3 Cognitive Presence

The investigation, development, resolution, and confirmation of understanding through cooperation and reflection in a community of inquiry are all examples of cognitive presence (Caskurlu, 2018; Akyol & Garrison, 2008) Students have reported that online activities such as asynchronous discussions helped them to think about problems creatively and honed their problem-solving and critical thinking skills. (Posey & Pinz, 2017)

4.4.3.1 Lessons learned from the data.

Eighty-eight (88) % of students and Eighty-three (83) % of nurse educators showed a positive attitude towards blended learning and said they think it will be useful in nursing education. Ninety (90) % of students and ninety-seven (97) % of nurse educators indicated that they are interested to participate in Blended Learning activities although forty-seven (47) % of students and twenty-six (26) % of nurse educators indicated that they are distracted by other online activities during online instruction.

a) Enablers

Most of the students and Nurse Educators see themselves as independent learners and show an interest in participating in blended learning. They say that they can learn modern technologies and that they can follow online instructional materials according to their needs. Pool et al, 2017 said that blended and online education requires students to be self-directed, self-reliant, and organised to be successful in blended and online teaching environments. In a study by Posey and Pintz, (2017) nursing students rated active-learning blended activities highly and faculty members mentioned that moving some content online can free up valuable classroom time.

b) Constraints

Although most of the students and nurse educators showed a positive attitude and confirmed that they can learn new technologies, and that they want to participate in blended learning, the researcher experienced a lack of knowledge and an unwillingness on account of both students and nurse educators to really participate in initiatives to train, support and implement blended learning to its full potential in the Nursing Education Institution.

Students and nurse educators indicated that they need support using spreadsheet software, accessing, and using online libraries and data bases as well as learner management systems. Nurse educators also verbalised that they need help with the integration of technology into the facilitation of their courses and facilitation of theory and practice in a blended environment.

4.4.4 Supporting discourse

Supporting discourse occurs at the intersection of the social presence and the cognitive presence, indicating that both presences are necessary for successful discourse. The social presence in the COI act as an initiator for cognitive presence and allows learning to take place in online and blended environments. (Anderson, 2017). The students must perceive the environment to be safe and trusting to allow risk free expression that will encourage collaboration. The role of the facilitator is to set the climate and to design the task in such a way that it intrigues them and allows them to investigate using various resources, reflect on their answers and verify their understanding of the solution with one another to reach consensus. Anderson, 2017

confirms that carefully designed learning activities provide a focal point for evocative interactions between students. The facilitator at the end confirms the understanding.

4.4.4.1 Lessons learned from the data.

More students and nurse educators indicated that they are not comfortable doing away with direct lectures. Students are comfortable being passive receivers of information and lecturers are reluctant to change the way they teach and prefer to use the traditional face to face lectures. The nurse managers indicated that they do not see a change in the NEI and that students are still seated in rows in a lecture room receiving information via fully packed PowerPoint presentations. Ndzeru (2022) found that nurse educators prefer traditional teaching methods because that is what they know, they are frustrated about the implementation of blended learning because they do not understand how to design a blended course or lesson, that they lack the necessary technology skills to implement it successfully and that it takes up too much of their time. The nurse educators mentioned that they need to be empowered and that more training interventions are needed to assist them to adapt to the changes.

a) Enablers

The document Competencies for a Nurse educator clearly states that nurse educators "must implement a variety of teaching strategies appropriate to student needs, desired student outcomes, content, and context." It also states that nurse educators should "use information technologies skilfully to support the teaching-learning process" (South African Nursing Council, 2014).

There is a willingness of some nurse educators to work in a community of inquiry to enable them to re design their courses/subjects to be suited for blended online facilitation to confirm to the prescribed competencies from the South African Nursing Council. Working in a community of inquiry, these nurse educators can teach and support others to use information technologies competently.

b) Constraints

Nurse managers are supportive of the implementation of blended learning in the Nursing Education Institution, but they do not play an active role in the motivation and support of their staff members. It is necessary that nurse education managers or heads of academic departments monitor, mentor and support nurse educators during and after implementation of blended learning in the institution. (Ndzeru, 2022)

4.4.5 Regulating learning

The selection of content form part of the setting of the curriculum by the facilitator and can be found at the intersection of the Cognitive and Teaching presences. The facilitator and students have a co-responsibility in selecting and sourcing relevant information to assist them in solving the question or problem. The adapted COI framework changed “selecting of content” to regulation of learning to include the importance of student self regulation within online or blended courses. Regulation of learning refers to the degree in which students are involved in their own learning. (Wertz, 2022)

4.4.5.1 Lessons Learned from the data.

Students are not actively involved in their learning and are just too glad to receive the information for them to consume and will only do the necessary activities assigned to them for marks. Although students indicated that they are self-directed learners, the nurse managers observed that learning in the NEI are not self-directed and learner centered.

a) Enablers

The physical library is sufficient to cater for the information needs of staff and students, e-books and open databases are available online. There is enough internet enabled desktop computers available for student use. There are Wi-Fi provision on campus for access on mobile or private devices.

b) Constraints

Students and nurse educators indicated that they need more support in looking for information online and how to access online libraries and databases to get information.

Accessing information in the library and online must be included in orientation and support programs for students and nurse educators.

There is currently no access to an electronic library database for the Nursing Education Institution, although students and staff have access to a limited number of online books. The NEI needs to invest in an online database suitable for nursing education, as required by the Council for Higher Education. The provision of data or wi-fi access in nurses' residences would assist learners to learn collaboratively.

4.4.6 Teaching Presence

The teaching presence is the availability of the facilitator in the course and is measured by the experience of the presence of the facilitator by the course participants or students. Teacher presence can be displayed by the clarification of course expectancies and consistent, timeous feedback on activities. The facilitator shares personal meaning, set the curriculum and is responsible for focussing the discussions.

4.4.6.1 Lessons learned from the data.

Some students and nurse educators still feel that the traditional lecture method is most suitable for nursing education because nursing is seen as mostly practical. This is an indication that they do not fully understand the true essence of blended learning and that it offers the best of both worlds, where some content (theory) can be offered online, and the practical or problem-solving part of the lesson can be dealt with in a face-to-face environment in the nursing institution or in the clinical practice environment. It is sometimes referred to as a flipped classroom methodology or approach. The flipped classroom method is ideal for the integration of theory and practice learning using problem-based case studies (Sullivan, 2022)

Students and nurse educators are familiar with the use of technology, but they find using spreadsheets more difficult than other types of software. Some students and nurse educators are not familiar with accessing online libraries or databases.

a) Enablers

Availability of the necessary information technology infrastructure and equipment to facilitate blended learning, including the availability of a computer laboratory, simulation laboratory and library, would encourage the facilitation of blended learning.

Smaller classrooms that can be used for group discussions and projects must be available.

b) Constraints

Online and blended learning were forced upon students and nurse educators during the Covid-19 epidemic, and they were expected to cope with a situation that they were not ready for, without adequate support.

The lack of internet access outside of the physical campus buildings and at residences is a hindrance as is the cost of data, which is still unaffordable for many students.

4.4.7 Recommendations for guidelines

The COI framework is multidimensional in nature and all the presences work as a collective to ensure a successful educational experience. The development of a community is crucial for higher order learning to take place (Fiock, 2020) (indicating that for the successful implementation of blended learning in a nursing education institution, all three of the presences must be developed and maintained.

The purpose of the study was to develop guidelines for the implementation of blended learning in a nursing education institution. The guidelines were developed from the lessons learned from the research data as well as the identified enablers and restraints.

The following issues were identified during the research that could be included in guidelines for nurse educators.

4.4.7.1 Issues identified for inclusion in the guidelines for nurse educators:

Social Presence	
Formal Support	**Informal Support**
• Training on the concept of Blended Learning and the Community of Inquiry and its possibilities within nursing education and training for nurse educators and students.	• Facilitation of communities of inquiry within different nursing education departments and student groups. • Availability of support structure for teaching and technical support. • Setting up consultations online and physical– be specific on availability.

• Assessment of and training on basic computer literacy for nurse educators and students. • Training on the learning platforms used in the Nursing Education Institution for nurse educators and students. • Training on accessing and using library databases, open educational resources as well as general internet searches for diverse types of information needs for nurse educators and students. • Training and support on designing instructional material for online learning. • Training on the facilitation of online learning and the establishment of discourse within the online environment. • Technical support is needed on the use of educational equipment in all areas of nursing education, classroom, simulation laboratory and in work integrated learning areas.	
Cognitive Presence	
• Creation and sourcing of content. • Facilitation for critical thinking and problem solving. • Reflection on learning and resolution of learning problem. • Forming community of inquiry for nurse educators. • Regulation of learning	
Teaching Presence	
• Creating and sustaining a teacher/facilitator presence. • Design of learning tasks to encourage discourse. • Giving feedback.	

4.5 Conclusion

In this chapter the data from both phases was analysed and categorised; the statistics are used for referencing in Chapter 5.

