A STRATEGY TO PREPARE NURSE EDUCATORS FOR 21ST CENTURY LEARNING AT A PRIVATE NURSING EDUCATION INSTITUTION IN SOUTH AFRICA

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A Dissertation submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in fulfilment of the requirements for the Masters of Science Degree in Nursing Education.

Johannesburg, 2023

DECLARATION

I Cindy-Ann Menino declare that this Dissertation is my own, unaided work. It is being submitted for the Masters of Science Degree in Nursing Education at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University.

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(Signature of candidate)

14 June 2023 in Little Falls Johannesburg

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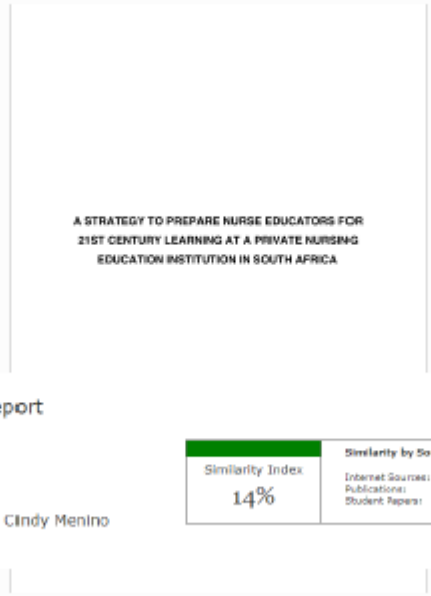

DEDICATION

This study is dedicated to my son Miguel Joao Menino, who has been my ray of sunshine on many days that have seemed dark and tiresome throughout this journey. It is also intended to demonstrate to him the importance of lifelong learning, the pursuit of wisdom through knowledge, and the fact that education is the most powerful tool in the world. Thank you for your patience, support, and encouragement, Miguel. You are deeply loved, and I hope and have faith that you will continue your education at the greatest possible level. Believe that you can do everything you set your mind to. I love you.

"Train up a child in the way he should go; even when he is old he will not depart from it." Proverbs 22:6

ABSTRACT

The researcher has been aware of the difficulty many nurse educators have in implementing the principles of 21st century learning. This was thrown into sharp focus during the COVID-19 (Coronavirus disease) pandemic when nurse educators were required to be adaptable, digitally enabled and ready to foster creativity, self-direction and critical thinking in their nursing students. It therefore became essential to evaluate the utilisation of 21st century learning practices by both nurse educators and nursing students which informed the development of a strategy to support nurse educators develop their skills for 21st century learning and teaching at a Private Nursing Education Institution (PNEI) in South Africa and assist them to become more independent and confident in nursing education and practice.

It gave rise to the following question: How can nurse educators be prepared for 21st century learning and teaching at a private nursing education institution in South Africa?

The purpose of the study was to evaluate the utilisation of 21st century learning practices of nurse educators and nursing students at the PNEI which informed the development of a strategy to support nurse educators to develop their skills for 21st century learning and teaching at a PNEI in South Africa.

The objectives were:

a. To evaluate the utilisation of 21st century teaching and learning practices of nurse educators at a PNEI in South Africa.

b. To evaluate the utilisation of 21st century learning practices of nursing students at a PNEI in South Africa.

c. To develop a strategy to support nurse educators develop their skills for 21st century teaching and learning.

A sequential mixed method (QUAN-QUAL design) research design was used. The population included in phase one (1) nurse educators appointed by the PNEI whose primary function is to facilitate learning and teaching of nursing students and nursing students registered at the PNEI so that the researcher could understand the current

position of nurse educators and nursing students 21st century teaching and learning practises and In phase 2.1 the nurse educators and managers were included at a PNEI in South Africa. Purposive sampling was used, and three (3) focus group interviews were done until data saturation was reached.

Trustworthiness of the data was ensured by ensuring credibility, transferability, dependability and conformability of the findings. The study was conducted with due consideration of the ethical principles. Nursing practice and future researchers could utilise the recommendations that were made to address the weaknesses and strengths that were found.

Keywords/phrases: 21st century learning, nursing education, critical thinking skills, collaboration skills, communication skills, creativity and innovation, self-direction skills, global connections skills, local connections skills, technology, and challenges.

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INTRODUCTION TO THE STUDY

1.1 Introduction

Chapter one discusses and introduces the research topic under study, which is a strategy to prepare nurse educators for 21st century learning at a Private Nursing Education Institution (PNEI) in South Africa. The problem statement, research questions, research objectives, and definitions of key concepts are all covered in this chapter, as well as the study's introduction, background, rationale, and significance.

1.2 Background of the Study

There are several documents in the public domain relating to the need to transform higher education dating back a couple of decades already indicating the importance of preparing students for a changing environment.

The National Plan for Higher Education (2001:4-5), outlines the vision for the transformation of the higher education system and provides an implementation framework that identifies the strategic interventions and controls required for the transformation of higher education in South Africa, with a focus on changes in the 21st century, knowledge, and information processing as the driving forces for wealth creation and thus social and economic development.

The plan aims to ensure that higher education systems are fit to respond to the challenges that South Africa faces in 21st century learning, as well as to equip students and nurse educators through human resource development. The development of human resources is defined as the mobilisation of human skill and potential through lifelong learning, in order to contribute to a constantly changing society. This includes society’s social, economic, cultural, and intellectual life with the skills and competencies needed to contribute to today's world of 21st century learning as described in (National Plan for Higher Education, 2001: 4-5).

As a result of this policy direction, all higher education institutions - including PNEIs -, need to support nurse educators in guaranteeing excellent performance, with the expectation that they educate in a 21st century learning environment and assist their nursing students to achieve success and perform well.

The Nursing Strategy for South Africa (2016/2017: 40) clearly outlines the need to ensure an enabling environment for nursing education. This is required to achieve and maintain core competencies in supervision of theoretical learning and clinical practice which includes a knowledge of technology. The facilitation of this learning and teaching is the responsibility of the nurse educator.

A key core competency of a nurse educator is to ensure the skilful utilisation of technology in learning and teaching (SANC, 2014:81). In doing so, they support nursing students effectively during the learning and teaching process and become change agents and/or leaders by supporting innovative practices of learning and teaching in the educational environment (SANC, 2014:4).

Zlatanovic, Havnes and Mausethagen (2017), suggest five competence areas for nurse educator's viz. academic competencies, nursing competencies, attitudes, pedagogical competencies, management and digital technologies. Nurse educators are also required to advance their skills, knowledge, and attitudes to advance their careers in the 21st century (Ozga et al., 2020:4-5). Failure to do so will jeopardise education in the 21st century as the education of healthcare professionals - including nursing student - is constantly evolving. Appropriate nurse educator competency is therefore critical for the advancement of skills, knowledge, and attitudes for both nurse educators and nursing students.

Twenty first century learning revolves around several skills. These skills include critical thinking; collaboration; communication; creativity and innovation; self-direction; global connections; local connections; and using technology as a tool for learning (Hixson, Ravitz & Whisman, 2012). Nurse educators must be equipped to provide nursing students with the skills they need to meet the demands of our current 21st century student population. While this student population is technologically advanced and equipped for the digital era, they are yet unskilled in many other aspects of 21st century

learning. They require assistance in making sense of information, using it, and sharing it both digitally and in person.

Bates and Sangra (2011) state that there existed a sense of contentment of educators in using technology to improve traditional classroom teaching but lacked the incentive or skills to use technology to change the way teaching is designed and delivered by using technology to support 21st century skills for independent learning, initiative, communication, teamwork, adaptability, collaboration, and networking, as well as thinking skills, within a particular profession.

Learning and teaching in nursing education traditionally entailed students memorising facts and conforming to curriculum requirements. This is de-motivating and uninteresting to the modern-day nursing student who has been brought up in the digital age and who sees no relevance in learning facts when they can access those facts on their mobile phones. Healthcare is moving at such a rapid pace that nursing students need to be prepared to handle novel situations and make use of information rather than memorising facts. Mishra, Gupta and Shree (2020), state that nursing education is undergoing change by means of a pedagogical shift, with the traditional classroom setting moving rapidly into a virtual learning environment and becoming modernised.

These researchers further state that virtual schools of nursing have arrived in the nick of time but acknowledge however, that there are still challenges in finding ways to ensure effective practical experiences for nursing students. Despite this, e-learning is predicted to replace the formal education system over time during 21st century learning (Mishra et al., 2020).

Nurse educators and students are expected to evolve and adapt to this modified era so that they possess the skills to prepare them for coping with life and work demands of this rapidly transforming era (Choudhary et al., 2021). As nursing education found itself in the midst of the COVID-19 pandemic, social distancing and venue capacity controls became the new normal and have continued as the world rides out this deadly pandemic. During the pandemic, 21st century learning drove nurse educators to use online learning and teaching (Mishra et al., 2020).

Remote learning transcends the borders of time and geographical location. It allows students and nurse educators the flexibility to tune into their lectures from the comfort of their own homes or any other location (Talib, Bettayeb & Omer, 2021:6735). It also allows students to self-regulate their learning and proceed at their own pace thanks to the temporal flexibility of online learning, which is made possible by features such as the recording of lectures. The conventions of the physical classroom are no longer appropriate and nurse educators and nursing students have innately adapted to a new blended approach of learning and teaching which entails digital platforms and online communities to ensure that there is continuity in education.

The forced digital transformation in 21st century learning has required educators to contemplate and review current and previous models of education, providing a window into what a technology-based education and work environment might be like, thereby stimulating pedagogical innovations and accelerating change. This has proven to be quite a challenge as most nurse educators were not raised in the digital era and struggle with online learning and teaching (Mishra et al., 2020).

All nurse educators play a pivotal role in developing nursing students and this can all rest on the nurse educator's competence, approach and attitude, by which learning of the nursing students can either be encouraged or discouraged (Bruce, Klopper & Mellish, 2011). It is therefore the role of the PNEI to prepare nursing students for the future and in doing so implement 21st century learning principles.

1.3 Motivation and Rationale for the Study

The researcher - as a Campus Manager at a PNEI in South Africa - has been aware of the difficulty many nurse educators have in implementing the principles of 21st century learning. This was thrown into sharp focus during the COVID-19 pandemic when nurse educators were required to be adaptable, digitally enabled and ready to foster creativity, self-direction and critical thinking in their nursing students. It therefore became essential to evaluate the utilisation of 21st century learning practices by both nurse educators and nursing students which informed the development of a strategy to support nurse educators develop their skills for 21st century learning and teaching

at a PNEI in South Africa and assist them to become more independent and confident in nursing education and practice.

1.4 Significance of the Study

There have been no studies at this Private Nursing Education Institution with regards to the development of a strategy to support nurse educators develop their skills for 21st century learning and teaching. The South African Nursing Council (SANC) states that a nurse educator's key core competency is to ensure that they utilise technology skilfully by doing so they support nursing students effectively during their teaching and learning (SANC, 2014:2-4).

The purpose of this study was to evaluate the utilisation of 21st century learning practice of nurse educators and nursing students at this private nursing education institution which informed the development of a strategy to support nurse educators to develop their skills for 21st century learning and teaching at a PNEI in South Africa.

1.5 Problem Statement

Twenty first century learning which assists students to be creative, to collaborate, communicate and think critically is essential in the current fast changing healthcare sector. This type of learning relies heavily on the use of digital platforms. Nurse educators in the private nursing education institutions have not been exposed to this type of learning and teaching and have had it thrust upon them suddenly as a result of the COVID-19 pandemic which has resulted in piecemeal implementation of blended learning resulting in frustration on the part of both nursing students and nurse educators.

Students of today have grown up using digital technology but have not all been exposed to 21st century skills that are essential elements in the fast-changing healthcare sector. It is important to evaluate the utilisation of the 21st century practices of nurse educators and nursing students in order to inform the development of a strategy to support nurse educators develop their skills for 21st century learning and teaching at this PNEI in South Africa. This will allow nurse educators to quickly adapt

to 21st century learning practices and facilitate learning and teaching of nursing students while helping them become lifelong learners who can use information in novel situations and be career-ready when they graduate and have successful careers in modern healthcare.

1.6 Research Question

How can nurse educators be prepared for 21st century teaching and learning at a private nursing education institution in South Africa?

1.7 Purpose and Objectives of the Study

The purpose of this study was to evaluate the utilisation of 21st century teaching and learning practices of nurse educators and nursing students at the private nursing education institution which informed the development of a strategy to support nurse educators to develop their skills for 21st century learning and teaching at a PNEI in South Africa.

The objectives were:

a. To evaluate the utilisation of 21st century teaching and learning practices of nurse educators at a PNEI in South Africa.

b. To evaluate the utilisation of 21st century learning practices of nursing students at a PNEI in South Africa.

c. To develop a strategy to support nurse educators develop their skills for 21st century teaching and learning.

1.8 Conceptual Operational Definitions

Nursing student:

A nursing student who is registered at a PNEI in South Africa to follow a nursing short programme or programmes accredited by the SANC.

Nurse Educators:

A professional nurse who holds an additional qualification in nursing education and facilitates teaching and learning by assessment, planning, implementation and evaluation of nursing students (SANC, 2014:1). In this study, nurse educator refers to an appointed person whose primary function is to do teaching and learning of nursing students.

Private Nursing Education Institution (PNEI):

Nursing Act (Act no. 33 of 2005), defines a PNEI as an establishment that is not public, however, also accredited to offer professional nursing education and training. In this study, the PNEI will refer to an establishment where nurse educators are currently employed and is situated in South Africa.

21st Century learning:

21st century learning is a build-up of knowledge, soft skills, as well as digital literacy, critical thinking and problem solving that will support nursing students to have prosperous careers in the modern workplace within healthcare.

1.9 Conclusion

This chapter introduced the research study giving a background to the importance of developing a strategy to prepare nurse educators for 21st century learning at a private nursing education institution in South Africa was imperative. Ahmad et al., (2019: 15-17), state that nursing students and nurse educators in the 21st century cannot just graduate and be career-ready but need to have acquired certain set of skills by referring to the four Cs during learning innovative skills that are required as nurse educators which will assist them in becoming more independent. The following chapter will provide a review of the literature.

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

This chapter presents literature relevant to 21st century learning in nursing education, as well as a discussion of the 21st century learning focus areas and a comparison of understanding what 21st century learning entails in nursing and nursing education.

While a formal scoping review was not undertaken, the following databases were used to search for literature: ProQuest Central, CINAHL Complete (in Ebsco host), PubMed Central, Wiley Online Library All Journals, Education Research Complete, and Science Direct Journals. The search words/ phrases used in the search were: 21st century learning, nursing education, critical thinking skills, collaboration skills, communication skills, creativity and innovation, self-direction skills, global connections skills, local connections skills, technology, and challenges.