Chapter 5 presents the guidelines as developed for the nurse managers, and nurse educators.

CHAPTER 5

5 GUIDELINES FOR THE IMPLEMENTATION OF BLENDED LEARNING IN A NURSING EDUCATION INSTITUTION

5.1 Introduction to the Chapter

As explained in Chapter 4, guidelines were developed using the results of the survey (phase 1) on the readiness for blended learning, and the focus groups with managers and nurse educators (phase 2). The data from these two phases was further analysed to develop lessons learned. Using an iterative process together with the researcher's supervisor the lessons learned were then developed into guidelines according to the community of inquiry framework. Where there were gaps in the available data, additional literature sources were used to provide sufficient guidance.

The qualitative phase of the research included the coding of section C of the BLREQ® administered to both students and nurse educators. The question asked was "How do you feel about the implementation of blended learning in the nursing education institution?"

During Phase 2.2 the researcher conducted two focus groups, one with nursing education managers and one with nurse educators, on how best nurse educators can be supported for the implementation of blended learning.

The data was analysed according to the Community of Inquiry framework's three presences namely the Social Presence, Cognitive Presence and Teaching presence.

In order to provide sufficient background to the guidelines, a summary of the findings is provided here rather than in the last chapter as is the normal practice.

5.2 Summary of the findings

5.2.1 Quantitative phase: Survey Phase 1.1 and 1.2 and Qualitative phase

The BLREQ® revealed that students and nurse educators perceived themselves as having the necessary technology skills, with mean scores of 3.17 and 3.31 out of 4 across the items measuring technology skills. The nurse educators were slightly more confident of their technology skills, however students commented in Section C of the questionnaire that their educators are not skilled in technology and that they often needed to assist them using the equipment in the classroom. The qualitative data revealed that both nurse educators and students needed formal and informal support using technology in learning and teaching. The formal and informal support was included in the social presence of the COI framework.

Students indicated that they are less familiar with working with online databases and would need to be supported to effectively search, store, share and discuss learning content or resources with others, thereby fostering a cooperative learning environment. Cooperative learning is one of the critical skills needed for life and work in the 21st Century and needs to be developed and nurtured during their training. The BLREQ showed that students' proficiency and confidence in using spreadsheet software and presentation software is inadequate and therefore they need formal support in using spreadsheet and presentation software to empower them to succeed in their nursing programme. Nurse educators rated themselves lower working with spreadsheet programs, indicating that they also need formal support using spreadsheet programs.

Both nurse educators and students rated their use of cloud-based technology lower with mean scores of 2.67 (NE) and 2.69 (S), and their use of Learner Management systems are also lower at 2.65 (NE) and 2.42 (S). This would mean that both students and nurse educators must be orientated in the correct use of cloud-based technology and the use of the learner management system to assist them in sharing of information and collaboration for learning and teaching.

Students and nurse educators requested support and orientation on the use of technology for learning and teaching and this will be included during orientation of students and during onboarding and skills development sessions for nurse educators. This should include all aspects of technology such as the use of hardware and

software, all applications including online resources, local and cloud storage as well as using the learner management system that the nursing education institution is using.

Informal support addresses the need for students and nurse educators to be supported emotionally as well as academically by the nursing education institution and emphasises the importance of support services within the institution.

Most of the students (71.5%) agreed and strongly agreed that they have access to the necessary technology for study and work, but they do not have computer peripherals to assist them in communication and printing. Students and nurse educators have access to internet enabled desktop computers in the library and computer laboratory of the nursing education institution. Eighty percent of nurse educators indicated that they have the necessary technology available for work.

The cognitive presence mainly deals with how students learn and how they value learning within the institution. Students and nurse educators agree and strongly agree that they are independent learners (73% S and 93% NE) and that they can learn new technologies and are interested in participating in blended learning activities. Almost half of the students indicated that they are distracted by other online activities while they are learning online (47%), while twenty seven percent (27%) of nurse educators said that they are distracted by other online activities.

Students and nurse educators perceived themselves as confident in using online tools and web browsers to find and gather information for online learning. They can perform basic functions in word processing software, but they are less proficient in spreadsheet and presentation software. Thirty one percent (31%) of students and twenty-seven percent (27%) of nurse educators are not confident in expressing themselves in the online environment and thirty four percent (34%) of students and twenty three percent (23%) of nurse educators indicated that they are not confident in posting questions in online discussions.

Although most students indicated that they could read online instructional materials based on their needs, around 9% of students and seventeen percent (17%) of nurse educators disagreed with the statement, indicating that they would need support in this area.

Thirty-seven percent (37%) of students and twenty percent 20% percent of nurse educators indicated that they did not find blended learning technologies easy to use and would therefore need support.

Three subthemes were identified for the Teaching presence, the availability of resources, facilitation and challenges that impact on learning and teaching.

Students commented that although there were resources for blended learning in the institution, they found that others were lacking such as the availability of stable wi-fi, online data bases, and printers for student use in the library.

The role of the nurse educator is to facilitate critical thinking and to evoke the desire to learn through careful design of learning activities. Although nurse educators show a positive attitude towards blended learning there is a tardiness to start or engage in blended learning activities, they prefer to teach the way they are familiar with. Change management and constant support and motivation will be needed to encourage them to participate and implement blended learning strategies.

The students and nurse educators showed a positive attitude towards blended learning. Fifty-three percent (53%) of students and twenty four percent of nurse educators “agreed” while twenty-four percent of students (24%) and sixty percent (60%) of nurse educators “strongly agreed” that blended learning could be useful in nursing education and that they would recommend blended learning as one of the alternatives for the traditional teaching-learning approaches.

Sixty-four percent (64%) of students and thirty percent (30%) of nurse educators indicated that they still prefer direct instruction.

The students expressed a mostly positive attitude towards the implementation of blended learning in the campus and are appreciative of the efforts of the institution to align themselves to prepare students and nurse educators for the future world of work by incorporating technology into nursing education. They also mentioned that blended learning, if implemented, would be more convenient and in the sense that they can have some control over when, where and how they can achieve their learning goals while also saving traveling time and costs. In the miscellaneous category, students felt excited, confident looking forward to new challenges. Others felt that the implementation of blended learning will make learning more interesting and fun.

There were students who felt less excited and prefer traditional teaching methods and prefer to have the lessons dictated to them rather than doing exploring the content for themselves and to engage in discourse with their fellow students while other were advocating for more self-directed learning activities.

During the Covid-19 pandemic, when the institution provided emergency remote online learning and teaching, these students experienced it as stressful and had difficulty coping with the online learning. They also commented that they were easily distracted by social media whilst they are online or working on their phones or internet enabled devices. Blended learning is ideal for the integration of theory and practice, yet some students and nurse educators do not believe that blended learning is suitable for nursing education because of the practical nature of nursing.

Challenges include the lack of personal devices with internet connectivity and the provision of data for learning and teaching. The implementation of crippling loadshedding schedules in South Africa interferes with the ability of nurse educators and students to work on their devices and to access online platforms and resources because it is dependent on electricity to work.

Guidelines were developed to guide nurse managers in the implementation of blended learning in the institution and to support nurse educators to address the developmental needs of nurse educators to successfully transition towards blended learning to foster a deeper and cooperative learning environment in the institution.

The full set of guidelines developed in this study has been included. In this chapter those guidelines are shown, with references from the discussions about data analyses in chapter 4. The references were included, using the numbering of the paragraph e.g., 4.2.4.a. These were used to substantiate each aspect of the guidelines. Where data was insufficient, literature from chapter 2 or other sources were used to provide more substance to the guidelines.

5.3 Introduction to the guidelines

The occurrence of Covid-19 catapulted educational institutions into the use of online learning, something for which many institutions were utterly unprepared. Although the Covid-19 situation has slowly returned to normalcy, education will never be the same

and online learning or a combination of online and face-to-face teaching will be with us for the foreseeable future.

The white paper for post school education discusses the implementation of diverse modes of provision for open learning in South Africa in chapter 7 and supports blended learning in higher education institutions to increase access, reduce costs and enhance quality of education. (Department of Higher Education and Training, 2014). The National Strategic Direction for Nursing and Midwifery Education and Practice prioritizes the optimization and institutionalization of digital health technologies, such as information systems and e-learning technologies, to support evidence-based nursing practice and inter-disciplinary learning, resulting in greater efficiency and greater access to nursing education to comply with the requirements of the higher education system and health care system (National Department of Health of South Africa, 2020).

Blended learning in nursing education combines the best aspects of traditional instruction and online learning, providing flexibility, active engagement, technological integration, cost-effectiveness, and continuous learning opportunities. It enhances the educational experience of nursing students, preparing them to meet the challenges of modern health care and promoting lifelong learning. (Ke et al., 2023; Sullivan, 2022).

The SANC competencies for a nurse educator, domain 1: Scholarship of teaching and learning, point 1.1.5 states that a “nurse educator uses information technologies skilfully to support the teaching-learning process” (SANC, n.d.). Although it is stated as a competency, it is general knowledge that not all nurse educators have the same level of information technology literacy (including computer technology) to cope with blended learning and would need support to reach this competency.

The BLREQ® revealed that although nurse educators felt confident in their computer skills, they were less familiar with using spreadsheet programs and had difficulty working in several programs simultaneously.(4.2.4.1) . They also needed support in using cloud technologies and online or social media for facilitation. (4.2.4.2 & 4.2.4.4)

The provision of guidelines for implementing blended learning using the Community of Inquiry framework will assist nurse educators to transition to blended learning more easily. It provides general guidance on how to proceed with creating a teaching presence, setting up the climate for learning and teaching, facilitating discourse by

selecting varied and relevant content, while also allowing the students to actively participate by curating and sharing their own content. The facilitation of discourse is particularly important to allow both students and nurse educators to engage with, and reflect on, the material to foster critical thinking and higher order learning.

5.4 Purpose

The purpose of the guidelines is to offer nurse educators working in the nursing education institution practical directions for using blended learning tools and methodologies using the Community of Inquiry framework to foster social, cooperative learning.

5.5 Scope

To provide guidance to nurse educators and managers responsible for facilitation of student learning and work-integrated learning in the Nursing Education Institution.

To orientate all newly appointed staff members and provide staff members needing support with orientation on the implementation of blended learning in the institution and training on the institutional Learning Management System (LMS).

5.6 Definitions

Blended Learning: Blended learning is the careful combination of face-to-face and online learning, making use of interactive, digital content and personalized learning strategies to deepen student learning. Blended learning offers some flexibility for both students and educators, giving them more control over when, where how and what they learn. Blended learning is therefore more cost effective.

Community of Inquiry framework: The Community of Inquiry framework is a framework for the implementation of blended learning and consists of three (3) main presences namely, a social presence, a cognitive presence, and a teaching presence. The intersection of the presences culminates in an educational experience for a student that is focused on social interaction and support, communication skills, reflective learning, teamwork, flexibility and independent learning. Thinking skills such as critical thinking, problem solving, and creativity and the careful curation and evaluation of knowledge and material using digital skills assist in the overall

experience of students. The COI (Community of Inquiry Framework) is the perfect framework for the implementation of blended learning.

Information literacy: Computer/Information literacy is the ability of a nursing student / educator to use computers and related technology efficiently and ethically to solve problems, to fulfil a specific information need, create new information as well as to store and organize information and to communicate with others. Information literacy is necessary for both nurse educators and students to navigate the online environment. The use of online material in addition to textbooks ensures that students have access to the latest information.

Formal Support: Formal support includes scheduled training sessions for nurse educators and students on the concept of Blended Learning, Digital Literacy and navigating the Learning Management System in use.

Informal Support: Informal support means consultations that occur outside of formal lecture hours on an appointment basis with the skills development or Information technician's departments. Informal support can also happen in academic departments where nurse educators discuss and support one another to achieve facilitation tasks.

Learning Management System: A Learning Management System is the information platform that is used by the Nursing Education Institution for the facilitation of blended and/or online learning and teaching.

5.7 Pre-requisites for the implementation of Blended learning.

To implement blended learning using the COI framework there are certain pre-requisites that must be in place for it to be a success.

5.7.1 Knowledge and understanding

All nurse educators must have the necessary knowledge to use technology in their courses and to implement blended learning in their courses. It is recommended that they attend an orientation and training session on technology integration and blended learning if they are not familiar with it.

To gain an understanding of blended learning and the use of the Community of Inquiry framework for the implementation of blended learning nurse managers and educators must understand the following concepts:

a) Blended Learning
   - Definition
   - Models of delivery
   - Benefits
   - Educational Theories that support blended learning
   - Technology integration and andragogy/heutagogy (self-directed learning
   - Learner Management System and how to use it effectively for the facilitation of blended learning.

b) Community of Inquiry framework
   - Origins of the COI framework
   - the three presences and intersections
   - Designing a course using the COI framework
     - Creating a Social Presence and supporting discourse
     - Creating a Cognitive Presence and selecting content
     - Creating a teacher presence, and setting the climate and facilitation of the course

c) Benefits of using Open Educational Resources

d) Information literacy and computer literacy

The training can be offered as a blended learning course, giving nurse educators the opportunity to experience a blended course for themselves. using the institutional Learner Management System.

5.7.2 Planning and Policy Development

a) Plan for the implementation of blended learning by investigating possibilities to determine which technologies or learner management system will be the best fit for the Nursing Education Institution.

b) Plan for changes to the infrastructure and provision of information technologies to assist in blended learning.

c) Develop and implement technology enabled learning policies and strategies that meet the needs of nursing students and educators within the nursing

education institution and clinical facilities where they will be conducting their work-integrated learning. (Commonwealth of Learning, 2020). Budgeting for or provision of resources is needed.

d) Invest in infrastructure projects to enable blended learning, e.g., discussion rooms, computer laboratories, libraries, ICT infrastructure and the provision of Wi-fi for all students on campus.
e) Provide the necessary resources for blended learning, e.g., online databases, e-books, and a learning management system for facilitation of learning and teaching. [4.4.1.1 a)] Constraints, availability of online resources.
f) Budget for the provision of in-service training for nurse educators to equip them to provide innovative teaching through blended learning.
g) Ensure accessibility and consider the diverse needs of students. Include closed captions for videos and online presentations and teach assistive technologies for students who have learning disabilities, such as immersive reader that helps students to read, or being able to listen to text being read to them.
h) Provide adequate student support services using different technologies, such as physical consultations, telephonic support, e-mail, virtual meetings, discussion boards, social media, and trained Peer Counsellors/Tutors to offer support services to peers. [4.3.1.1b) -Informal support]

5.7.3 Leading and Directing

a) Identify nurse educators that can support their peers in all departments and levels of training. [4.4.1.1]
b) Institute orientation programs for nurse educators and students on how to access and use the chosen learning management system and other online technologies that will be used to facilitate learning, consultation, and support. [4.3.1.1., 4.4.1.1., 4.4.7.1]. (COL, (2020). Guidelines on Distance education during COVID 19).
c) Facilitate the design and development of blended learning environments (Cleveland-Innes and Wilton, 2018) to support the facilitation of learning outcomes.
d) Provide opportunities for lecturers as part of their continuous professional development to form communities of inquiry within their academic

departments, and in the wider nursing educator environment to facilitate sharing of knowledge, resources, and content. [4.4.7.2].

e) Nursing Education Managers should encourage educators to curate, share and develop open educational resources to be used in the nursing curriculum.

5.7.4 Monitoring and evaluation

a) Ensure quality assurance of blended learning courses by doing annual course evaluations by students and use the results to make the necessary changes and improvements.
b) Continuously monitor and assess the impact of blended learning to ensure its effectiveness in preparing student nurses for their professional roles.
c) Assess infrastructure requirements to ensure that the necessary technological infrastructure, such as reliable internet connectivity, learning management system, and appropriate hardware, are in place to support the implementation of blended learning. Provide Internet and technology support to staff and students to ensure access to resources on campus and online. [4.3.1.3.a)].

5.8 Guidelines for nurse educators

5.8.1 Establishing a Social Presence

5.8.1.1 Guidelines to establish a Social Presence

According to research, the establishment of a social presence is important for the development of a learning culture amongst students in an online learning environment where students construct meaning through social interaction and can reach the learning outcomes of the course. (Garrison and Kanuka, 2004; Anderson, 2017; Waddington and Porter, 2021). The degree of social cohesion also determines the overall experience of students in the course.

The establishment of a social presence develops over time within the physical and online environments where a person establishes his or her own identity, participates in discussions and forms social relationships with others. (Waddington and Porter, 2021).

Students indicated a need for support and training for using information technologies before the introduction of blended learning. [4.3.1.1. a) i]. It is

therefore necessary to schedule orientation sessions before starting with blended learning.

Lecturers can use a variety of techniques to achieve a social presence in a virtual or blended environment.

Activities to encourage social presence in a blended environment may include.

a) Ice breakers
b) Think pair and share activities.
c) Story telling/Personal introduction.
d) Creating a personal profile with biographies
e) Online discussion forums/ chats
f) Facilitation of in-class or online discussions where the facilitator initiates discussion by asking/posting critical questions for discussion. As conversations evolve and students are actively participating, the facilitator presence becomes less obvious and becomes more of an observer.
g) The use of virtual technology / online conferencing technology, e.g., MS Teams, Google Meet or Zoom etc., can be used to facilitate discussions in the online environment or to invite outside facilitators to engage with students in class.

The above activities aim to establish social interaction and set the stage for deeper collaboration and more purposeful interpersonal interaction. According to Scott Mehall (2020), purposeful interpersonal interaction leads to greater student satisfaction and learning providing a connection to the cognitive dimension.