2.2 Clarification of the concept 21st century learning

The difficulty many nurse educators have had in implementing 21st century learning principles was brought to light during the COVID-19 pandemic, when nurse educators and nursing students were required to be adaptable, digitally enabled, and ready to foster 21st century skills in their environments. Maker (2021:159) explains that literacy, information availability, and the ability to evaluate and apply information were highly valued in the early twentieth century (20th century) and into the early 21st century. Global change is currently taking place, affecting people's values, perceptions, and needs. As evidenced by the year 2020 and its enormous difficulties, our world has become more complicated and connected, and our economies have undergone a global paradigm shift from simply knowledge-based to creative and innovative use of knowledge in 21st century environments.

Learning and teaching in nursing education has conventionally been classroom based where nursing students memorise facts, but to 21st century students this method is

uninteresting as they can easily access this information on their cell phones. To meet the demands of our current 21st century student population - who can be viewed as technologically advanced and equipped for the digital era - nurse educators needed to be equipped to provide nursing students with the skills that they need to manage in the rapidly changing world and be confident when practising these skills. Nursing students need to be assisted to make sense of information, use it, and be able to share it both digitally and in person which supports 21st century learning revolving around creativity, innovation, self-direction, making global connections, making local connections and using technology as a tool for learning (Hixson, Ravitz & Whisman, 2012).

The integration of 21st century abilities into core subjects should be part of the 21st century standards in education, which will lead to deep learning with a consistently high-level testing system leading to a beneficial 21st century environment for students (Muyambo-Goto, Naidoo & Kennedy, 2022:np). According to Saghafi et al., (2022:5), there is no agreed-upon list of "basic skills," but graduates should have fundamental skills that are transferable between practice settings, such as self-assurance, the ability to think critically, a willingness to ask questions, awareness of one's limitations, and the adoption of a more holistic approach to practice.

Expectations for graduate fitness for practice are influenced by education preparation in the 21st century. Ritter et al., (2020:2), remarks that graduates are unable to recognise employment opportunities due to a lack of creativity. Nowadays, creativity is a necessary, rather than a desirable trait. It is worth noting that the majority of employees wish that students were more creative and that their education needs to expose them to creative thinking.

2.3 Clarification of the concept 21st century learning in nursing education

The Core Competencies for Professional Nursing Education was recognised by (Cline, Crenshaw & Woods, 2022:382). In understanding the prerequisites for the 21st century, the following terms are identified: original research is interpreted, gathered, and given a new perspective by scholarship of practice; professionalism, lifelong

learning, a partner, an educator, diversity, equity, and inclusion; ethical behavior; accountability; and a lifelong learner, which is essential for the 21st century.

Thomas (2021:7), shares that academics require problem-solving and learning skills that will allow students to acquire knowledge. Nurse educators need to be well equipped to support students with reasoning skills, learning skills, self-management, and should be able to support competency on how to improve or comfortably use 21st century educational skills with understanding. This will ensure that students can recall these skills without limitations, as 21st century learning skills in nursing education are more important to students now than ever before because students need to thrive in a world where change is constant and learning never ends.

Mirra and Garcia (2020:468), emphasises that educators are continuously challenged to participate in 21st century learning, they are inundated with various messages about the nature and purpose of 21st century learning. The goal and significance of 21st century learning in nursing education is to encourage interaction between students and educators in order to attain the desired outcomes in 21st century nursing education.

Today's inclusive educators must teach 21st century skills and deliver substantial educational improvement for all students. Teaching has never been harder, more vital, or more crucial to student achievement. Now more than ever, educators must help students in gaining 21st century knowledge and abilities so they may meet the world's expectations, live in good spirit, and actively engage in classroom activities. Technology has transformed the way people communicate and created a shared platform like social media, which enables everyone to connect, making the world an inclusive society (Thomas, 2021:9).

González-Pérez and Ramírez-Montoya (2022:2) observed that when educators teach, evaluate, and assess for the 21st century in nursing education, it entails disruptive technology and hybrid teaching techniques. The authors advocated for the incorporation of these skills into educator preparation programs' curricula, as well as advice on how to match new methodological approaches with disciplinary,

technological, and pedagogical components to help students and educators develop 21st century abilities.

Mirra and Garcia (2020:491), supports the above statement that technology has changed how people interact and has resulted in the creation of a public shared space, such as social media, that allows people to come together and build an inclusive society which can be very beneficial in nursing education.

To have an impact on students in nursing education, educators must be trained on how to incorporate technology into the classroom. The use of technology is currently the primary focus, though finding qualified educators to implement it remains a challenge. As a result, opportunities for technology 21st century integration training for educators must be made available to ensure competency. Furthermore, it is critical to allow students to experiment with technology and make appropriate use of it to promote learning. As a result, their participation in the classroom would increase (González-Pérez & Ramírez-Montoya, 2022:7).

Jumriani and Prasetyo (2022:39) argued that learning in the 21st century entails more than just educators imparting information to students; it also entails assisting them in fully developing their knowledge and abilities. As a result of this optimisation, they are expected to become more adaptable and competitive on a global scale (González-Pérez & Ramírez-Montoya, 2022:7;18) encourages that the library's role will be one of the most important factors in empowering educators in these practices because the development of a proactive information culture strengthens an academic's position in creating and using information, as well as preparing them for the digital transformation of various approaches in nursing practise. The authors further elaborate on how life skills (or 21st century skills) might be introduced into a curriculum, and what role pedagogy might play in this process. While briefly discussing how educators' attitudes impact their instructional approaches, there is an emphasis on educators' professionalisation. Only then can students develop the skills that organisations are looking for that are relevant in the 21st century.

Many people believe that education can aid in the resolution of social problems. Education and the methods of instruction used in institutions are inextricably linked.

Sound learning is the foundation for developing skilled employees and education is one area where “era” (experience, reflection and action) development has had an impact. The impact is felt immediately by society. In this time, learning has advanced to 21st century learning. It is made clear that education is critical in the 21st century (Jumriani and Prasetyo, 2022:38).

2.4 Clarification of the concept in 21st century learning in nursing practise

In nursing practise, technology has played a major role around the world in these difficult times since the pandemic in 2020, and education has moved to an online environment. Nurse educators and healthcare environments in nursing at private nursing education institutions had not been exposed to this type of learning and teaching were thrust into it suddenly. Kareem, Thomas and Nandini (2022:2) encourages health professionals to always make patient safety the priority, and critical thinking skills among nursing students are positively associated with high quality patient care. Clinical staff's critique of new nurses' transferability of general skills, such as problem-solving ability, critical thinking skills, communication skills, and workplace collaboration skills, implies that they are lacking in these areas for 21st century learning (Yeung et al., 2022:np).

There is no doubt that digital health will play an important role in nurse’s futures, and nurses are uniquely positioned to capitalise on its potential. One of the few advantages of COVID-19 is recent advances in digital health. Finding solutions during COVID-19 resulted in a rapid increase in access to digitally enhanced care, whether through the use of telehealth and videoconferencing for consultations or through easier access to vast amounts of data that were previously hidden and heavily guarded in the depths of healthcare organisations' information technology systems. The current challenges are understanding data and effectively utilising it to improve services in nursing practise (Delaney et al., 2022: xiii).

Today's complex and fast changing healthcare environment necessitates a comprehensive approach to teaching undergraduate healthcare students systems thinking. Systems thinking helps healthcare professionals look beyond themselves. Today's healthcare programs don't cover all clinical challenges. We compartmentalise

individual capabilities, promoting healthcare education in academic silos, thus we need to concentrate more on systems thinking in our academic training of new graduates. For teaching a concept or skill, this reductionist method requires a beginning and an end with system interaction. We know that healthcare professionals working together improves the system. Systems thinking facilitates collaborative problem-solving at the sub-component and system levels (Clark & Hoffman, 2019:195-196).

Developing a new professional identity is essential due to the status and privilege that accompany becoming a health-care practitioner. The problem for (often young) health-care graduates is that with this identity comes a set of expectations that are followed by their educational institutions, enforced by regulatory bodies, and watched by society: professionalism. Thus, "professionalism" dominates health care education and the student experience. The stakeholder-driven conversations about professionalism is to enrich academic discourse (Goddard & Brockbank, 2022:66).

Researchers (Delaney et al., 2022: xi) have argued that the interface between nurses and the digital data that can improve care is at the core of the nursing environment in the 21st century. Nurse educators and PNEI must be prepared to provide students with the skills they need to function in a rapidly changing world, as well as the confidence to use those skills, to meet the demands of our current student population, which is technologically advanced and prepared for the digital era but remain unskilled in many other aspects of 21st century learning.

2.5 Measurement Tools for 21st century learning

There are various tools for measuring 21st century learning in education for educators or teachers. Questionnaires or surveys appear to be effective tools for measuring educators or students 21st century environments or experiences. The West Virginia 21st Century teaching and learning Survey [WVDE-CIS-28] is internationally accepted and widely used to evaluate critical thinking skills, collaboration skills, communication skills, creativity with innovation skills, self-direction skills, global connections skills, local connections skills, and using technology as a tool for learning - all of which are

central to 21st century learning (Hixson et al., 2012:np). These skills have been explored to better understand and clarify the concept of 21st century learning:

a. Critical thinking skills in 21st century learning

Hixson et al., (2012:np) refer to educators being able to facilitate critical thinking skills when students' can analyse complex problems, investigate questions with no obvious answers, evaluate various points of view or sources of information, and draw appropriate conclusions based on evidence and reasoning. Saghafi et al., (2022:7), further states that personal qualities such as critical thinking, holistic vision, adaptability, reflection, self-awareness, collaboration, and self-assurance are personal characteristics that imply the desired features of nurse behaviours as intrinsic to the individual, as opposed to knowledge that can be taught and must be acquired during undergraduate nursing education to be successful in 21st century learning. Others Yeung et al., (2022:np) discuss that the philosophical foundation of critical thinking includes "judgment suspension and healthy scepticism, with critical thinking as a generic, transferable skill and that a critical thinking talent for nurse professionals is the ability to think, apply, analyse, synthesise, and assess circumstances. Critical thinking goes beyond problem-solving. Critical thinking's goals are logical questioning, situational understanding, and problem-solving critique. The ability to solve problems entails devising solutions, which necessitates critical thinking. Problem-solving focuses on problem-finding and solution-making to resolve issues with patient care. As a result, the term "critical thinking" can refer to a variety of different types of thinking, including creative thinking. To deal with unexpected events in nursing practice, creativity and problem-solving skills are required.

b. Collaboration skills in 21st century learning

Hixson et al., (2012:np) state that educators who facilitate learning in a way that students can collaborate to solve problems or answer questions, work effectively and respectfully in teams to achieve a common goal, and accept shared responsibility for task completion. Collaboration and cooperation between educational institutions and healthcare organisations are critical in preparing students for their transition to practice (Saghafi et al., 2019:7-8) and professional capability - in addition to academic

qualifications - is the most important factor in nursing (Yeung et al., 2022: np). "Competent nurses" must be innovative and capable of dealing with complexity in daily clinical practice by collaborating, especially when dealing with novel situations. Transferable generic skills such as critical thinking and problem-solving are strongly linked to professional qualities. Competent nurses are more likely to have improved clinical reasoning skills and to have greater confidence in their clinical judgment when they are able to collaborate effectively.

c. Communication skills in 21st century learning

Educators facilitating learning in a way that students can organise their thoughts, data, and findings and effectively share them through various media, as well as orally and in writing can communicate effectively in 21st century learning (Hixson et al., 2012:np). Educators are to prepare extra learning materials for case application questions and scenarios, as students will have a certain level of accountability in self-directed learning. When students are used to traditional teaching methods, they may be resistant to 21st century learning. As a result, readiness and effective communication among educators and nursing students, as well as innovative strategies for implementation, are critical (Yeung et al., 2022: np).

d. Creativity and innovation skills in 21st century learning

According to Hixson et al., (2012:np) educators facilitating learning in a way that students can generate and refine solutions to complex problems or tasks through synthesis, analysis, and then combining or presenting what they have learned in novel and creative ways is being creative or innovative. Yeung et al., (2022: np) described that academic qualifications are less important than professional competence in nursing. While "capable nurses" are expected to deal with creativity and complexity in everyday clinical practice. Ritter et al., (2020:1) explains that the ability to think creatively is one of the most in-demand life and career skills in the 21st century. However, there is a greater demand for creativity than there is available capacity beginning with the first and most recent microprocessor, creativity has consistently improved people's lives. It is necessary for innovation. Furthermore, creativity is essential for dealing with problems in everyday life, maintaining and improving well-

being, and successfully adapting to change. In our complex, rapidly changing world, one of the most sought-after life and career skills is creativity and the ability to generate unique and meaningful opinions. González-Pérez and Ramírez-Montoya (2022:7) maintain that educational innovation is the evolution of 21st century learning and teaching strategies that are fuelled by new social, political, cultural, and technological currents.

e. Self-direction skills in 21st century learning

According to Hixson et al., (2012:np) educators facilitating learning in a way that students can take responsibility for their learning by identifying topics to investigate and processes for their learning, as well as their ability to review their work and respond to feedback. González-Hernando et al., (2013:475) argue that self-regulated learning is an advancement in personal self-direction for students, allowing them to transform their mental skills into academic proficiencies. It necessitates that students reflect on their learning activities. For those who believe that the ultimate goal of education is to prepare students to learn on their own, acquiring this skill is important in and of itself. The development of the "learning to learn" skill allows learning for life, which is necessary for 21st century nursing professionals. Mahoney, Mahoney and Crisp (2021:2) encourage that in self-direction, participants seek support, receive coaching on knowledge and guidance to come up with original solutions to fulfil their needs for staying securely in the community and establish backup plans for any instances where their employees might not be present.

f. Global connections skills in 21st century learning

Educators who facilitate learning in such a way that students may understand global and geopolitical issues, including aspects of international geography, culture, language, history, and literature Hixson et al., (2012:np). A study from Rahmawati, Ridwan, and Fitri (2021: 030034-1) describe that students are to be motivated to learn about cultural awareness, develop their capacity to meet global challenges, and apply their knowledge with peers from various cultural backgrounds in a multicultural environment.

g. Local connections skills in 21st century learning

Hixson et al., (2012: np) refer to educators facilitating learning in a way that students can apply their knowledge to local contexts and community issues. Jumriani and Prasetyo (2022:46) conclude that learning based on local potential is one method for utilising the potential that exists in specific locations as a source of learning. Local potentials include the following: economy, culture, language, technology, ecology, diversity, and products made with basic technology in 21st century learning.

h. Using technology as a tool for learning in the 21st century

When educators are able to promote learning in such a way that students can take responsibility for their own education and create work by making use of the information and communication technologies that are most relevant for the task at hand (Hixson et al., 2012:np). According to González-Pérez and Ramírez-Montoya (2022:6) point out that teaching-learning strategies must be used successfully because the new educational paradigms supporting the 21st century frameworks aim to develop holistic competencies with integrated technological instruments. The most suitable technology must be taken into account to fulfil the objectives and evaluate learning, which is guided by the teaching-learning methodologies. While 21st century learning attitudes do not mediate the relationship between teaching efficacy and beliefs and student engagement, students' usage of technology does (Kareem et al., 2022: np).

Student technology usage and attitudes toward 21st century learning both mediate the relationship between expectations for teaching outcomes and student involvement. Kareem et al., (2022:2) add, that the effectiveness of educators has an impact on how well technology is integrated into the classroom. Educators that are secure in their ability to educate will be more comfortable using technology in the classroom, which will encourage students to do the same in 21st century learning.

Learning is the process of acquiring knowledge or skills through the facilitation of effective teaching (Bruce et al., 2011:194). The importance of promoting deep holistic lifelong learning is recognised by the PNEI. As a guide to their teaching and learning, they use outcomes-based, andragogic, and constructivist teaching and learning

theories. Peña-Ayala (2021:2), states that 21st century education promotes situated teaching methods and meaningful learning. Habits, experiential use of new technologies and seamless scholar labour can all help with the acquisition of domain knowledge and the development of abilities. The author further stated that students are encouraged to participate actively in educational activities carried out in modern stages using cutting-edge materials and praxis, where they engage in practical activities related to real work. As a result, existing academic infrastructure, curricula, content, materials, and methods should be updated to meet the demands and trends of a changing global society, which necessitates the use of cutting-edge technologies that facilitate learning and teaching tasks in the 21st century.

2.6 Conclusion

In this chapter, the literature review was presented. The researcher critically reviewed clarification of 21st century using published literature from a variety of databases and the following was discussed and presented: Clarification of the concepts of 21st century, clarification of the concepts of nursing education and nursing practise in 21st century. The literature has revealed that Nurse educators and PNEI must be prepared to provide students with the skills they need to function in a rapidly changing world, as well as the confidence to use those skills, to meet the demands of our current student population, which is technologically advanced and prepared for the digital era but remains unskilled in many other aspects of 21st century learning. They require assistance in understanding, applying, and sharing knowledge both in person and digitally in 21st century learning. In chapter 3 the researcher will describe the research design and methods in detail.

CHAPTER 3

RESEARCH DESIGN AND METHOD

3.1 Introduction

In this chapter the researcher will describe the research design, research setting, population, sampling, data collection, data analysis, validity, reliability, trustworthiness, and ethical considerations.

3.2. Research design

A research design is a process for collecting, analysing and reporting research in quantitative and qualitative research (Creswell & Guetterman, 2021:682). The research design provides a logical sequence between the empirical data and the research question, which ultimately leads to conclusions (Tan, 2018:5). The researcher selected a research design that was most appropriate for the problem statement and study purpose. This study design enabled the researcher to evaluate and describe the topics of interest in this setting. These are discussed in greater detail below.

The study was guided by the Steps for Developing a Strategy Checklist 258 developed by the Chartered Management Institute (January 2014). The steps in this checklist are: understanding the current position; reflecting on how we got there; being clear about corporate identity; analysing strengths and weaknesses; analysing the business environment; identifying and evaluating strategic options; setting objectives (and writing an implementation plan); communicating the strategy; implementing the strategy and reviewing progress.

The study consisted of two phases aligned to the Chartered Management Institute (CMI) Steps as shown in table 3.1. Below.

Table 3.1 Chartered Management Institute (CMI)

CMI Steps	Phase of study	Objective/s	Method
Understand the current position.	1	To evaluate the utilisation of 21st century teaching and learning practices of nurse educators at a PNEI in South Africa To evaluate the utilisation of 21st century learning practices of nursing students at a PNEI in South Africa	Survey using the tool: "A Survey for Measuring 21st century Teaching and Learning: West Virginia 21st century Teaching and Learning Survey [WVDE-CIS-28]"designed by Jason Ravitz (2014) Section from above tool adapted for students' use
Reflect on how we got there. Be clear about corporate identity. Analyse strengths and weaknesses Analyse business environment.	2.1	To develop a strategy to support nurse educators develop their skills for 21st century teaching and learning	Focus group/s with nurse educator and managers.
Identify and evaluate strategic options. Set objectives and write implementation plan)	2.2	To develop a strategy to support nurse educators develop their skills for 21st century teaching and learning	Iterative process by triangulating data from phase 1 and 2.1
Communicate strategy Implement the strategy Review progress		Outside the scope of this study. Planned for doctoral studies.	

3.2.1 A sequential mixed method (QUAN-QUAL design)

A mixed method (QUAN-QUAL) study allowed the researcher to develop the strengths of numbers and words to answer different phases of the research question (Grove & Gray, 2019:431). The first phase of the study was quantitative, consisting of a survey, followed by a qualitative phase in phase 2.1 which consisted of focus group interviews with nurse educators and managers. The findings from phase 1 were then presented by the researcher to nurse educators to guide and answer the research question "How can nurse educators be prepared for 21st century teaching and learning at a private nursing education institution in South Africa?

Gray, Grove and Sutherland, (2017:25) explain that quantitative and qualitative types of research complement each other as they generate different kinds of knowledge that are beneficial in nursing practice. A key methodologic distinction between quantitative and qualitative research is that quantitative research is closely related to positivism and qualitative research is associated with constructivism (Polit & Beck, 2017:11).

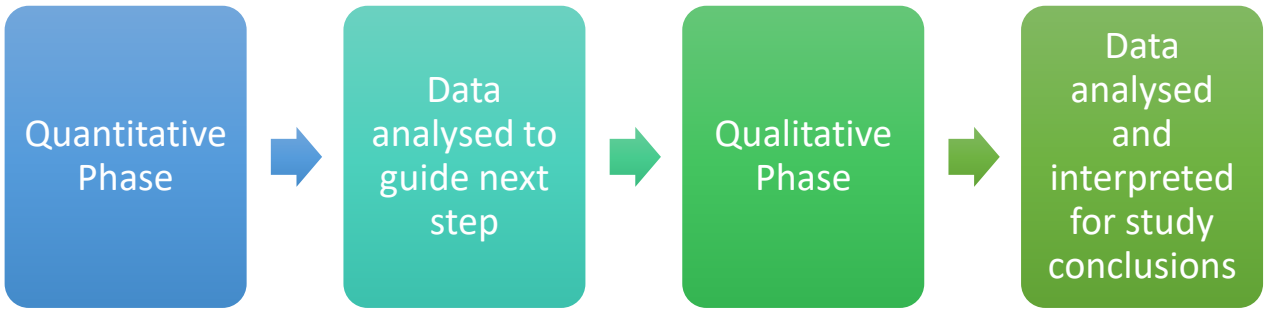


Figure 3.1 Exploratory sequential mixed method (Grove & Gray, (2019:434)

3.2.2 Quantitative Research Design

Quantitative research is the study of phenomena that give themselves to accurate measurement and quantification, frequently incorporating rigors control and statistical data analysis (Polit & Beck, 2022:396). This research design was chosen to collect accurate and contextual data which the researcher could use to develop a strategy to support nurse educators develop their skills for 21st century learning and teaching. To

acquire data free of any influences, a self-administered questionnaire “A Survey for Measuring 21st Century Teaching and Learning: West Virginia 21st Century Teaching and Learning Survey [WVDE-CIS-28]” designed by Jason Ravitz (2014) was utilised.

3.2.3 Qualitative Research Design

Qualitative research is the in-depth analysis of phenomena through the gathering of rich narrative design (Polit & Beck, 2021:800). The qualitative study design provided the researcher with the ability to capture the participants' real-life experiences. Because the researcher wanted to understand the phenomena from the participants' point of view, this allowed for in-depth engagement with the participants.

3.3 Research Setting

The research setting for this study was the largest Private Nursing Education Institution in South Africa, which comprises of five campuses (Gauteng, Eastern Cape, Western Cape and KwaZulu Natal). The PNEI is accredited by the SANC (South African Nursing Council), the Department of Higher Education and the Council of Higher Education to offer the Higher certificate in nursing (R169) and the Diploma in nursing (R171). The institution is currently phasing out the Bridging Course for Enrolled Nurses leading to Registration as General Nurse (R683) as per SANC regulations and offers various post basic programmes. Nurse educators placed at the PNEI were all in possession of a postgraduate qualification in nursing education or are in the process of obtaining one.

3.4 Population of Study

Polit and Beck (2021:52), refers to the population as all individuals with a common, defining characteristic. The target population is a group of people who share similar traits and who are the focus of the research (LoBiondo- wood & Haber, 2018:23).

3.4.1 Accessible population

Polit and Beck (2021:260), explain that the accessible population is the portion of the target population that is accessible to the researcher. The sample was taken from the study's available population and included participants who were willing to take part (Polit & Beck, 2017:719). The accessible population for this study were the nurse educators and managers who are currently working at a PNEI in South Africa (N = 44), as well as the students with ages raging from eighteen to sixty years old who were registered at the PNEI (N = 1162) at the time of data collection.

Inclusion criteria:

a. Nurse educators and managers with work experience of more than three months at the PNEI

b. Nurse educators involved with direct or indirect student teaching

c. Nursing students registered for any of the full-time programmes at the PNEI

3.5 Phase 1 Sample Size and Method

The essence of the population chosen to participate in the study are called a sample (Houser, 2018:159). To conduct relevant and meaningful statistical tests in quantitative research, a large population (N) is required. Survey research provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population (Creswell, 2014:157).

The table below depicts the accessible population size for phase 1

Table 3.2 Accessible population size phase 1 February 2022

	Accessible population Nurse Educators and managers size	**Accessible population Nursing students size**	**Percentage to be included**	**Total number of respondents**
Feb 2022	34	1162	100%	Nurse educators: N=27 Nursing Students: N=313

3.5.1 Phase 2.1 Sample Size and Method

A sample size is the number of people willing to participate in in the study (Polit & Beck, 2021:802). To allow individuals to participate in the study, the qualitative researcher creates specific criteria for selection. As a result, samples are frequently smaller because the researcher is looking for detailed information about the phenomenon (Polit & Beck, 2017:491). Purposive sampling was chosen for this study as the researcher wanted to access participants who had the necessary knowledge and experience to contribute to the study (Creswell & Guetterman, 2021:680).

The study included twenty four (N=24) nurse educators and managers who provided comprehensive data about their experiences of 21st century learning. Three focus groups interviews were conducted, group one (1) consisted of eight (8) participants and the research supervisor was present, group two (2) consisted of eight (8) participants and group three (3) consisted of eight (8) participants. The focus group interviews were conducted on the 20th, 28th and 29th July 2022 respectively.

3.6 Data Collection

Grove and Gray (2019:470) define data collection as a precise, systematic gathering of information which is relevant to the research purpose or questions of the study.

3.6.1 Survey

An online questionnaire is a survey instrument for collecting data that is available through the Internet and accessed through a computer, tablet, or smartphone (Creswell & Guetterman, 2021:436). The researcher used Kwik survey for this purpose. The researcher obtained permission from the health research committee of the University of Witwatersrand, requesting the nursing students and the nurse educators to participate in the study. (Annexure 1)

The researcher commenced data collection on the 9 February 2022 and concluded on the 29 April 2022. On commencement of the survey, an electronic copy of the invitation letter was sent through email and “Telegram Messenger”, a multi – platform

messenger service, to the nursing students (Annexure 2) and nurse educators (Annexure 3). The information was gathered by a survey, which was deemed to be an appropriate data gathering method for this study (Gray et al., 2017:26).

The survey was conducted to achieve the first two objectives namely: 1. to evaluate the utilisation of 21st century learning practices of nurse educators at a PNEI in South Africa and 2. To evaluate the utilisation of 21st century learning practices of nursing students at a PNEI in South Africa.

The use of Kwiksurvey allowed the researcher access to the population at all five PNEI who met the inclusion criteria. The researcher first presented the invitation to participate in the study letter (Annexure 2 and 3) to both nursing students and nurse educators via e-mail and “Telegram Messenger” and asked for a response via email.

Permission was obtained from the respondents to send them the invitation to participate letter, the researcher then sent them the Kwiksurvey links and consent forms via private email and private Telegram. Messages.

The researcher briefly explained in the email and on Telegram the purpose of the study and that participating in the study is completely voluntary and that the researcher would maintain confidentiality and anonymity. The respondents completed the survey at their own leisure and were given 2 months to complete the survey before it was closed. The survey instructions were explained including that it would take the nurse educators approximately fourteen minutes to complete the survey and nursing students 8 minutes as there were fewer questions in the student survey tool. The tool included demographic and biographic data. All data in Kwiksurvey is anonymised, so the researcher was unable to identify who completed the surveys. All respondents’ data was stored on the researcher’s computer which has been password protected and will only be available to the researcher and researcher’s supervisor.

While the researcher is a member of staff at the PNEI, the researcher has no direct supervisory responsibility over them.

3.6.1.1. The survey tool for the nursing students

In the original tool selected it, refers to “teacher” therefore the following was added to the eight main questions asked in the survey: *In your programme, how often have you been asked by your nurse educators to do the following*. This was done so that nursing students would understand that the ratings applied to their nurse educators, which is a phrase that nursing students are familiar with, rather than the word teachers.

In the original tool selected, the questions asked: *to what extent do you agree with these statements about your TARGET CLASS?* The questions were only relevant to nurse educators, not nursing student, hence they were eliminated for nursing students.

As per the survey from Ravitz “A Survey for Measuring 21st Century Teaching and Learning” the framework was used for the nurse educators and was based on 8 constructs as described below:

CRITICAL THINKING SKILLS refer to students being able to analyse complex problems, investigate questions for which there are no clear-cut answers, evaluate different points of view or sources of information, and draw appropriate conclusions based on evidence and reasoning.

COLLABORATION SKILLS refer to students being able to work together to solve problems or answer questions, to work effectively and respectfully in teams to accomplish a common goal and to assume shared responsibility for completing a task.

COMMUNICATION SKILLS refer to students being able to organise their thoughts, data and findings and share these effectively through a variety of media, as well as orally and in writing.

CREATIVITY AND INNOVATION SKILLS refer to students being able to generate and refine solutions to complex problems or tasks based on synthesis, analysis and then combining or presenting what they have learned in new and original ways.

SELF-DIRECTION SKILLS refer to students being able to take responsibility for their learning by identifying topics to pursue and processes for their own learning and being able to review their own work and respond to feedback.

GLOBAL CONNECTIONS refer to students being able to understand global, geo-political issues including awareness of geography, culture, language, history, and literature from other countries.

LOCAL CONNECTIONS refer to students being able to apply what they have learned to local contexts and community issues.

USING TECHNOLOGY AS A TOOL FOR LEARNING refers to students being able to manage their learning and produce products using appropriate information and communication technologies.

3.6.1.2. The pre-test

Sammut, Griscti, and Norman (2021:24) stipulate pre-test studies are important to explore whether the different aspects of the survey design are acceptable to potential participants. The tool "A Survey for Measuring 21st Century Teaching and Learning: West Virginia 21st Century Teaching and Learning Survey [WVDE-CIS-28]" was pre-tested for face and content validity with 5 nurse educators and 5 nursing students who were not included in this study. The results of the pre-test informed the clarity of the questions and the time that the survey took to be completed.

The pre-test was launched on the 7 February 2022 for both the nurse educators and nursing student via e mail, WhatsApp, and Telegram messenger.