At the start of a course module, a nurse educator sets the climate by:

- introducing the module through delivering or posting a personal welcoming message that clearly states the course outcomes and rules for participation.
- Setting consultation hours and explaining the different modes of interaction available, e.g., in person, virtual consultation, telephonic, e-mail or WhatsApp, and how to book a consultation. [4.3.1.1. b)].

- Posting a document outlining the rules of conduct in the online environment as part of the course material to guide students on the correct way to post and interact on the learning platform.
- Model posting and responding by participating in the discussions in the beginning stages of the course.
- Encouraging students should introduce themselves to fellow students, in class and on the learning platform, using any interactive medium available on the learning platform such as pictures, video or audio.
- Encouraging students to share their experiences and beliefs with one another in class and in the online environment.
- Making use of real time communication applications available in the learner managing system, such as chats, email, interactive video. Collaborative applications and document share can also assist students to collaborate online.
- Allowing students to lead the discussion.

During the course module, support discourse by:

- Setting up teams/groups and assigning team/group-based learning activities by allocating case studies to the teams to solve.
- Encouraging peer to peer communication and collaboration by using interactive tools such as Google Chat, Google Jam board, and by creating collaborative google documents, google sheets and presentation software.
- Using video conferencing such as Google Meet to facilitate teaching and conduct short tutorials or group discussion.
- Encouraging students to create their own study groups, either physical or online, depending on the task. Groups can vary between 2-8 students per group.
- Asking students to reflect on their learning experiences in class and in the clinical environment and to present interesting cases to the rest of the group.

- Giving timeous feedback on assignments using written, video or audio feedback to groups or individual feedback in person, via e-mail or comments in the learner management system.
- Assigning a percentage of the course mark to participating in online discussions.
- Asking students to comment on fellow students' posts and to summarize what they have learned from their fellow students at the end of each topic.

5.8.2 Establishing a Teaching Presence

The nurse educator co-creates a positive educational experience for the nursing student by balancing the elements of learning and teaching, starting with creating a conducive social presence by setting the climate for learning and selecting the right content to support high level discourse to promote deeper learning.

5.8.2.1 Guidelines for establishing a teaching presence.

N**urse educators establish their teaching presence through:**

- Ensuring that the blended learning approach aligns with the nursing curriculum, educational theory and learning outcomes.
    - Identifying areas where online learning can enhance theoretical understanding. This can include interactive modules, case studies, video lectures, quizzes, and discussion forums. [4.3.1. 3b)].
    - Ensuring the integration of theory and practice through work-integrated placements that correlate with learning units, using case studies, problem-based learning, and real-life scenarios during clinical integration.
- Determining the right mix for the blend, based on learning objectives, subject matter and needs of nursing students. Think of using the flipped classroom method, online and virtual discussions or multi-media presentations [4.4.4.1].
- Careful design of the course.

- Organising and providing the course outline (structure) in the learner management system.
- Providing learner support by scheduling a face-to-face training session(s) before implementing a blended course to: [4.3.1c)iii, 4.3.1.3c]
    - Make sure that students can operate a computer and that they have a working knowledge of the software applications needed for the course [4.4.1.1].
    - Familiarise the students with the learning management system that the nursing education institution is using [4.4.1.1a)].
    - Offer support throughout the duration of the course by establishing clear channels of communication such as discussion forums, email, or online office hours to address questions and concerns promptly [4.3.1.1b)].
- During facilitation, ensuring to enter the class before the scheduled starting time to meet the students as they enter the class, whether physical or online.
- Assigning learning tasks with clear outcomes and guidelines for assessment. Learning tasks can include written assignments, case studies (Google Docs, Google slides etc.), scenarios, completion of quizzes, polls, games, mind maps and various other methods used for online teaching.
- Explaining how assignments and activities will assist students in reaching their course/module outcomes.
- Ensuring that all students participate by scheduling individual and group assignments.
- Making use of breakaway groups in the classroom as well as in the online environment through Google Meet/MS Teams/Zoom meetings.
- Scheduling and communicating regular consultation hours or sessions that are suitable to both students and nurse educators. Students and nurse educators may schedule physical and/or online sessions.
- Reaching out to those students that fall behind or do not interact in the course discussions by sending them an email or request an individual chat, meet session or face-to-face session at the campus [4.4.1.1].

- Providing meaningful feedback timeously. Feedback can be given in a text format, video, or audio format both in groups or individually, depending on the situation and task.
- Developing a balanced assessment approach that includes both online and face-face components. Make use of online quizzes, exams, and assignments to assess theoretical knowledge, while reserving face-face-assessments for practical skills evaluation, clinical performance, and simulation -based assessments.
- Making use of learning analytic tools available in the learner management system to establish which students need assistance or encouragement.
- Encouraging global citizenship by reminding students to adhere to the rules of engagement in the online environment.
- Motivating students and reinforcing learning that took place by doing a “shout out” to those who have performed well. Award electronic badges.
- Posting a review or summary of the highlights of learning that took place during the week or at the end of the module.

Nurse Educators facilitate the collection of content by:

- Collating their own collection of resources and saving it in a central location on a drive of their choice. This can be a local drive, cloud storage or on a removable drive. Make use of open educational resources where possible.
- Posting or sharing relevant learning resources to the learning platform well ahead of time. Collections may include a list of prescribed and recommended books, open educational resources (books, articles, videos, podcasts, journals, brochures etc.).
- Encouraging students to make use of online databases available to them to collate their own learning material. [4.3.1.1a)ii].
- Encouraging students to add their own resources to those shared with them, and to share them with the rest of the class in the “Google class drive” or to link to the resources in discussion forums to enrich discourse during class deliberations [4.3.1.3b].

5.8.3 Establishing a Cognitive Presence

The cognitive presence is where learning and understanding takes place. A nurse educator can assist students in achieving cognitive presence by using “The Practical Inquiry Model” (Garrison, 2007) in designing learning activities. The Practical inquiry (Fig 1.2) model consist of four phases, namely the triggering event, exploration, integration, and resolution. (Fiock, 2020; Garrison, 2007)

To achieve learning, a nurse educator must assist students by selecting triggering events that relate to the problem to be solved., Students must use brainstorming and discussion to explore workable solutions to the learning problem, reflect on the solutions to reach conclusion and understanding of the topic at hand.

5.8.3.1 Guidelines for establishing a cognitive presence.

- Learning starts by introducing a stimulus or triggering event. This may take the form of storytelling or presenting a paper patient. Students then need to analyse the information in the story or case study, gather more information by consulting learning material (integration), discuss the case and come up with solution in the form of nursing diagnoses, treatment, and patient education. Students should be innovative and make use different forms of information. Students can then present their work in any format required by the nurse educator.
- A nurse educator facilitates the process by developing questions that assist students in achieving the outcomes of the course and help them to think critically.
- Ensure that the trigger/prompt is relevant to the course outcome and that it is current, e.g., a newspaper article, an ethical question, personal perspective/story, case study, artwork, audio, video clips or movies.
- A nurse educator must maintain a presence in the class or online environment to observe the discussion but refrain from leading the discussion. A nurse educator only intervenes when guidance is required by asking relevant questions for critical reasoning.
- Encourage private and group discussions.
- Allow enough time for students to respond to questions or complete assignments.

- Students must be able to work collaboratively in discussing the questions and be allowed to rephrase the question(s) during deliberations. Collaborative work can be synchronous, or asynchronous, and students can choose where and how they will achieve the outcomes. [4.3.1.2 a) ii].
- Students make use of the collaboration features in the learner management system and/or link to other applications, such as blog posts.
- Allow students to make use of any technologies and online resources to expose them to 21st century leaning [4.3.2.2 a) i].
- Develop assessment activities to assess knowledge, skills, and attitudes that students should learn; this may include quizzes, assignments, reflective journals or art and design work, e.g., assistive device for elderly person with arthritis, or toys that assist a mother with developmental activities of baby and toddler.
- Ensure that there is a continuation and integration between online and in-class activities and discussions when using a flipped classroom design.
- Discussions can take the form of debates, role play, application, or review.
- Ensure that there are enough formative assessment opportunities for students and allow for peer assessments as a learning tool.
- Allow for diversity in thought and learning by encouraging different perspectives and cultural interpretation to ensure inclusivity.

5.9 Conclusion

All the presences work together to establish an educational experience that assists students to achieve deeper levels of community and understanding that help them in achieving their own understanding and interpretation of the content covered.

By implementing blended learning, the Nursing Education Institution helps students to work together to achieve a common goal and allow students to have some control over their learning while they try to adapt in an ever-changing health care landscape.

The next chapter is a summary of the main findings of the research.

CHAPTER 6

6 MAIN FINDINGS, LIMITATIONS, RECOMMENDATIONS, AND CONCLUSION

6.1 Introduction

Chapter 5 provided a summary of the findings and discussion of the guidelines for the implementation of blended learning. Chapter 6 discusses the main findings and recommendations for Nursing Management, nursing education and future research.