Nurse Educators:

Five (5) responses were achieved by the 9 February 2022 for the nurse educators and the pre-test survey was closed, the recommendations indicated that the questions were clearly understood and easy to answer, the total average time for completing the survey by the five (5) nurse educators was 14 minutes.

Nursing students:

Five (5) responses were achieved by the 9 February 2022 for the nursing student and the pre-test survey was closed, the recommendations indicated that the questions were clearly understood and easy to answer, the total average time for completing the survey by the five (5) nursing students was 8 minutes.

As per the results and recommendations of the Pre-test, no further adaptions or changes were affected to the tool.

Phase 1: Student survey

Descriptive and inferential statistics were used in both surveys to present information that helped the researcher describe responses to each question and determine the overall trends of the distribution of data (Creswell & Guetterman, 2021:676).

The participants were provided with an information letter, consent letter to participate in the study and a hyperlink for them to complete the Kwik survey online. (Annexure 1). The initial sample size for the nursing students was (N = 1733) but in February 2022, when the data for phase 1 was collected, the sample size was N=1162. The total number of respondents was n= 315, which equates to a 60 (sixty) % response rate from the nursing students. Two (2) nursing students completed the entire survey however clicked “no” under the consent section of the questionnaire, and were therefore excluded from the total sample size. This meant that the total number of respondents was n=313, which equates to a 60 (sixty) % response rate from the nursing students.

Phase 1: Nurse Educators survey

The participants were provided with an information letter, consent letter to participate in the study and a hyperlink for them to complete the Kwik survey online. (Annexure 2). The initial sample size for nurse educators was (N = 40), but in February 2022 when the data for phase 1 was collected the sample size was N= 34. The total

respondents for the nurse educators were n=27, which equates to an 80 (eighty) % response rate from the nurse educators.

Sammut et al., (2021:1-2) state that the use of e-mail invitations, and reminders, to a survey that takes roughly 10 minutes to complete has been found to enhance response rates to web surveys. It might be argued that the overall response rate is more relevant than comparing it to response rates from other questionnaire distribution techniques, because an online survey's response rate, albeit lower, may still be sufficient to have confidence in the study's findings. The response rate remains an important component of possible bias in a study and the extent to which the findings can be generalised to the target population.

During phase 1 of this study, a self-administered standardised online survey was used to collect data for analysis in this study "A Survey for Measuring 21st Century Teaching and Learning: West Virginia 21st Century Teaching and Learning Survey [WVDE-CIS-28]" designed by Jason Ravitz (2014).

Permission was granted via e-mail by the author to adapt the student survey before the ethics approval and execution of the survey to the participants. No amendments to the original tool were made for the nurse educators. (Annexure 4)

The survey was conducted online via a Kwik survey. Rice et al., (2017: 60), state that online surveys make it possible to reach a significantly larger number of participants. Ozkara, Karabacak and Alpaydin (2021: 2), further state that participants can also participate at a specific moment or time most suitable for them without having to wait for the other participants. Participants were able to participate in the study in their own time and in the environment of their choice which eliminated any possible influence from the researcher. Sammut et al., (2021:1) demonstrate that when the invitation mode is the same as the one used to conduct the survey, a higher response rate is reached. The most likely reason is that responding to an email invitation, which only takes clicking on a link to a web survey, is easier than, for example, switching from a postal mail invitation to an online survey.

3.6.3 Focus Groups

Phase 2: Focus group with the nurse educators

Prior to the commencement of the focus groups the results of the survey from phase one (1) was shared with the participants to enable them to answer the research questions.

Data was collected by means of focus group interviews that was recorded with permission from the participants where by the interaction between the researcher and all participants were guided by fixed questions an all participants had an equal opportunity to voice their opinion and share their experience (Grove & Gray, 2019:482).

In this study, 24 nurse educators and managers participated in three (3) independent focus groups. The focus groups were divided into 8 (eight) participants per group. The interviewer conducted three (3) focus groups, presenting the same data to all three (3) groups. The results of phase one were presented to the participants and the following five (5) questions were asked which were derived from Chartered Management Institute (CMI) Steps which guided this study:

a. What factors do you believe have impacted on the situation? (Reflect on how we got there)

b. Where do you believe the PNEI should position itself in terms of 21st Century Learning? In other words, what do we want to achieve in this respect? (Be clear about corporate identity)

c. What do you consider are our strengths and weaknesses as we try to introduce 21st Century learning? (Analyse strengths and weaknesses)

d. What resources are available for implementation of 21st century learning? (analyse the business environment)

e. What advice do you have with regard to implementing 21st Century Learning at our PNEI?

3.6.4 Research environment

As per the participants' permission, the first focus group was held on July 20, 2022, using a face-to-face interview and 1 (one) participant remotely via teams. The meeting room at the selected PNEI had a round table and fifteen (15) cozy chairs. Because a "do not disturb" sign was posted on the room's door to protect participants' privacy, there were no interruptions during the focus group interviews.

To audiotape record the interviews, a mobile phone in airplane mode with a fully charged battery life of up to eight (8) hours and an audiotaped recording application was used. A Microsoft Teams meeting recording was enabled during the focus group sessions as a backup audio recording. The researcher and the research supervisor were present at this face-to-face focus group interview, as discussed with the participants. The duration of the interview time was 02:40:18 (two hours, forty minutes and eighteen seconds).

In the venue, colour cardboards, pens, paper, and flip charts were made available to participants to enable them to reflect and record at any time during the focus group discussions. Tea and coffee were set up as a gesture of goodwill for participants during the session.

Focus group two and three interviews were conducted via Teams on a mutually agreed-upon date and time that was convenient for the participants due to them living in different provinces. The researcher used her home office environment as a private study room to conduct the focus groups. These second two focus groups were held on the 28 July 2022, which lasted (three hours twenty-six minutes and thirty-one seconds) 03:26:31 and on the 29 July 2022 with the interview time being (two hours fifty-two minutes and forty-one seconds) 02:52:41 respectively. Both of the above were recorded which enabled an audio recording of the sessions. During the focus groups, participants used comfortable spaces in their own homes or at the PNEI.

Before the interviews, the researcher either privately e-mailed or telegrammed the consent forms to the participants. After completing the forms, participants emailed them back to the researcher.

During all three focus groups, a prepared power point presentation was presented by the researcher, detailing the results of phase 1 (survey) results to further engage.

3.6.5 Barriers of research environment

The focus group interviews lasted longer than the researcher planned, which was allowed as there was such rich discussion and so many opinions were aired. The researcher checked with all participants if they were still able to continue after the planned time and all participants agreed.

3.6.6 Analysis of field notes

Polit and Beck (2021:525), state that field notes, which represent the observer's attempt to capture information and to synthesise and analyse the data, and are broader, more analytical, and more interpretive than a basic listing of occurrences. Field notes were taken at each of the focus groups and included observations/descriptive notes, theoretical notes, methodological notes, and personal notes were all employed by the researcher to enhance the data.

3.6.7 Observational notes/descriptive notes

Observational notes are descriptions of conversations and events that have been observed. The recording of actions, dialogue, and context is as thorough and objective as is practicable (Polit & Beck, 2021:526).

The researcher was only able to hold the first focus group in person, where it was noted that the participants were polite and relaxed. The researcher watched and recorded what was going on in the participant's surroundings. During the Teams focus groups, where the participants' actions could not be seen the researcher paid close attention to any changes in the participants' tones of voice or times when they were silent. The participants' range of comments and reactions supported the notion that they were willingly participating and delighted to be a part of the study.

3.6.8 Theoretical notes

Theoretical notes are the researcher's thoughts on how to interpret the situation. These remarks provide a foundation for further analysis (Polit & Beck 2021:526). These notes were formulated through observation, thus, this added meaning to the experiences as they were described by the participants, and which aided in the development of a central theme, themes, and categories afterwards.

3.6.9 Methodological notes

Observational techniques are reflected in methodological notes. Observers occasionally make mistakes, and methodological notes record ideas for new strategies or the reasons why a particular strategy was particularly successful. Methodological notes can also serve as reminders or directions for when to make specific observations (Polit & Beck 2021:526).

The researcher collected rich data using data by observing participants' behavior, settings, and surroundings as well as paying close attention to all of the focus group audiotape recordings. To elicit detailed information from participants', they were asked questions regarding their experiences. Focus groups allowed participants to freely express themselves, and the researcher gained knowledge that allowed for a detailed description of the phenomenon under investigation.

3.6.10 Personal notes

Personal notes are the researcher's own comments about feelings whilst in the field (Polit & Beck 2021:526). The researcher experienced some anxiety during the first face-to-face focus group because this was new to the researcher, but as the focus group interview went on, the researcher started to feel more at ease. The researcher refrained from interfering with the participant's responses as they shared their experiences. There was a continual reminder by the researcher to allow the participants to have the opportunity to express their most insightful experiences rather than directing any conversations. The researcher became more comfortable using the Teams technique of data collecting and felt more connected with the participants as

the focus group interview session went on. The researcher gained a greater understanding of the participants' lived experiences through the conduct of the focus group interviews.

3.7 Data Analysis

Descriptive and inferential statistics

Polit and Beck (2022:387) state inferential statistics are used to make inferences about whether results observed in a sample are reliable. In this study, inferential statistics were also employed to see if there were any differences based on the 8 questions asked between the nursing students and nurse educators. A T-test was used to compare the results of the nurse educator's survey and the nursing student's survey.

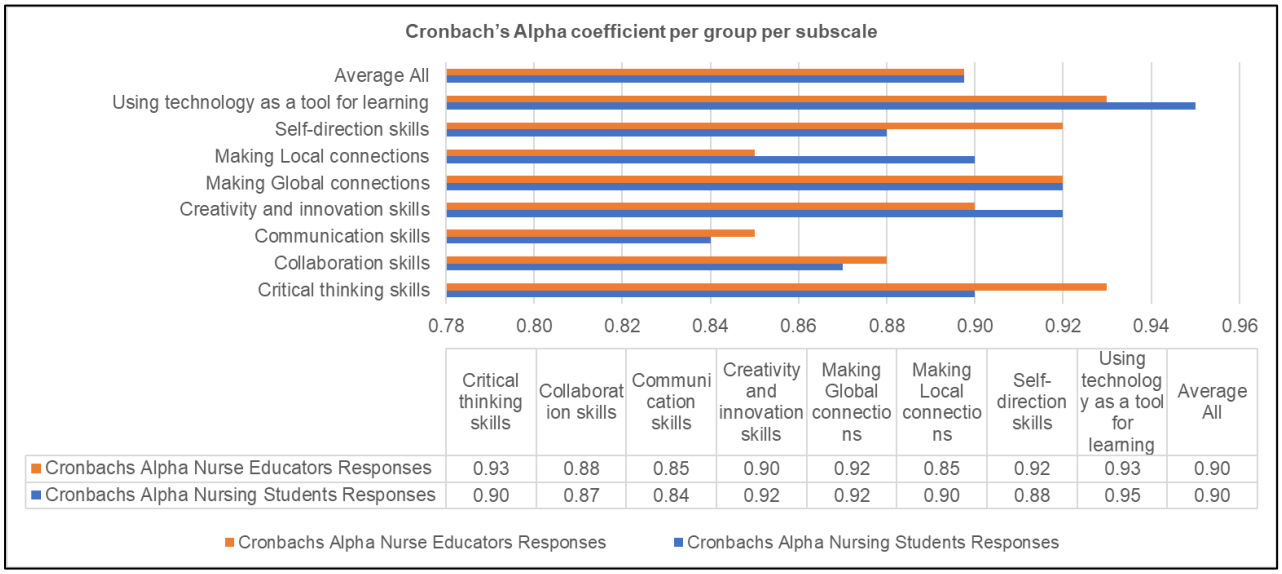
3.7.1 Analysis of phase 1: Students' survey and Nurse educators' survey

All data was analysed with Microsoft Excel Analysis Tool Pack 2016.

A T-Test was conducted with both sets of data from both the students and nurse educators' survey respectively to compare the means of the two groups.

Cronbach's Alpha is a widely used index which estimate the internal consistency of a composite measure composed of several subparts (Polit & Beck, 2022:381). The Cronbach's Alpha score was also tested to test the internal consistency between the nurse education and the nursing student. The Cronbach's was calculated for both nurse educators and nursing students as per the 8 constructs on the tool. The Cronbach's Alpha coefficient per group per subscale is presented in the table below.

Table 3.3 Cronbach's Alpha coefficient per group per subscale



	Critical thinking skills	Collaboration skills	Communication skills	Creativity and innovation skills	Making Global connections	Making Local connections	Self-direction skills	Using technology as a tool for learning	Average All
Cronbachs Alpha Nurse Educators Responses	0.93	0.88	0.85	0.90	0.92	0.85	0.92	0.93	0.90
Cronbachs Alpha Nursing Students Responses	0.90	0.87	0.84	0.92	0.92	0.90	0.88	0.95	0.90

3.7.3 Analysis of phase 2: Template analysis

Template analysis is a method of thematically organising and analysing qualitative data which has been applied in a broad range of research areas in the social sciences (King, 2012). Central to Template Analysis is the development of a *coding template*, which summarises *themes* identified by the researcher(s) as important in a data set, and organises them in a meaningful and useful manner.

Themes are recurrent features of participants‟ accounts characterising particular perceptions and/ or experiences that the researcher sees as relevant to their research question (Brooks and King, 2014).

Brooks and King, (2014) further states "however, in template analysis, it is permissible (though not obligatory) to start with some *a priori* themes, identified in advance as likely to be helpful and relevant to the analysis. These are always tentative, and may be redefined or removed if they do not prove to be useful for the analysis at hand."

The a *priori* codes and themes utilised for this analysis phase of the study were based on the 3 x 3 model of 21st century learning, based on the (Kereluik et al., 2013).