The purpose of the study was to develop guidelines on how a nurse educator can best be prepared to implement blended learning in a Nursing Education Institution in Gauteng.

The study used mixed methods, consisted of two (2) phases, a survey to determine readiness for Blended learning, using the Blended Learning Readiness Engagement Questionnaire (BLREQ®) and two (2) focus groups, with nurse managers and nurse educators respectively to establish how best they can be supported to implement blended learning in the Nursing Education Institution.

6.2 Main Findings

6.2.1 Phases 1.1 and 1.2

The student participants were mainly female, black students between the ages of 20-49 years, in their first, second, third and fourth year of study who attended public schools to obtain a National Senior Certificate prior to their tertiary studies.

Students indicated that they could use information technology to work and study and that they were able to access information online (eighty-two percent). Sixty-six percent of students indicated that they had access to technology. Students perceived themselves as adequate when it came to computer and internet efficacy. The average score across “agree” and “strongly agree” was seventy five percent (75%). Students scored themselves lower over working with spreadsheets and working with others in an online environment.

Most of the students agreed and strongly agreed that they were self-directed learners (seventy-three percent 73%), while twenty-seven percent (27%) declared that they were easily distracted in an online environment and needed a more directed approach to learning. Seventy-eight percent of students showed a positive response towards blended learning by choosing to agree or strongly agree in the attitude area of technology literacy.

The nurse educator population consisted of mostly female black educators between the ages of 30-59 years. Fifty-three percent (53%) of the participating nurse educators had a bachelor's degree with thirteen percent (13%) of educators with a post basic qualification in a nursing speciality other than nursing education and thirty three percent (33%) a master's degree.

The breakdown of the questionnaire into the six (6) different areas of technology literacy revealed that nurse educators perceived themselves as having the necessary technology skills (87%) for the implementation of blended learning.

They indicated that they use technology frequently (80%) and that they have adequate access to technology (84%). The nurse educators indicated that they are self-directed learners themselves (85%) and that they have a positive outlook around the implementation of blended learning in the Nursing Education Institution.

Some nurse educators showed that they still needed support with application software such as MS Excel, accessing and using cloud-based services and learner management software.

The overall results for the Blended Learning Readiness Engagement Questionnaire showed that 84% of nurse Educators "strongly agreed" and "agreed" on all the items on the BLREQ®, showing a positive attitude towards blended learning. Sixteen percent (16%) of nurse educators disagreed or strongly disagreed.

A comparison between students and nurse educators revealed that both students and nurse educators saw themselves as ready for the implementation of blended learning by mostly "agreeing" or "strongly agreeing" across the statements of each dimension. Nurse educators seemed to be more confident by choosing mostly "strongly agree" where students were more conservative by "agreeing" to the statements in the

computer and internet efficacy, self-directed learning, and attitude towards blended learning dimensions.

The students had a twenty-five percent (25%) average across the 6 dimensions in the “strongly disagree” and “disagree” category in comparison to the nurse educators’ score of sixteen percent (16%). The student average across the dimensions in the “agree” and “strongly agree” category totals seventy-five percent (75%) against the nurse educators’ eighty four percent (84%).

Both students and nurse educators expressed that they were not comfortable in participating and asking questions in online environments and that they lacked experience in working collaboratively in an online environment.

6.2.2 Phase 2

A template analysis was used to organise the data into the Community of Inquiry framework. The themes and subthemes can be seen in Table 4-15 and Figure 4-38.

Lessons learned from the data indicate that some nurse educators and students lack the necessary emotional and interpersonal skills to participate and interact in a meaningful way within a community of inquiry and would need support and guidance in the form of formal and informal training and support. Most indicated that they had sufficient technical skills, although there were some who would need support in basic computer skills. Formal support should include orientation programs for all stakeholders.

Although most of the students and nurse educators indicated that they were ready for the implementation of blended learning and that they were excited to experience moving towards 21st century learning, some were reluctant and were resisting change, saying that they preferred the traditional method of learning and teaching. Nursing education managers also perceived that active learning is not evident in the institution and they realised that support and guidance was needed before and during the implementation of blended learning in the institution.

Resources needed includes physical resources such as printers and copiers for student use, online databases for access to online books and journals as well as a learner management system that is user friendly. Internet and Wi-fi availability at the

institution and at student residences is seen as paramount to a successful implementation of blended learning.

6.3 Limitations

6.3.1 Sample of the study

The study was only conducted at one campus of a public sector nursing education institution. It is possible that students and lecturers in other nursing education institutions may have different needs. Nurse educators and students that participated in the study were mostly positive about the implementation of blended learning. It could be that those interested in blended learning participated and the others not.

6.3.2 Data collection

The Covid pandemic occurred soon after commencing the study. This meant that it was not possible to collect the data in-person and the questionnaires had to be distributed electronically, resulting in a poorer number of responses, possibly since the researcher could not explain the purpose of the study in person or be there to answer questions. The response rate was so poor that the researcher had to wait for the nursing education institution to reopen and distribute the questionnaires again, asking students who had completed them not to do so again. This could have impacted on the representativity of the respondents.

The researcher also had difficulty in convening the focus groups. Initially they were delayed due to the pandemic but even when staff returned to the nursing education institution it was difficult to get them together due to the difficulties in getting back to “normal” operations, which impacted on the staff members’ schedules.

The other disruption was because the nursing education institution was in the midst of moving into the higher education sector at the time of data collection and staff members were stressed and reluctant to involve themselves in anything they did not see as strictly necessary. The focus groups were therefore smaller than intended and it was difficult to generate meaningful discussion although data saturation were reached.

Data from section C of the questionnaire was not originally intended for the purpose of qualitative analysis but many respondents wrote extensively in the comments section. It was therefore decided to analyse and use this data.

6.3.3 Lack of prior research studies on the topic

While a great deal of research has been carried out internationally, there was little evidence available on the subject in the context of South Africa, and none was found in the specific context of Gauteng public nursing colleges which could have served as primary evidence for citation and deepening of understanding of the topic prior to commencing the study, or to provide support for the findings of the study.

6.3.4 Self- reported data

A self-report survey questionnaire, including an open-ended question, was used to collect data from the participants. While the survey was anonymous it is possible that there was an element of social desirability bias in the responses.

6.4 Recommendations

6.4.1 Management

Future research can be done on the Nurse Education Managers role in the implementation and management of blended learning in NEI to establish guidelines for nurse education managers on the approach that they should follow in implementing blended learning in terms of planning, budget and training of nurse educators.

It is recommended that managers at the Nursing Education Institution receive orientation on the concepts of blended learning prior to the implementation thereof.

Prioritisation of resources should be done to ensure that there are sufficient resources available for learning, including training of nurse educators.

It is recommended that an information technology department be established in the Nursing Education Institution to provide technology support for students and nurse educators both on campus and online.

6.4.2 Education

It is recommended that an orientation program be developed to explain the concepts of blended learning to students and nurse educators to orientate them on how to use the learner management system.

Orientation and support sessions are recommended for students and nurse educators to familiarise them with the use of online platforms and online communication technology and software, for example Google suite of applications for working collaboratively.

Information technology should be included in the curriculum to teach basic computer and information skills to all students, including information literacy skills and navigating online databases.

It is recommended that student support services are available and accessible to students in the Nursing Education Institution to assist students academically, socially, emotionally, and spiritually.

6.4.3 Research

Evaluation of the effectiveness of the implemented blended learning program utilizing the guidelines for implementation should be done to determine the effectiveness of the guidelines.

It is recommended that a pre-post-test design is used to evaluate the utility feasibility and acceptability of the guidelines. This recommended study should be implemented in multiple research sites to assess validity and reliability of the guidelines.

It is recommended that a readiness survey for blended learning is conducted at all nursing education institutions prior to implementing blended learning to assess possible interventions to assist students and staff in the transition to a blended learning environment.

Individual interviews rather than focus groups should be conducted for a similar study to get a richer data set to work with.

6.5 Conclusion

This research has explored the readiness for blended learning of nursing students and nurse educators as well as the need for support for nurse educators to implement blended learning at a nursing education institution.

Both nursing students and educators showed a positive attitude towards blended learning, but it is evident that they need formal and informal support when it comes to the implementation thereof. The research revealed that nurse educators and students are not comfortable communicating and asking questions in online environments, they also need help navigating electronic databases, sharing information, and collaborating in the online environment.

Students need to be orientated and supported by nurse educators and support staff at the beginning of their programmes in the Nursing Education Institution. Ongoing support should be available throughout their academic career. Basic computer literacy programmes should be offered to all students during their first year of study. Applied computer programs and software should be taught when required in their senior years.

The guidelines that were developed as part of this study should enhance the implementation of blended learning, which is a necessity due to the changes in the Higher Education field and the development of technology in the 21st century.