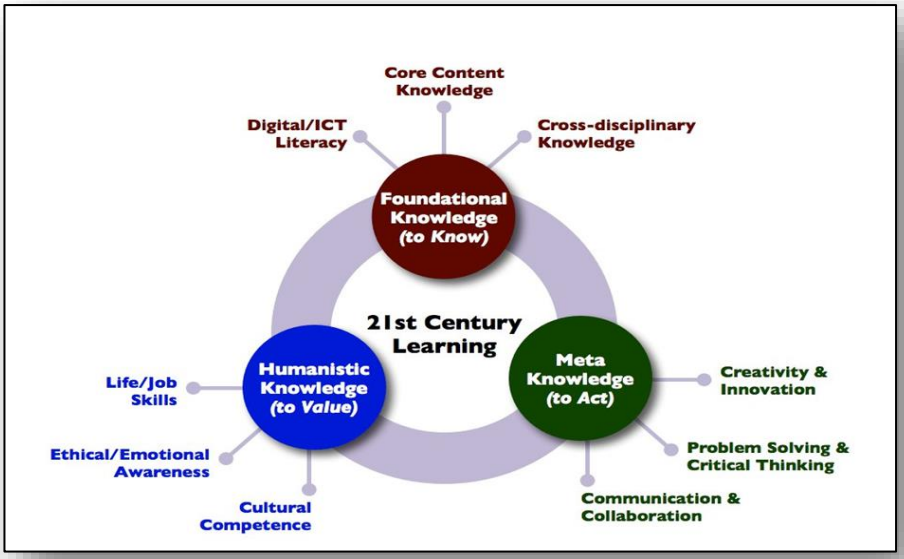


Figure 3.2 The 3 x 3 model of 21st century learning, based on the Kereluik et al., (2013) framework

Table 3.4 A Diagrammatic representation of the a priori codes and themes as per the 3x3 framework, utilized to analyse the data in phase 2 of the study

Themes	A Priori Codes
Theme 1: Nurse Educators Foundational Knowledge (to Know) in 21st century learning.	1.1 Digital /ICT Literacy (information and communication technology)
	1.2 Core Content Knowledge
	1.3 Cross -disciplinary Knowledge
Theme 2: Nurse Educators Humanistic Knowledge (to Value) in 21st century learning.	2.1 Life/Job Skills
	2.2 Ethical/Emotional Awareness
	2.3 Cultural Competence
Theme 3: Nurse Educators Meta Knowledge (to Act) in 21st century learning.	3.1 Creativity and Innovation
	3.2 Problem Solving and Critical Thinking
	3.3 Communication and Collaboration

The six (6) main steps of Template analysis as per Brookes et al., (2014) were carried out for the analysis, namely:

a. Become familiar with the accounts to be analysed
b. Carry out preliminary coding of the data
c. Organise the emerging themes
d. Define an initial coding template
e. Apply the initial template to further data and modify as necessary
f. Finalise the template and apply it to the full data set.

3.7.3.1 Become familiar with the accounts to be analysed.

Brooks and King (2014), states that in a relatively small study, for example, ten or fewer hour-long interviews, it would be sensible to read through the data set in full at least once. In a larger study, the researcher may select a subset of the accounts (e.g., transcripts, diary entries, daily field notes) to start. The researcher became familiar with the data by listening to the audio recordings on a regular basis and comparing them to the notes to ascertain the true information delivered by the nurse educators. She also read through the written responses numerous times and took notes on their replies to their setting's 21st century learning. The researcher also listened to and transcribed the nurse educators' audio recordings, write-ups, and reviewed through transcripts multiple times to refine their responses and identify relevant terms among the collected data. All of this was done for the researcher to become accustomed to their reactions. A verbatim account of all verbal responses and written responses was taken, and the transcript was reviewed for correctness against the original audio recordings and written remarks with the supervisor's assistance.

3.7.3.2 Carry out preliminary coding of the data

Brooks and King (2014), states that carrying out preliminary coding of the data. This is essentially the same process as used in most thematic approaches, where the researcher starts by highlighting anything in the text that might contribute toward his or her understanding. It also entails finding areas of interest among respondents that must be evaluated meaningfully in relation to the research problem. After reviewing

the study questions, the responses with relevant information were highlighted and recorded in an Excel document to facilitate data categorisation and to generate lists of codes from the data sets in the nurse educators' responses and opinions. The preliminary codes were generated.

3.7.3.3 Organise the emerging themes

In this step, whilst the researcher was immersed in the raw data, the researcher used the 3 x 3 model of 21st century learning, based on the Kereluik et al., (2013) framework to incorporate the themes and categories identified in this study. Following the identification of the a *priori* codes that had been grouped under the themes as per the model, the supervisor reviewed the analytic procedure with the researcher to validate that the a *priori* codes and themes matched the content of the data before receiving the finalised data.

3.7.3.4 Define an initial coding template

Themes are refined throughout a review by being combined or separated from one another because data within the themes should be meaningfully associated with clear distinctions between them (Braun and Clarke 2014). Brooks and King (2014), states that it is normal in Template Analysis to develop an initial version of the coding template on the basis of a subset of the data rather than carrying out preliminary coding and clustering on all accounts before defining the thematic structure. A thematic map was developed to confirm that the themes were consistent with the nurse educators ' views when the researcher discovered that selected themes corresponded with the coded data. The supervisor was engaged several times during the comparison process until the researcher was confident that there were no inconsistencies, and the coding template was used as per the 3 x 3 model of 21st century learning, based on the (Kereluik et al., 2013).

3.7.3.5 Apply the initial template to further data and modify as necessary

Brooks and King (2014), states that the researcher examines fresh data and where material of potential relevance to the study is identified, he or she considers whether any of the themes defined on the initial template can be used to represent it. Where existing themes do not readily “fit” the new data, modification of the template may be necessary. The themes that were presented for analysis were confirmed at this stage and no modification to the data template was necessary.

3.7.3.5 Finalise the template and apply it to the full data set.

As described above in 3.7.3.5, there was no further modification to the data template. The researcher and the supervisor then finalised and accepted the data set as final.

3.8 Rigour of the Study

To achieve greatness in research, rigour must be committed to maintaining order, attention to detail, precision, and accuracy. A rigorous qualitative study employs precise measurement equipment, a representative sample, and a well-controlled study design (Grove & Gray, 2019:34). Rigour was maintained in this study by using a research design, technique, data collection tool, and data analysis method that were all suitable to answer the research question.

3.8.1 Validity and reliability

a. Validity

Polit and Beck, (2022:403) define validity as a quality principle referring to the degree to which inferences made in a study are accurate and well- founded in measurement. Sammut et al., (2021:2) state that a survey's response rate reveals response bias and, as a result, the study conclusions' representativeness. As a result, the response rate is critical in establishing the validity of questionnaire survey findings.

The “Survey for measuring 21st Century Teaching and Learning” tool is an open online source. The tool has been used in numerous studies and has been validated. It is a teacher survey which is available for re-use in studies of 21st century learning and teaching. The tool has demonstrated excellent reliability, improving on reliable measures from previous studies (std. alpha > .90, inter-item correlations > .58). Support for content validity is based on review of existing frameworks and measures. Support for concurrent validity includes strong relationships to time spent using project-based learning (Hixson et al., 2012).

The utilisation survey tool was pretested for face and content validity with 5 nurse educators and 5 nursing students who were not included in the study. The results of the pre-test informed the clarity of the questions and the time that the survey took to be completed.

b. Internal validity

Internal validity is the degree to which the observed results accurately reflect the truth of the subject under investigation. Cronbach alpha determines the amount to which different subparts of an instrument are reliably measuring the important traits, and a set of strongly intercorrelated items yields more internal consistency (Polit & Beck, 2017:308). The Cronbach alpha is commonly used to determine internal validity. Cronbach alpha, as previously stated, is a value between 0.5 and 1 that indicates how closely a set of items in a group are related (Gray et al., 2017:107). Internal validity is weak if the score is less than 0.60. The nursing students returned a Cronbach Alpha of α=0.90 and the nurse educators returned α=0.90 which indicates a high internal consistency.

c. Reliability

According to Polit and Beck (2022:398) reliability is the consistency of measures in research; it reflects how exact and repeatable the data is. Tappen (2016:151) state, comparable findings should be obtained if the same methods are followed in similar conditions. The dependability of this study was ensured since the researcher followed a precise step-by-step approach that was clearly documented and ensured the data

was collected in a consistent manner (Gray et al., 2017:370). The degree to which an instrument is free of random error is also measured by its reliability.

The authors or the "A Survey for Measuring 21st Century Teaching and Learning: West Virginia 21st Century Teaching and Learning Survey [WVDE-CIS-28]" reported that when presented with the definitions the practice and perception items were highly correlated and contributed to extremely reliable overall measures for each skill (standardised alpha > .90, inter-item correlations >.58).

3.8.2 Measures of Trustworthiness

According to Lincoln and Guba (1985:290), trustworthiness is a method of rigor in qualitative research which does not sacrifice relevance. In qualitative research, trustworthiness stimulates methodological soundness and adequacy (Holloway & Galvin, 2017:309). In this study, trustworthiness was maintained by employing the Lincoln and Guba (1985) model, which is described in the publications by Krefting (1991) and Korstjens and Moser (1993). Trustworthiness was used to ensure that the study's findings are a true reflection of the nurse educators' preparedness for 21st century learning. The qualitative paradigm is reflected in the following trustworthiness criterion: credibility, dependability, and conformability transferability (Lincoln and Guba, 1985:294–316).

a. **Credibility** of a study is the belief that the study is accurate and that the results represent a credible, conceptual interpretation of the original findings. Credibility presents the study in a way that the readers will believe the presented findings. (Kyngas, Mikkonen & Kaariainen, 2020: 42). To provide sufficient proof of how the researcher arrived at the conclusions stated, the researcher in this study meticulously documented the research procedure. Credibility was maintained by audio recording the focus groups and transcribing the recordings verbatim.

b. **Dependability** describes the settings of the study as well as the stability of the data across time (Korstjen & Moser, 2018:121). To put it another way, the results should hold true if the study was to be repeated with the same themes and within the same constraints (Krefting, 1991:216; Korstjens & Moser,

2017:121-122). For future audit purposes to show how the result was reached, the researcher meticulously documented the whole research process, including the full descriptions of the settings, all tape-recorded focus group interviews, and transcribed notes.

c. **Confirmability** is the extent to which discoveries are accurate and repeatable (Korstjen & Moser, 2017:121). The information gathered must accurately reflect the experiences of the participants. By stating that the results were solely based on the experiences of the study participants, the primary researcher minimises bias in this research study. The supervisor was involved in this process, contributing to the coding and independently reviewing the primary data to make sure the coding and analytical framework accurately captured all the data.

d. **Transferability** is the degree to which results can be used in different contexts (Polit & Beck, 2017:560). Transferability was improved as the research findings were applied to a situation or context that was similar by providing descriptive information about the study's location and participants (Kreftings, 1991:216). With a rich, in-depth description of the environment, setting, and study participants, the researcher reinforced the study's transferability by concentrating on the individual and avoiding generalisations. As a result, providing transparency about the analysis and trustworthiness by directly quoting participants to support results (Connelly, 2016:436).

3.9 Ethical Considerations

Before commencing the study, permission and clearance was obtained from the Research Ethics Committee (Annexure 1) and the Higher Degrees Committee of the University of Witwatersrand. After receiving the clearance certificate from the University of Witwatersrand, an application was submitted to the Research Operating Committee at the PNEI selected. Permission was obtained from the PNEI (Annexure 5). Ethics govern how a researcher conducts the relevant research study. Consequently, research ethics offer an enhanced framework for evaluating the integrity of research output (Sibinga, 2018:1). The research was guided by the ethical guidelines provided by Dhai and McQuoid-Mason (2011), Polit and Beck (2017),

Sibinga (2018), and Morison and Furlong (2019). These considerations were founded on the ethical principles identified as relevant to research involving human foci and protection of human rights: (a) the principle of respect for autonomy, (b) the principle of beneficence and non-maleficence, and (c) the principle of justice. The nurse educators received an additional consent for the audio recording of the focus group interviews. (Annexure 7).

a. The principle of respect for autonomy

The researcher respects the freedom of the participants to make their own decisions by adhering to the principle of autonomy (Dhai & McQuoid-Mason, 2011:38). This required self-determination, in which the participant had the freedom to make decisions on their own and was free to refuse to provide information or participate in the study at any moment (Polit & Beck, 2017:140). By providing the research information letter to the participants via e-mail the participants in accordance with the study proposal, the researcher conformed to the principle (Annexure 6). A summary of the study was provided to the participants in the information letter, which also stated that participation in the trial was entirely optional and that individuals might withdraw at any moment. The purpose of the study was explained in "simple to comprehend" terms in the information letter, along with how data was collected, how long the interview might last, and any potential advantages. If the participant required to get in touch with the researcher or supervisor, those details could be found in the letter. As well as explanations on how confidentiality would be protected, no intrinsic harm was foreseen. The participants were given the chance to ask questions after the information in the letter was explained, and only then did the researcher gain the participants' informed permission.

i. **Informed consent**: The study's important and sufficient information was provided by informed consent. Each potential participant made a voluntary decision to participate in the study after fully understanding the information and being informed about it (Polit & Beck, 2017:143). In this study, the potential participants were nurse educators working at different PNEI in South Africa. The participants signed the consent form which was e-mailed to them and returned to researcher.

ii. **Confidentiality**: The "right to privacy" of the participant must be honoured, as must confidentiality. Neither before nor after collecting the data, had the researcher kept his or her identity a secret. The ability to prevent participant identification from the data provided is anonymity, which is the most secure method of protecting confidentiality (Polit & Beck, 2017:147). To protect participant privacy, the identities of the participants were not disclosed in this study. Instead, during the interviews, each participant was referred to as a participant and given a number. The term "participant with a number" is used both in the research report and during interviews. All participants signed the consent form after being informed that all interviews were recorded for accurate transcription (Annexure 7). Participants were told that only the supervisors and the independent coder would have access to the data they provided to the researcher.

b. The Principle of Beneficence and Non-Maleficence

There must be no unnecessary risk, injury, or discomfort for the participants (Dhai & McQuoid-Mason, 2011:43,175; Polit & Beck 2017:139). The researcher's responsibility to minimise harm and enhance advantages for the participants is emphasised by beneficence and non-maleficence. The participants in this study were cherished, and the researcher took great care to only allow amazing outcomes for them. Although there was no immediate gain for the participants, their dynamic input to the study resulted in suggestions on how to enhance 21st century learning. Since the research study's success depended on the participants' engagement, it was crucial that they continued to be given first attention. There were no foreseen concerns or risks because of taking part in the study. Every participant was always made to feel at ease and comfort was the researcher's primary responsibility.

c. Principle of Justice

The requirement to treat each participant fairly and equitably fits under the definition of the principle of justice, according to Dhai and McQuoid (2011:175) and Morison and Furlong (2019:121). When selecting the participants, the needs of the research were considered, not their flaws or worldviews. Despite their background, they were

respected (Dhai & McQuoid-Mason, 2011:43,175; Polit & Beck 2017:141). All nurse educators who work in a PNEI environment were invited to participate in the study, which was done in compliance with official inclusion criteria (Dhai & McQuoid-Mason, 2011:14).

Similar questions were posed to every participant in order to ensure that everyone was treated fairly and that their privacy was not violated. The researcher was able to guarantee that all participants participated voluntarily and that all interviews were given equal weight by making sure that everyone was treated with dignity and respect regardless of their various origins and opinions.

The researcher was able to safeguard each participant's privacy and identification by giving them code names (Sibinga, 2018:115). The focus group interviews were assigned numbers, such as "participant 1" for one. The researcher was able to maintain confidentiality by refraining from sharing the participants' personal information without getting their consent (Gray et al., 2017:170)

3.10 Conclusion

The research design and method employed in this study were detailed in Chapter 3. The data collection method, demographic, sample size, and pre-test research, as well as the data analysis process, were all described. This study's research design and data collection procedures were adequate. The outcomes of the data analysis in phase 1 and interpretation are presented in Chapter 4.

CHAPTER 4

FINDINGS AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter describes the findings from the data collected from phase 1. The goal of this phase was to conduct a survey to evaluate the utilisation of 21st century learning practices of nursing students and nurse educators at a PNEI in South Africa.

The findings of the surveys are reported first followed by a discussion of the findings.

4.2 Findings / Results

The survey was sent to 1162 nursing students and 34 staff members. Three hundred and thirteen (n = 313) nursing students and twenty-seven (n= 27) staff members returned the questionnaires which represented a return rate of sixty (60) percent of nursing students and eighty (80) percent of staff members. Two (2) of the questionnaires that were returned, were one (1) from a nursing student and one (1) from a staff member indicating not giving consent to participate.

4.2.1 Demographic data analysis

The demographic data analysis for nursing students will be reported on first, followed by that for nurse educators.

Demographic data analysis of nursing students

4.2.1.1. Gender

Two hundred and ninety-three (293) females and twenty (20) males were included in the sample for analysis. As the number of female nursing students far exceeds the number of males at nursing colleges, this proportional slant was expected. Figure 4.1 depicts the gender representation of the nursing students.

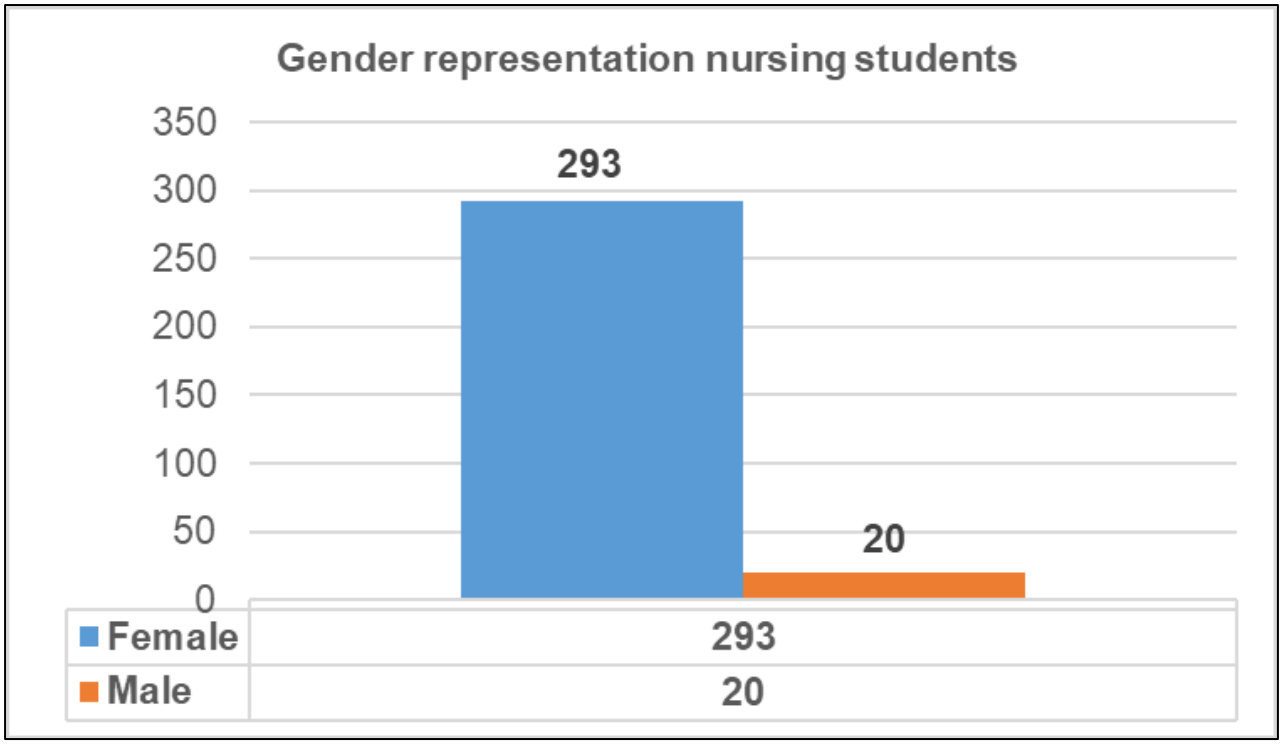


Figure 4.1 Gender representation nursing students: n=313

4.2.1.2. Ethnic grouping

Figure 4.2 depicts the ethnic grouping of the nursing students. Most of the nursing students at this PNEI are African, therefore form the majority of the sample. Two hundred and twenty-three (223) nursing students at this PNEI participated in the survey. Twenty-seven (27) coloured, three (3) Indian, and forty-two (42) white nursing students made up the minority ethnic groups. The missing data are as follows: instead of stating their ethnic group, the nursing students gave their citizenship, home

language, programs in which they were enrolled, gender, or age. Figure 4.2 depicts the ethnic representation of the nursing students.

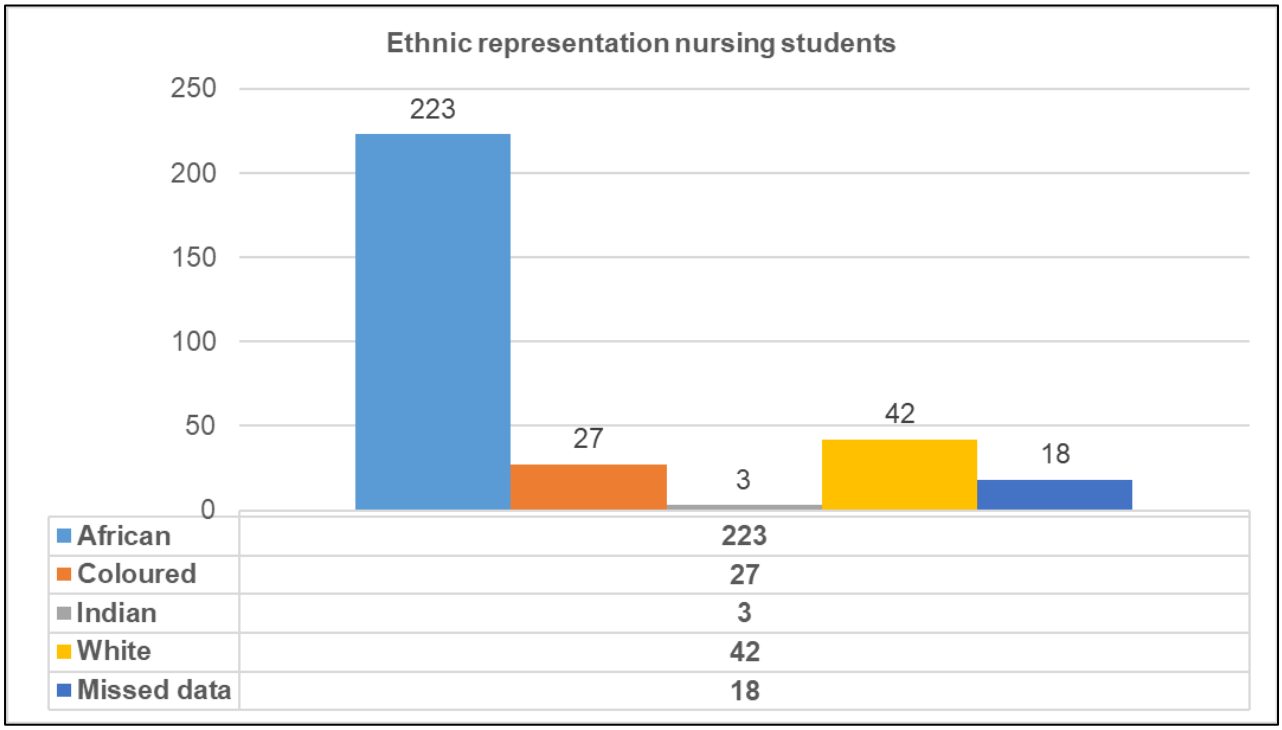


Figure 4.2 Ethnic representation nursing students: n=313

4.2.1.3. Marital status grouping

The majority of the nursing students at this PNEI are either married one hundred and fifty (150) or are single one hundred and fifty-two (152). In minority the nursing students are either engaged, in a relationship or separated. Figure 4.3 depicts the marital status representation of the nursing students.

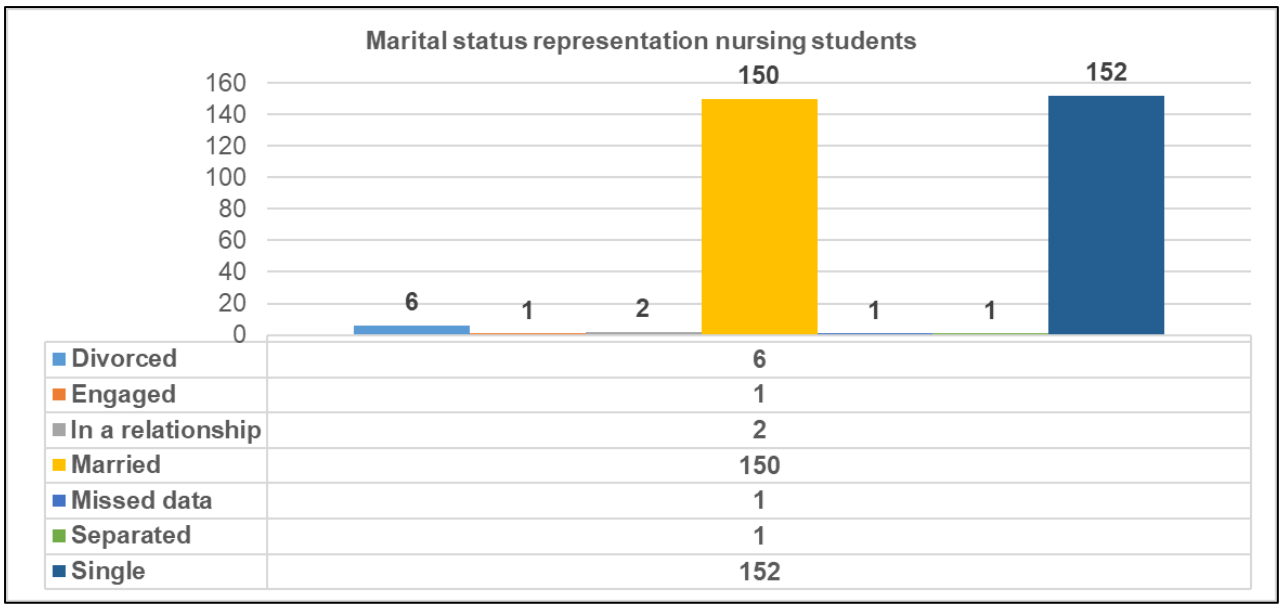


Figure 4.3 Marital status representation nursing students: n=313

4.2.1.4. Nursing students enrolled programmes

The nursing students from the Higher certificate in nursing (R169), Diploma in nursing (R171) and the Bridging Course for Enrolled Nurses leading to Registration as General Nurses (R683) formed the majority of the nursing students who participated in the survey, i.e. a total of two hundred and seventy-one (271). Figure 4.4 depicts the enrolled programmes of the nursing students.

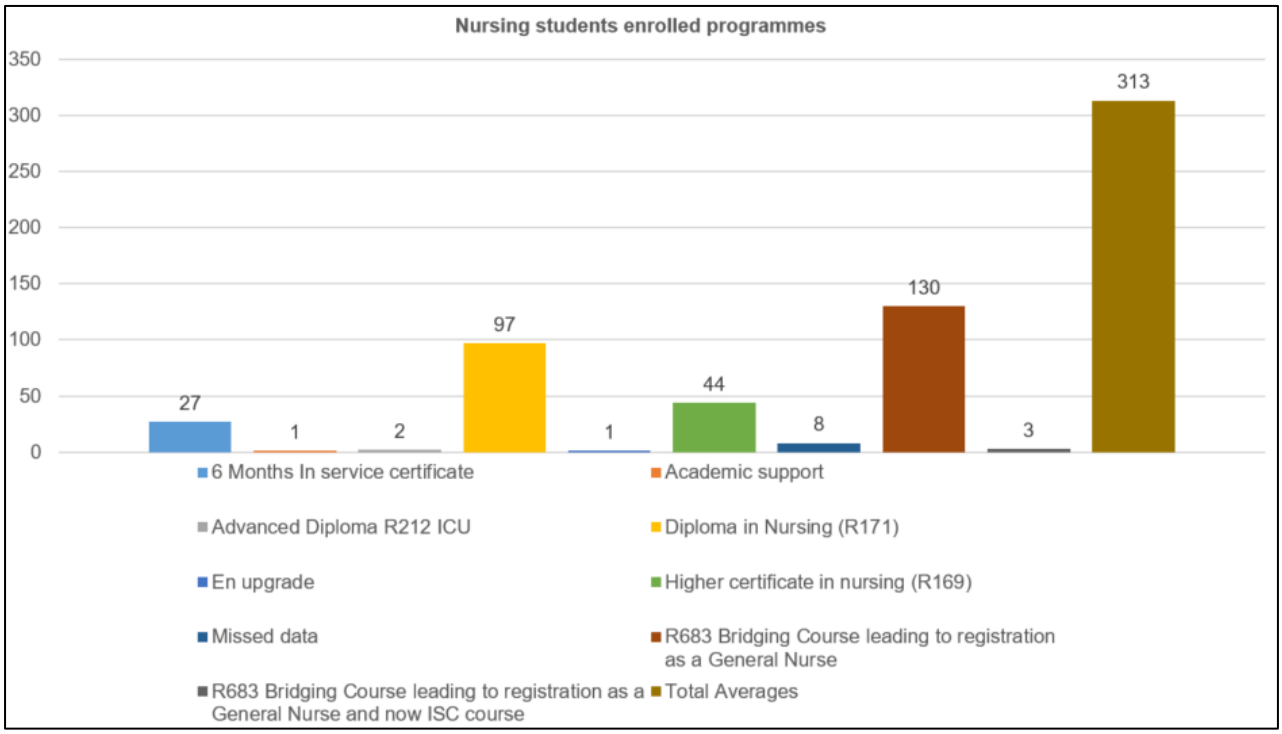


Figure 4.4 Nursing students enrolled programmes: n=313

4.2.1.5. Nursing students age grouping

The nursing students' ages ranged between nineteen (19) and sixty-three (63) years of age, with an average age of thirty-three (33) years. Twenty-eight (28) percent of the nursing students are in the age range of twenty-nine (29) to thirty-three (33). Whereby the lowest percent of the nursing students are in the age range between fifty-one (51) and sixty-three (63). This shows that most of the nursing students are from the millennial generation. Figure 4.5 depicts the age grouping of the nursing students.