The guidelines that were developed may be used by other NEI and adapted to suit their own situation.

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8 ANNEXURES:

8.1 Annexure 1 Permission

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

OUTCOME OF PROVINCIAL PROTOCOL REVIEW COMMITTEE (PPRC)

Researcher's Name (PI)	Marlene Maré
Organization / Institution	Witwatersrand University
Research Title	Guidelines for The Implementation of Blended Learning in a Nursing College Campus in Gauteng: A Mixed Methods Study
Contact number	0829048714
Protocol number	GP 202003021
Sites	Nursing campus

Your application to conduct the abovementioned research has been reviewed by the Province and permission has been granted.

We request that you submit a report after completion of your study and present your findings to the Gauteng Health Department.

[X] Permission granted

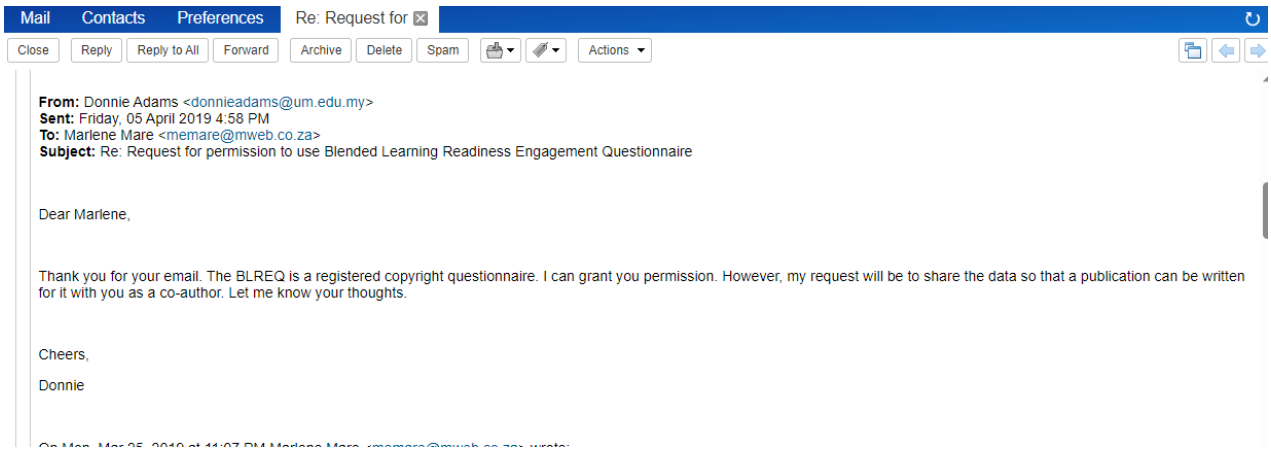
[ ] Permission denied

Recommended by

Ms. ND Gidimisana
Acting Director: Nursing Education and Training Directorate

Date: 12/08/2020

8.2 Annexure 2: Permission to use BLREQ ®



Mail Contacts Preferences Re: Request for

Close Reply Reply to All Forward Archive Delete Spam Actions

From: Donnie Adams <donnieadams@um.edu.my>
Sent: Friday, 05 April 2019 4:58 PM
To: Marlene Mare <memare@mweb.co.za>
Subject: Re: Request for permission to use Blended Learning Readiness Engagement Questionnaire

Dear Marlene,

Thank you for your email. The BLREQ is a registered copyright questionnaire. I can grant you permission. However, my request will be to share the data so that a publication can be written for it with you as a co-author. Let me know your thoughts.

Cheers,

Donnie

8.3 Annexure 3: Student and Nurse Educator Questionnaires

1 Annexure 2 (a) BLR Questionnaire: Students

BLENDED LEARNING READINESS ENGAGEMENT QUESTIONNAIRE

'Blended learning is a combination of E-Learning (online) and traditional education (face-face) approach. The White Paper for Post-School Education and Training in South Africa, encourage the use of mixed method programme delivery to expand access, reduce cost and improve quality, considering the needs of both students and the curriculum.

The Blended Learning Readiness Engagement Questionnaire assesses the readiness of Nursing Students and Nurse Educators for Blended learning in a Nursing Education Institution.

The purpose of this study is to **develop guidelines on how the nurse educator can best be prepared to implement blended learning in a Nursing Education campus in Gauteng**. The results of the study will, in the future, be used to **guide the lecturers in the implementation of blended learning in the Nursing Education Campus**. Participation in this study will not benefit you directly but the information obtained may benefit nurse educators and nursing students in the future.

The questionnaire consists of 3 sections: Section A refers to your demographic profile, Section B refers to the readiness of students and staff. Section 3 is an open ended question

Thank you for your participation.

SECTION A: YOUR DEMOGRAPHIC PROFILE

INSTRUCTION: Please respond to each item by marking *(X)* in the appropriate box and provide the required information where needed.

1 Current Level of Study

- Level 1 ☐
- Level 2 ☐
- Level 3 ☐

2 Gender

- Male ☐
- Female ☐
- Other, please specify ☐ _____

3 Ethnic Identity

- African ☐
- Coloured ☐
- Indian ☐
- White ☐
- Other, please specify ☐ _____

4 Age

- 18 19 Years ☐
- 20 -29 Years ☐
- 30- 39 Years ☐
- 40-49 Years ☐
- 50-59 Years ☐
- > 60 Years ☐

5 Schooling Type

- Private School ☐
- Model C School ☐
- Public School ☐
- Township ☐
- Rural School ☐
- Other _____

6 Qualifications

- Bachelor's degree ☐
- Diploma ☐
- Other, Please Specify ☐
- Masters ☐

SECTION B: STUDENTS READINESS FOR BLENDED LEARNING					
INSTRUCTION: Please read each statement carefully and mark (X) the box that best reflects your response based on the rating shown below.					
	Questions	Strongly Disagree	Disagree	Agree	Strongly Agree
1	I know the basic functions of computer/laptop and its peripherals like the printer, speaker, keyboard, mouse etc.				
2	I often use internet to find information.				
3	I have a computer/laptop with an internet connection.				
4	I am a highly independent learner.				
5	I feel confident in using online tools (e.g. e-mail, internet chat, instant messenger) to communicate effectively with others.				
6	I think Blended Learning is useful for Nursing Education Institutions.				
7	I know how to save and open documents from a hard disk or other removable storage device.				
8	I often use e-mail to communicate.				
9	I have a computer/laptop with adequate software for learning (e.g. Microsoft Office).				
10	I am able to learn new technologies.				
11	I feel confident in expressing myself (e.g. emotions and humour) in my Nursing College's Learning Management System (e.g. Blackboard, Moodle)				
12	I am interested to participate in Blended Learning activities.				
13	I know how to open and send email with file attachments.				
14	I often use office software (e.g. M.S. Word, PowerPoint, Excel).				
15	I have speakers for courses with video presentations.				

SECTION B: STUDENTS READINESS FOR BLENDED LEARNING					
INSTRUCTION: Please read each statement carefully and mark (X) the box that best reflects your response based on the rating shown below.					
	Questions	Strongly Disagree	Disagree	Agree	Strongly Agree
16	I do not need direct lectures to understand materials.				
17	I feel confident in posting questions in online discussions.				
18	I find using Blended Learning technologies simple.				
19	I know how to log on to Wi-Fi.				
20	I often use social networking sites to share information (e.g. Facebook, Twitter, Instagram, Snapchat).				
21	I have a computer/laptop and its peripherals like the printer, speaker, keyboard, mouse etc.				
22	I would describe myself as a self-starter in learning using technology.				
23	I feel confident in performing the basic functions of word processing software (e.g. M.S. Word).				
24	I would recommend Blended Learning as one of the alternatives for the traditional teaching-learning approaches.				
25	I know how to navigate web pages (go to next or previous page).				
26	I often use instant messaging (e.g. WhatsApp, Viber, WeChat, Line, Telegram).				
27	I am not distracted by other online activities when learning online (e.g. Facebook, Gaming, Internet surfing).				
28	I feel confident in performing the basic functions of presentation software (e.g. M.S. PowerPoint).				
29	I know how to download files using web browsers (e.g. Google Chrome, Internet Explorer, Mozilla Firefox) and view them.				
30	I often use cloud-based file hosting services to store or share documents (e.g. Google Drive, Dropbox, OneDrive).				

SECTION B: STUDENTS READINESS FOR BLENDED LEARNING					
INSTRUCTION: Please read each statement carefully and mark (X) the box that best reflects your response based on the rating shown below.					
	Questions	Strongly Disagree	Disagree	Agree	Strongly Agree
31	I know how to access an online library or database				
32	I often use a Learning Management System (e.g. Blackboard, Moodle)				
33	I can read the online instructional materials on the basis of my needs				
34	I feel confident in performing basic functions of spreadsheet applications (e.g. MS Excel)				
35	I know how to use word processing software (e.g. M.S. Word).				
36	I often use mobile technologies (e.g. smartphone, Tablet) to communicate				
37	I know how to use presentation software (e.g. M.S. PowerPoint)				
38	I feel confident in using web browsers (e.g. Google Chrome, Internet Explorer, Mozilla Firefox) to find or gather information for online learning.				
39	I know how to use spreadsheet software (e.g. M.S. Excel)				
40	I feel confident in using computer or tablet or mobile phone for online learning				
41	I know how to open several applications at the same time and move easily between them.				

SECTION C: STUDENTS READINESS FOR BLENDED LEARNING
INSTRUCTION: Please describe how you feel about the introduction of blended learning in the Nursing Education Institution


2 Annexure 2(b) Questionnaire: Staff

BLENDED LEARNING READINESS ENGAGEMENT QUESTIONNAIRE

'Blended learning is a combination of E-Learning (online) and traditional education (face-face) approach. The White Paper for Post-School Education and Training in South Africa, encourage the use of mixed method programme delivery to expand access, reduce cost and improve quality, considering the needs of both students and the curriculum.

The purpose of this study is to **develop guidelines on how the nurse educator can best be prepared to implement blended learning in a Nursing Education campus in Gauteng**. The results of the study will, in the future, be used to **guide the lecturers in the implementation of blended learning in the Nursing Education Campus**. Participation in this study will not benefit you directly but the information obtained may benefit nurse educators and nursing students in the future.

The questionnaire consists of 3 sections: Section A refers to your demographic profile, Section B refers to the readiness of students and staff and Section C is an open ended question.

Thank you for your participation.

SECTION A: YOUR DEMOGRAPHIC PROFILE

INSTRUCTION: Please respond to each item by marking *(X)* in the appropriate box and provide the required information where needed.

1 Which Level of R.425 are you currently teaching?

- Level 1 ☐
- Level 2 ☐
- Level 3 ☐

2 Gender

- Male ☐
- Female ☐

3 Ethnic Identity

- African ☐
- Coloured ☐
- Indian ☐
- White ☐
- Other, please specify ☐ _____

4 Age

- 20 -29 Years ☐
- 30- 39 Years ☐
- 40-49 Years ☐
- 50-59 Years ☐
- > 60 Years ☐

6 Qualifications: Please mark Highest Qualification obtained.

- Bachelor's degree ☐
- Diploma ☐
- Other, Please Specify ☐
- Masters ☐
- PhD ☐

7 How may years' experience do you have in Nursing education

- 0-5 Years ☐
- 6-10 ears ☐
- 11-15 Years ☐
- > 15 Years ☐

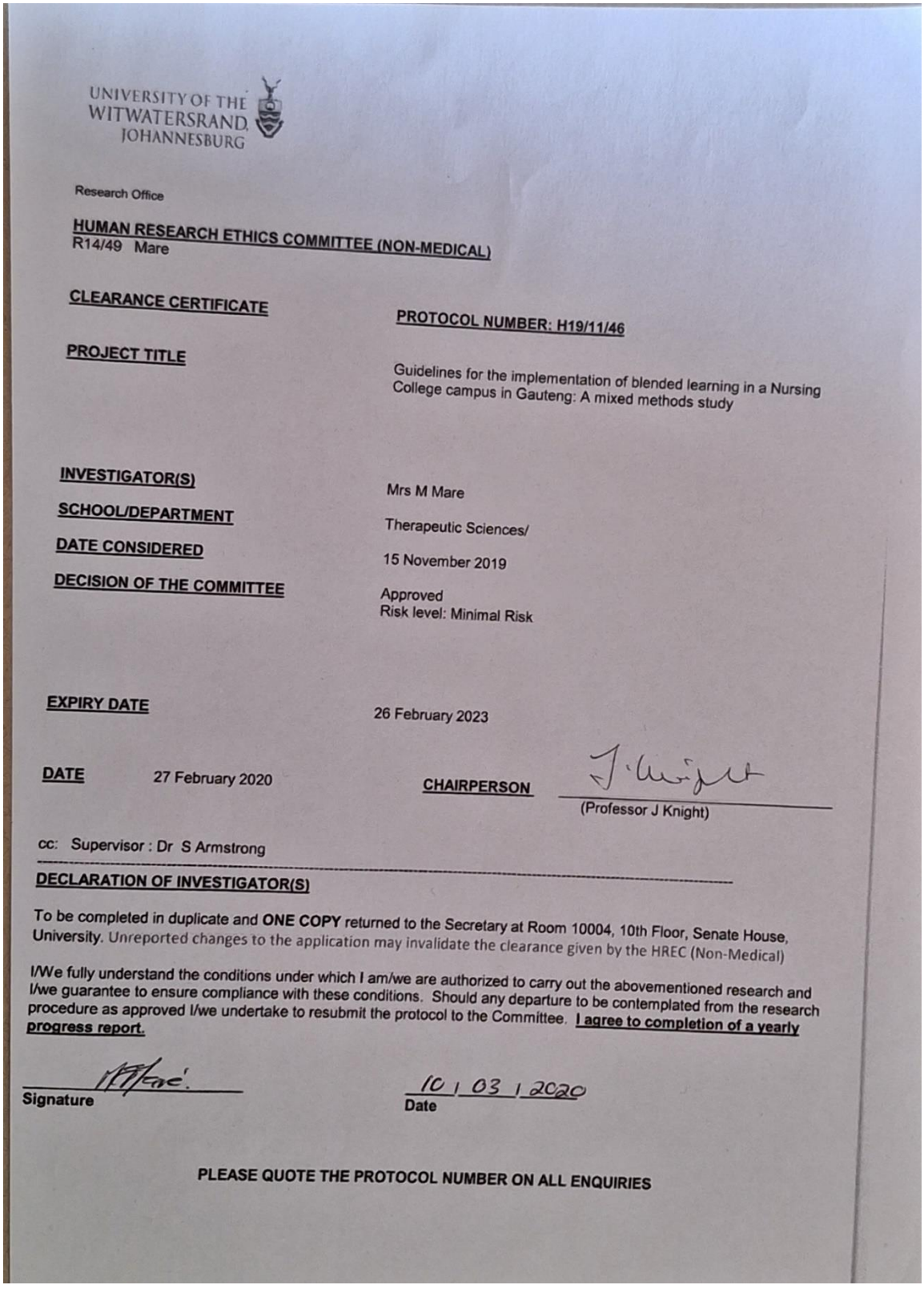
SECTION B: STAFF READINESS FOR BLENDED LEARNING					
INSTRUCTION: Please read each statement carefully and mark (X) the box that best reflects your response based on the rating shown below.					
	Questions	Strongly Disagree	Disagree	Agree	Strongly Agree
1	I know the basic functions of computer/laptop and its peripherals like the printer, speaker, keyboard, mouse etc.				
2	I often use internet to find information.				
3	I have a computer/laptop with an internet connection.				
4	I am a highly independent learner.				
5	I feel confident in using online tools (e.g. e-mail, internet chat, instant messenger) to communicate effectively with others.				
6	I think Blended Learning is useful for universities.				
7	I know how to save and open documents from a hard disk or other removable storage device.				
8	I often use e-mail to communicate.				
9	I have a computer/laptop with adequate software for learning (e.g. Microsoft Office).				
10	I am able to learn new technologies.				
11	I feel confident in expressing myself (e.g. emotions and humour) in my Nursing College's Learning Management System (e.g. Blackboard, Moodle)				
12	I am interested to participate in Blended Learning activities.				
13	I know how to open and send email with file attachments.				
14	I often use office software (e.g. M.S. Word, PowerPoint, Excel).				
15	I have speakers for courses with video presentations.				

SECTION B: STAFF READINESS FOR BLENDED LEARNING					
INSTRUCTION: Please read each statement carefully and mark (X) the box that best reflects your response based on the rating shown below.					
	Questions	Strongly Disagree	Disagree	Agree	Strongly Agree
16	I do not need direct lectures to understand materials.				
17	I feel confident in posting questions in online discussions.				
18	I find using Blended Learning technologies simple.				
19	I know how to log on to Wi-Fi.				
20	I often use social networking sites to share information (e.g. Facebook, Twitter, Instagram, Snapchat).				
21	I have a computer/laptop and its peripherals like the printer, speaker, keyboard, mouse etc.				
22	I would describe myself as a self-starter in learning using technology.				
23	I feel confident in performing the basic functions of word processing software (e.g. M.S. Word).				
24	I would recommend Blended Learning as one of the alternatives for the traditional teaching-learning approaches.				
25	I know how to navigate web pages (go to next or previous page).				
26	I often use instant messaging (e.g. WhatsApp, Viber, WeChat, Line, Telegram).				
27	I am not distracted by other online activities when learning online (e.g. Facebook, Gaming, Internet surfing).				
28	I feel confident in performing the basic functions of presentation software (e.g. M.S. PowerPoint).				
29	I know how to download files using web browsers (e.g. Google Chrome, Internet Explorer, Mozilla Firefox) and view them.				
30	I often use cloud-based file hosting services to store or share documents (e.g. Google Drive, Dropbox, OneDrive).				