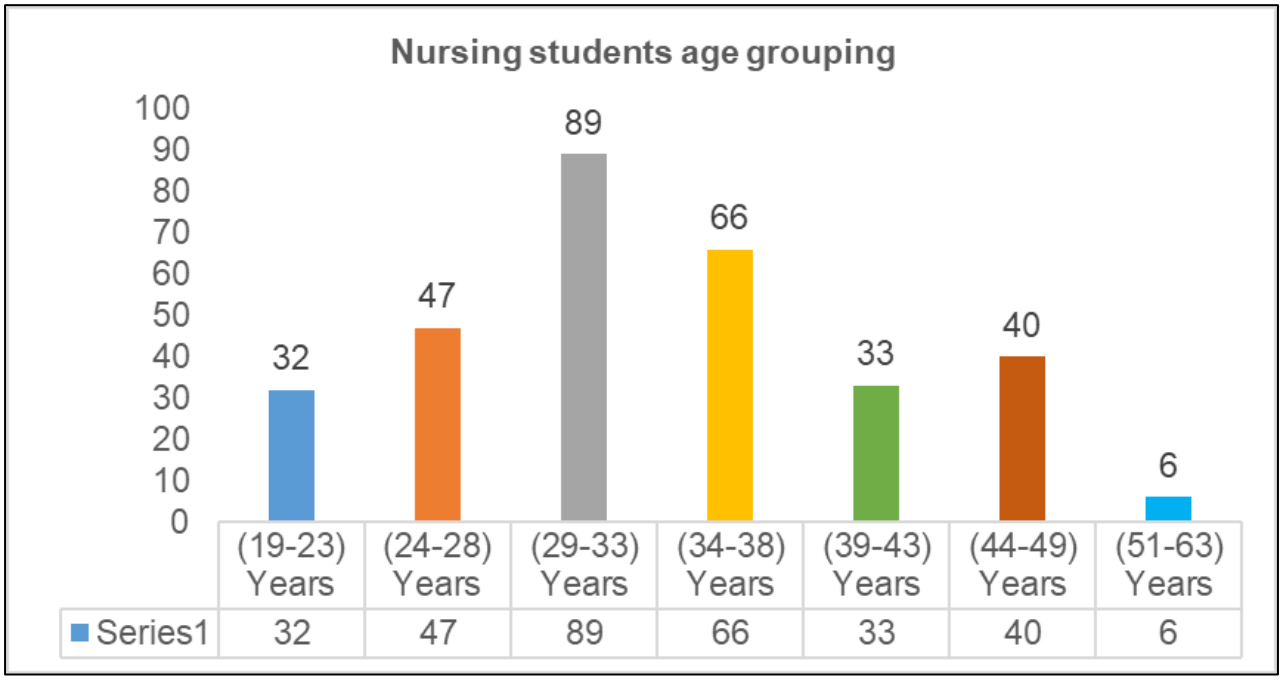


Figure 4.5 Nursing students age grouping: n=313

Demographic data analysis of nurse educators

4.2.1.6. Gender

Twenty-six (26) females and one (1) male were included in the sample for analysis. As the number of female nurse educators far exceeds the number of males at nursing

colleges, this proportional slant was expected. Figure 4.6 depicts the gender representation of the nurse educators.

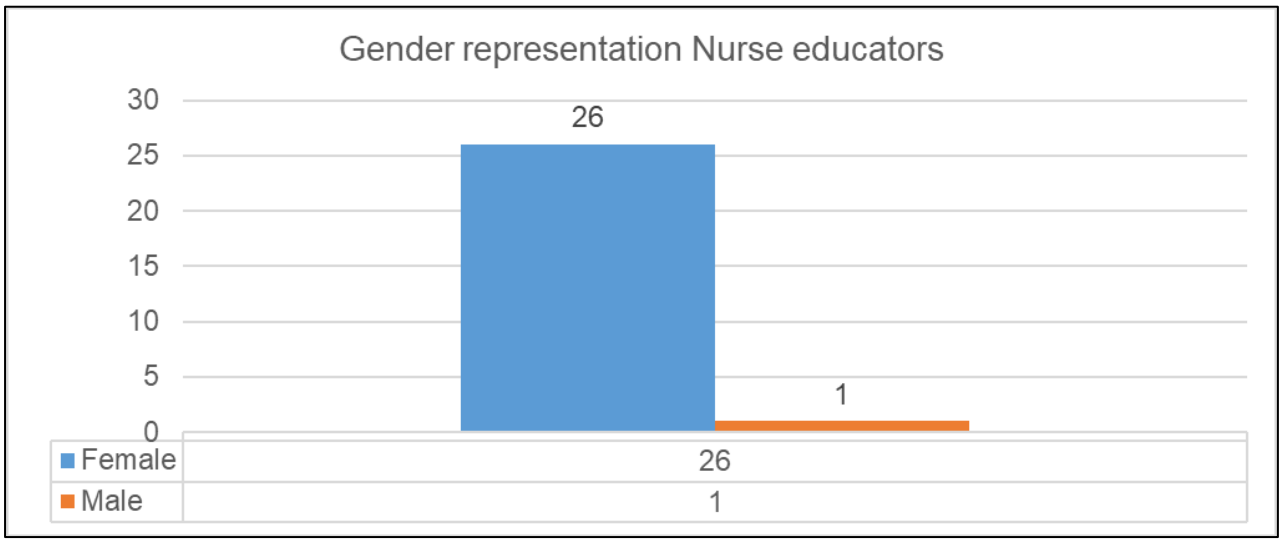


Figure 4.6 Gender representation nurse educators

4.2.1.7. Ethnic grouping

At this PNEI, sixteen (16) of the nurse educators are white, making up the majority of the nurse educator's. The minority groups consist of seven (7) Indians, two (2) coloured, and one (1) Asian. Therefore, fifty-five and fifty-six (55.56) percent of nurse educators are white. Figure 4.7 depicts the ethnic representation of the nurse educators.

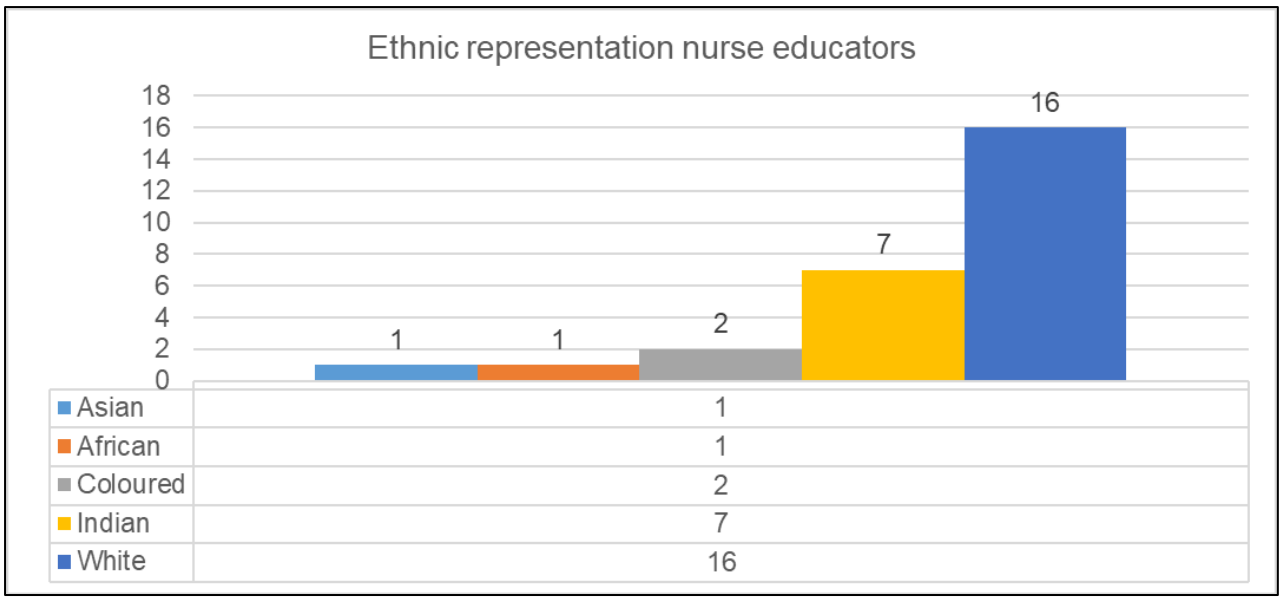


Figure 4.7 Ethnic representation nurse educators: n=27

4.2.1.8. Marital status grouping

The majority of the nurse educators at this PNEI are married i.e., twenty (20). The minority of nurse educators are either single, divorced, or widowed. Figure 4.8 depicts the marital status of the nurse educators.

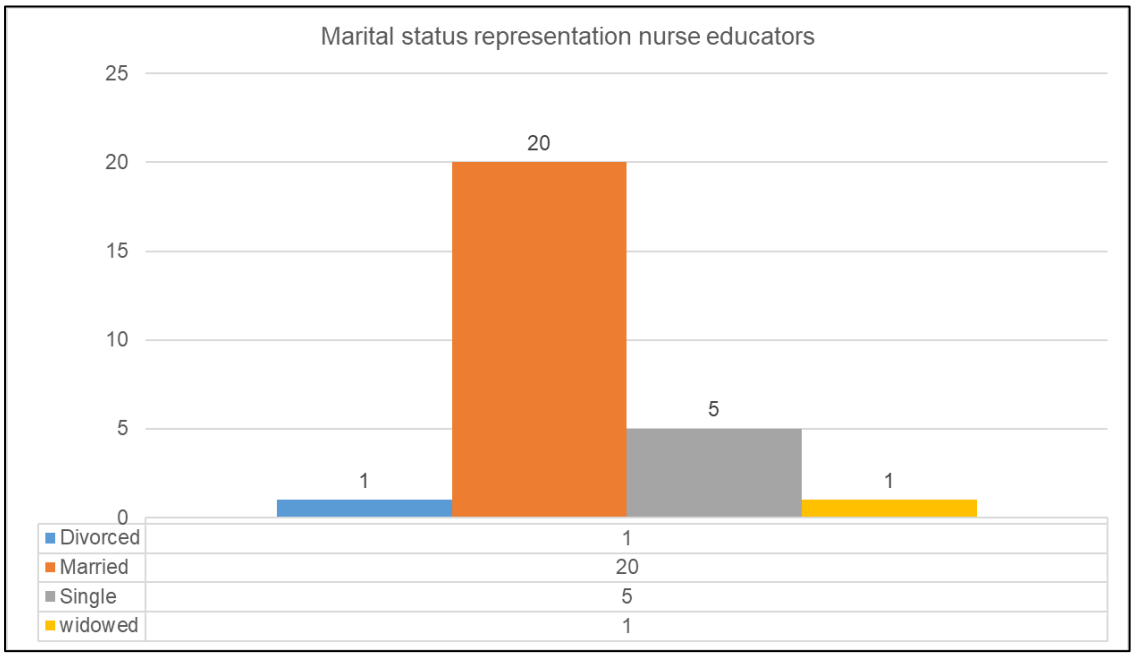


Figure 4.8 Marital status representation nurse educators: n=27

4.2.1.9. Programmes facilitated by nurse educators

The majority of the nurse educators fifteen (15) facilitate the basic nursing programmes, which include the R683 Bridging Course leading to registration as a General Nurse/Diploma in Nursing (R171) and Higher certificate in nursing (R169), and seven (7) of the nurse educators facilitate the post basic programmes which include the following: 6 Months In service certificate programmes and advanced diplomas. Table 5.1 depicts the Programmes facilitated by the nurse educators.

Programmes facilitated by nurse educators	
6 Months In service certificate	1
6 Months In service certificate in Critical Care/Advanced Diploma in Critical Care	1
6 Months In service certificate in Elementary Critical Care	2
6 Months In service certificate in Maternity nursing	1
6 Months In service certificate in Trauma and Emergency Nursing	1
6 Months In service certificate in Trauma and Emergency nursing/PGDIP in Emergency Nursing	1
Campus Head	1
Diploma in Nursing (R171)	5
Diploma in Nursing (R171)/Higher certificate in nursing (R169)	1
Diploma in Nursing (R171)/R683 Bridging Course leading to registration as a General Nurse	3
I oversee the quality of multiple programmes	1
Missed data	3
R683 Bridging Course leading to registration as a General Nurse	2
R683 Bridging Course leading to registration as a General Nurse/6 Months In service certificate	1
R683 Bridging Course leading to registration as a General Nurse/Diploma in Nursing (R171)/Higher certificate in nursing (R169)	3

Table 5.1 Programmes facilitated by nurse educators: n=27

4.2.1.10. Nurse educators age grouping

The nurse educator's ages range between thirty-four (34) to sixty-eight (68) years of age, with an average age of forty-nine (49) years. This confirms the majority of the nurse educators are from the generation X. Figure 4.9 depicts the age grouping of the nurse educators.

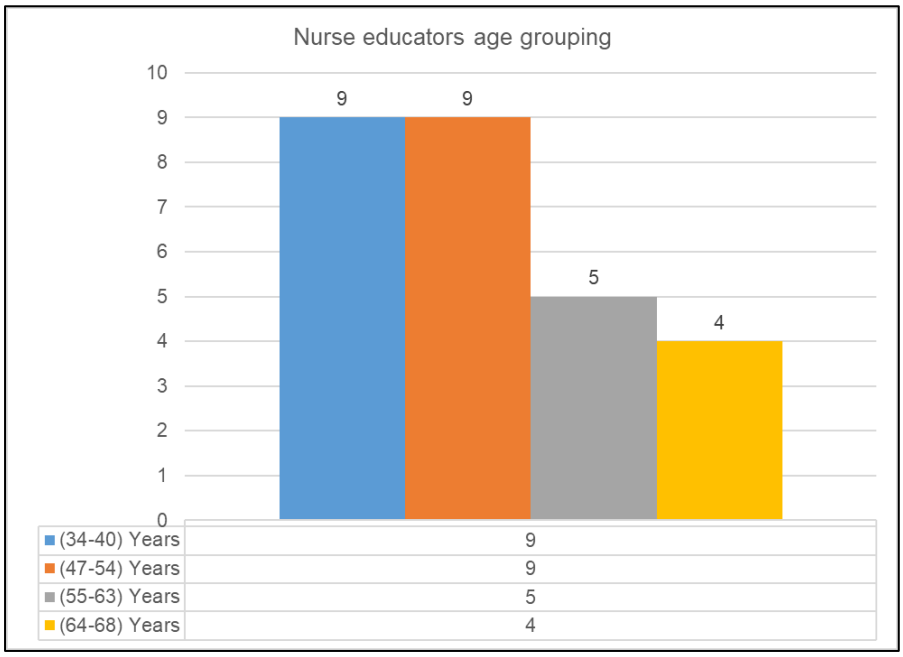


Figure 4.9 Nurse educators age grouping: n=27

4.2.2 Data Analysis

The data will be presented in the order of the findings.

The tool used was “A Survey for Measuring 21st Century Teaching and Learning: West Virginia 21st Century Teaching and Learning Survey [WVDE-CIS-28]” designed by, (Hixson, 2012).

The tool evaluates each portion of the survey, which includes a list of related activities (constructs), explanations of each construct, and only three (3) questions concerning perceptions of nurse educators.

The survey asks about 8 constructs related to each definition of the skill using an example from collaboration skills (e.g., having students work in groups to support collaboration). There were five possible answers: 1 "Almost never," 2 "A few times a semester’," 3, "1-3 times per month," 4, "1-3 times per week," and 5 "Almost daily."