SECTION B: STAFF READINESS FOR BLENDED LEARNING					
INSTRUCTION: Please read each statement carefully and mark (X) the box that best reflects your response based on the rating shown below.					
Questions		Strongly Disagree	Disagree	Agree	Strongly Agree
31	I know how to access an online library or database				
32	I often use a Learning Management System (e.g. Blackboard, Moodle)				
33	I can read the online instructional materials on the basis of my needs				
34	I feel confident in performing basic functions of spreadsheet applications (e.g. MS Excel)				
35	I know how to use word processing software (e.g. M.S. Word).				
36	I often use mobile technologies (e.g. smartphone, Tablet) to communicate				
37	I know how to use presentation software (e.g. M.S. PowerPoint)				
38	I feel confident in using web browsers (e.g. Google Chrome, Internet Explorer, Mozilla Firefox) to find or gather information for online learning.				
39	I know how to use spreadsheet software (e.g. M.S. Excel)				
40	I feel confident in using computer or tablet or mobile phone for online learning				
41	I know how to open several applications at the same time and move easily between them.				

SECTION C: STAFF READINESS FOR BLENDED LEARNING
INSTRUCTION: Please describe how you feel about the introduction of blended learning in the Nursing Education Institution


8.4 Annexure 4 Ethics Clearance certificate



UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 Mare

CLEARANCE CERTIFICATE **PROTOCOL NUMBER: H19/11/46**

PROJECT TITLE Guidelines for the implementation of blended learning in a Nursing College campus in Gauteng: A mixed methods study

INVESTIGATOR(S) Mrs M Mare

SCHOOL/DEPARTMENT Therapeutic Sciences/

DATE CONSIDERED 15 November 2019

DECISION OF THE COMMITTEE Approved
Risk level: Minimal Risk

EXPIRY DATE 26 February 2023

DATE 27 February 2020 **CHAIRPERSON** J. Knight
(Professor J Knight)

cc: Supervisor : Dr S Armstrong

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10004, 10th Floor, Senate House, University. Unreported changes to the application may invalidate the clearance given by the HREC (Non-Medical)

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to completion of a yearly progress report.**

Signature

10/03/2020
Date

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

UNIVERSITY OF THE WITWATERSRAND JOHANNESBURG

Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 Mare

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER: H19/11/46**
PROJECT TITLE	Guidelines for the implementation of blended learning in a Nursing College campus in Gauteng: A mixed methods study
INVESTIGATOR(S)	Mrs M Mare
SCHOOL/DEPARTMENT	Therapeutic Sciences/
DATE CONSIDERED	15 November 2019
DECISION OF THE COMMITTEE	Approved Risk level: Minimal Risk Two Year Extension Only
EXPIRY DATE	26 February 2025

DATE 27 February 2020 **CHAIRPERSON** _____
(Professor J Watermeyer)

cc: Supervisor : Dr S Armstrong

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and A SIGNED COPY returned to the Secretary electronically. Unreported changes to the application may invalidate the clearance given by the HREC (Non-Medical)

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure be contemplated from the research procedure as approved I/we undertake to submit an amendment of the protocol to the Committee. **I/we agree to completion of a regular progress report. For Minimal and Low Risk studies, this is due annually on 31 December. For Medium and High Risk studies, this is due twice annually on 30 June and 31 December.**

_____ 28 / March / 2023
Signature Date

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

8.5 Annexure 5: Information sheet

INFORMATION SHEET

RESEARCH TITLE: GUIDELINES FOR THE IMPLEMENTATION OF BLENDED LEARNING IN A NURSING COLLEGE CAMPUS IN GAUTENG: A MIXED METHODS STUDY

Good day, my name is **Marlene Maré**. I am an MSc Nursing student in the Department of Nursing Education at WITS. I am undertaking a research study entitled, "GUIDELINES FOR THE IMPLEMENTATION OF BLENDED LEARNING IN A NURSING COLLEGE CAMPUS IN GAUTENG: A MIXED METHOD STUDY"

I would like to invite you to participate in the research study. Before agreeing to participate, it is important that you read and understand the following information about the purpose of the study, the study process and procedures. This information sheet is meant to help you decide if you would like to participate. You need to understand everything before you agree to take part in this study.

The purpose of this study is to **develop guidelines on how the nurse educator can best be prepared to implement blended learning in a Nursing Education campus in Gauteng**. The results of the study will, in the future, be used to **guide the lecturers in the implementation of blended learning in the Nursing Education Campus**. Participation in this study will not benefit you directly but the information obtained may benefit nurse educators and nursing students in the future.

As far as I can tell, there should be no risks or discomfort to you in participating in this research study. Your participation will mean that you will complete a research questionnaire. The questionnaire consists of 3 sections. The first section deals with your demographic information, the second section refers to your readiness for blended learning and the last section refers to open ended questions.

I will keep a record of the people who have participated in this study, and I will keep the recordings of our interviews, together with a transcription of those recordings. Your name will not be included in the recording, transcription or the final publication of this

research so that the data could not be traced back to you. Should quotations of your input be utilized in the report or publication, a code will be assigned to ensure anonymity. The data will be stored in a secure place, and access to the data will only be limited to the researcher and the research supervisor. All data, including tape recordings, will be stored securely in the Department of Nursing Education at the University for a minimum of two years after publication, or six years in the absence of publication.

Participation in this study is completely voluntary; you may withdraw your participation from the study at any time without any prejudice or negative consequences.

The study has been approved by the Human Research Ethics Committee (HREC) Medical of the University of the Witwatersrand.

Should you have any questions or concerns about any aspects of this study, please call me Marlene Maré (researcher) at (+27) 0829048714 or email at memare@mweb.co.za or Magdalena.Mare@gauteng.gov.za You can also contact my supervisor, Dr Sue Armstrong at (+27) 11 488 4272 or email her at Sue.armstrong@wits.ac.za, during working hours.

For reporting of complaints or problems, please contact the Chairperson, HREC Medical Professor P. Cleaton-Jones, at +27(0)114883094 or please call Ms. Zanele Ndlovu at +27(0)117171252 or email her at Zanele.ndlovu@wits.ac.za

Thank you.

ME Maré

8.6 Annexure 6: Consent Form

CONSENT FORM:

Phase 1: BLENDED LEARNING READINESS QUESTIONNAIRE (BLRQ)

Reseach Project: *"GUIDELINES FOR THE IMPLEMENTATION OF BLENDED LEARNING IN A NURSING COLLEGE CAMPUS IN GAUTENG: A MIXED METHODS STUDY"*

Name of Researcher: *Magdalena Elizabeth Maré*

I _____ agree to participate in this research project.

I confirm that I have been informed of the study by, **Magdalena Maré** about the nature, conduct, benefits, and risks of her study entitled ***"GUIDELINES FOR THE IMPLEMENTATION OF BLENDED LEARNING IN A NURSING COLLEGE CAMPUS IN GAUTENG: A MIXED METHODS STUDY"***

Please mark yes or no with a cross	**Yes**	**No**
I have received, read and understood the written information sheet regarding the study.		
I am aware that the results of the study will be anonymously processed into a study report and all information will remain confidential.		
I may, at any stage, without prejudice, withdraw consent and participation in the study.		
I have had sufficient opportunity to ask questions and of my free will, declare myself prepared to participate in the study.		
I agree that the results of this survey may be used anonymously by other researchers following this study		

_____ _____

Name of participant Signature:

Date: _____

8.7 Annexure 7: Consent Form - Focus Groups

CONSENT FORM: FOCUS GROUPS

Phase 2*: FOCUS GROUPS*

Reseach Project: *"GUIDELINES FOR THE IMPLEMENTATION OF BLENDED LEARNING IN A NURSING COLLEGE CAMPUS IN GAUTENG: A MIXED METHODS STUDY"*

Name of Researcher: *Magdalena Elizabeth Maré*

I _____ agree to participate in this research project.

I confirm that I have been informed of the study by, **Magdalena Maré** about the nature, conduct, benefits, and risks of her study entitled ***"GUIDELINES FOR THE IMPLEMENTATION OF BLENDED LEARNING IN A NURSING COLLEGE CAMPUS IN GAUTENG: A MIXED METHODS STUDY"***

Please mark yes or no with a cross	**Yes**	**No**
I have received, read and understood the written information sheet regarding the study.		
I agree that the proceedings of the nominal group may be recorded and transcribed verbatim.		
I agree that the researcher will not identify me by name in any reports using the information obtained during the nominal group discussions		
I agree that the nominal group proceedings may be audio recorded		
I agree that the results of this survey may be used anonymously by other researchers following this study		
I understand that I may, at any stage, without prejudice, withdraw consent and participation in the study.		

_____ _____

Name of participant Signature:

Date: _____