In the survey the nurse educators were also questioned about their perceptions of how much they have taught and evaluated each skill, using critical thinking as an example. (a) I have tried to develop students' critical thinking skills; (b) Most students have learned critical thinking skills while in my class; and (c) I have been able to effectively assess students' critical thinking skills. Response choices were 1 ‘Not really’; 2 ‘To a minor extent’; 3 ‘To a moderate extent’; 4 ‘To a great extent’, 5 ‘To a very great extent’.

The 5-point Likert scale was reduced by the researcher and supervisor to facilitate analysis as follows:

a. < Less than once a month (was categorised between the almost never and a few times a semester).

b. > More than once a month (was categorised together with 1-3 times per month, 1-3 times per week and almost daily).

This reduction was effected as the data needed to be presented to the nurse educators and managers. The researcher and supervisor were of the opinion that the effected changes would facilitate comprehension when viewing the results - leading to better quality discussions.

4.2.2.1 Critical thinking skills

Critical thinking skills refer to students being able to analyse complex problems, investigate questions for which there are no clear-cut answers, evaluate different points of view or sources of information, and draw appropriate conclusions based on evidence and reasoning Hixson (2012).

Based on the responses from nurse educators and nursing students on the construct “critical thinking skills” the survey asked about educators’ teaching practices that might support students learning of 21st century skills. The following six questions were asked:

a. Compare information from different sources before completing a task or assignment.

b. Draw their own conclusions based on analysis of numbers, facts, or relevant information.

c. Summarise or create their own interpretation of what they have read or been taught.

d. Analyse competing arguments, perspectives, or solutions to a problem.

e. Develop a persuasive argument based on supporting evidence or reasoning?

f. Try to solve complex problems or answer questions that have no single correct solution or answer.

Figure 4.10 below depicts the results of critical thinking skills for nurse educators and nursing students.

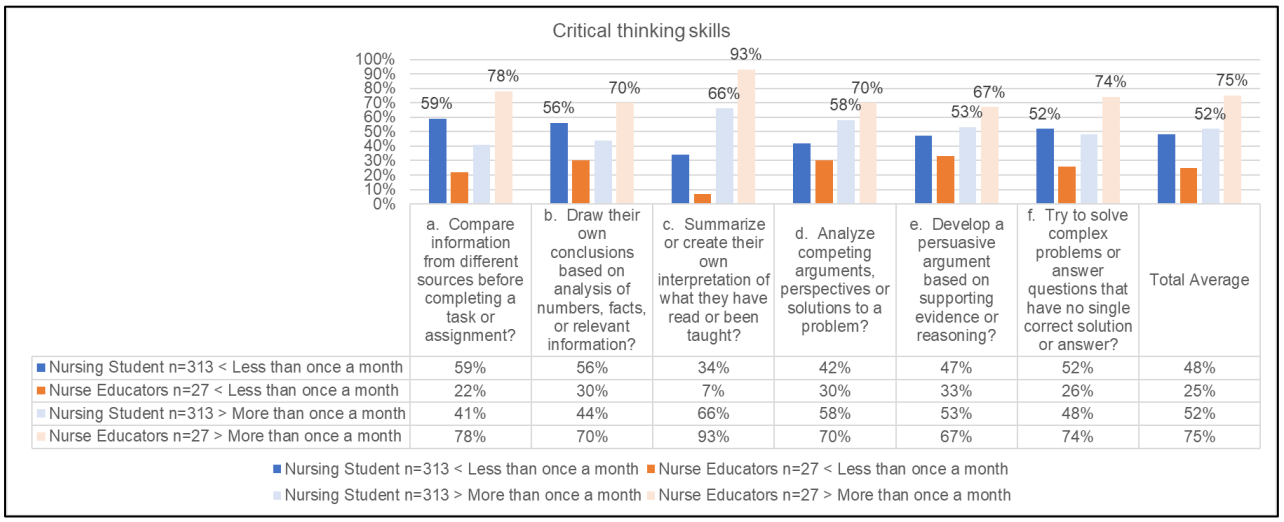


Figure 4.10 Critical thinking skills

The following data and findings emerged regarding critical thinking skills:

a. Compare information from different sources before completing a task or assignment.

Forty-one (41) percent of nursing students reported that they were required to compare information from different sources before completing a task or assignment more than once a month compared to seventy-eight (78) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty-nine (59) percent of nursing students reported that they were required to compare information from different sources before completing a task or assignment less than once a month compared to compared to twenty-two (22) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions to those of the nurse educators and that comparing information from different sources before completing a task or assignment was not being effectively conducted in relation to 21st century learning and teaching and this affects the development of critical thinking skills in nursing students.

b. Draw their own conclusions based on analysis of numbers, facts, or relevant information.

Forty-four (44) percent of nursing students reported that they were required to draw their own conclusions based on analysis of numbers, facts, or relevant information more than once a month compared to seventy (70) percent of nurse educators who reported that they requested nursing students to complete this task more than once a month.

Fifty-six (56) percent of nursing students reported that they were required to draw their own conclusions based on analysis of numbers, facts, or relevant information less than once a month compared to compared to thirty (30) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions to those of the nurse educators and that drawing their own conclusions based on analysis of numbers, facts, or relevant information was not being effectively conducted in relation to 21st century learning and teaching. This affects the development of critical thinking skills in nursing students.

c. Summarise or create their own interpretation of what they have read or been taught.

Sixty-six (66) percent of nursing students reported that they were required to summarise or create their own interpretation of what they have read or been taught more than once a month in compared to ninety three (93) percent of nurse educators who responded that they requested nursing students to complete this task more than once a month.

From the data provided, it is evident that nursing students and nurse educators concur that summarising or creating their own interpretation of what they have read or what was taught was being effectively conducted in relation to 21st century learning and teaching.

d. Analyse competing arguments, perspectives, or solutions to a problem?

Fifty-eight (58) percent of nursing students reported that they were required to analyse competing arguments, perspectives, or solutions to a problem more than once a month compared to seventy (70) percent reported that they requested nursing students to complete this task more than once a month.

From the data provided, it is evident that both nursing students and nurse educators concur that analysing competing arguments, perspectives, or solutions to a problem was being effectively conducted in relation to 21st century learning and teaching.

e. Develop a persuasive argument based on supporting evidence or reasoning?

Fifty-three (53) percent of nursing students reported that they were required to develop a persuasive argument based on supporting evidence or reasoning more than once a month compared to sixty-seven (67) percent of nurse educators who reported that they requested students to complete this task more than once a month.

From the data provided, it is evident that both nursing students and nurse educators concur that developing a persuasive argument based on supporting evidence or reasoning was being effectively conducted in relation to 21st century learning and teaching.

f. Try to solve complex problems or answer questions that have no single correct solution or answer?

Forty-eight (48) percent of nursing students reported that they were required to try to solve complex problems or answer questions that have no single correct solution or answer more than once a month compared to compared to seventy-four (74) percent of nurse educators who reported that they requested nursing students to complete this task more than once a month.

Fifty-two (52) percent of nursing students reported that they were required to try to solve complex problems or answer questions that have no single correct solution or answer less than once a month compared to twenty-six (26) percent of nurse educators who reported that they requested nursing students to complete this task less than once a month.

From the data provided, it is evident that nursing students felt differently to the nurse educators and that trying to solve complex problems or answer questions that have no single correct solution or answer was not being effectively conducted in relation to 21st century learning and teaching and this affects the development of critical thinking skills in nursing students.

Based on the responses from nurse educators and nursing students on the construct "Critical thinking skills" the survey asked about educators teaching practices that might support students' learning of 21st century skills. The following three (3) questions were asked:

a. I have tried to develop students critical thinking skills

b. Most students have learned critical thinking skills while in my class

c. I have been able to effectively assess students' critical thinking skills

Figure 4.11 depicts the response of the nurse educators perceptions of critical thinking skills see figure below.

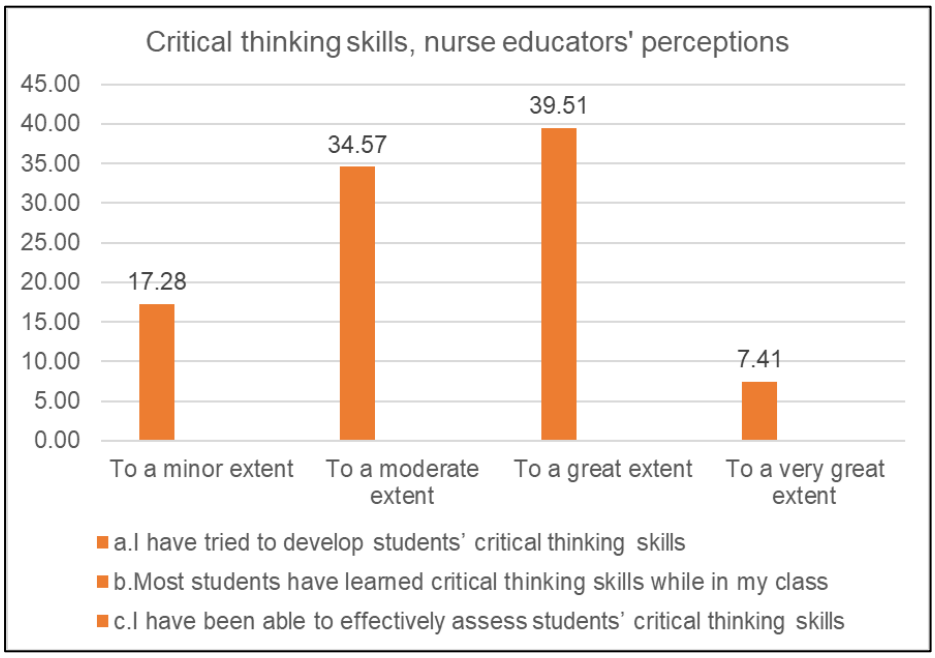


Figure 4.11 Critical thinking skills, nurse educators' perceptions

Based on the nurse educator's perception responses to all of the questions posed on the construct of critical thinking skills, they all said that it was facilitated to a great extent (nurse educators' responses of thirty-nine point fifty one (39.51) percent. These findings are in line with the overall findings of the questions about the practices or construct of nurse educators that were evaluated, where the final findings reveal that for all six questions taken together, seventy-five (75%) of all nurse educators agreed that they were promoting critical thinking skills appropriately for the 21st century.

Summary of findings regarding critical thinking skills

The following information emerged from all six questions based on comments from nurse educators and nursing students about the construct critical thinking skills:

Fifty-two (52) percent of nursing students reported that on the construct "critical thinking skills" was enhanced more than once a month in comparison to nurse educators were seventy-five (75) percent reported that on the construct critical thinking skills that it was facilitated more than once a month.

Forty-eight (48) percent of nursing students reported that the construct critical thinking skills was facilitated less than once a month compared to nurse educators where twenty-five (25) percent applied the construct critical thinking skills less than once a month.

The researcher noted a variance of twenty-three (23) percent between the nursing students and the nurse educators.

Both nursing students and nurse educators believe that learning and teaching about critical thinking abilities is a successful strategy for the 21st century as the results show that they indeed agreed that critical thinking was facilitated during their programmes.

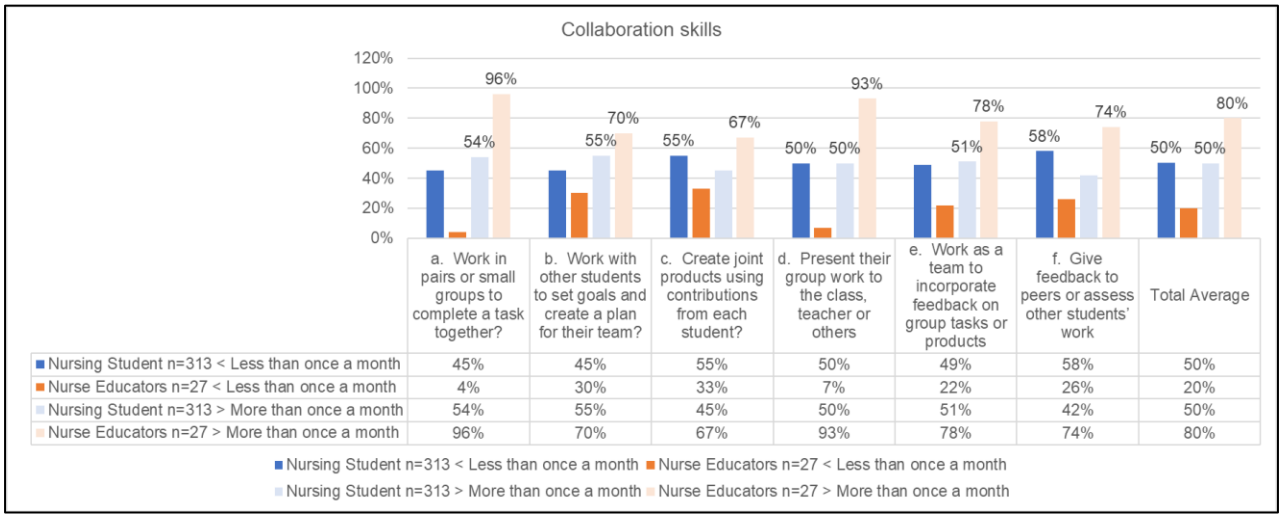
4.2.2.3 Collaboration skills

Collaboration skills refer to students being able to work together to solve problems or answer questions, to work effectively and respectfully in teams to accomplish a common goal and to assume shared responsibility for completing a task, (Hixson, 2012).

Based on the responses from nurse educators and nursing students on the construct collaboration skills the survey asked about educators teaching practices that might support students learning of 21st century skills the following six questions were asked:

a. Work in pairs or small groups to complete a task together.
b. Work with other students to set goals and create a plan for their team.
c. Create joint products using contributions from each student.
d. Present their group work to the class, teacher or others.
e. Work as a team to incorporate feedback on group tasks or products.
f. Give feedback to peers or assess other students' work.

Figure 4.12 below depicts the results of collaboration skills for nurse educators and nursing students.



	a. Work in pairs or small groups to complete a task together?	b. Work with other students to set goals and create a plan for their team?	c. Create joint products using contributions from each student?	d. Present their group work to the class, teacher or others	e. Work as a team to incorporate feedback on group tasks or products	f. Give feedback to peers or assess other students' work	Total Average
Nursing Student n=313 < Less than once a month	45%	45%	55%	50%	49%	58%	50%
Nurse Educators n=27 < Less than once a month	4%	30%	33%	7%	22%	26%	20%
Nursing Student n=313 > More than once a month	54%	55%	45%	50%	51%	42%	50%
Nurse Educators n=27 > More than once a month	96%	70%	67%	93%	78%	74%	80%

Figure 4.12 Collaboration skills

The following data and findings emerged regarding collaboration skills:

a. Work in pairs or small groups to complete a task together

Fifty-four (54) percent of nursing students reported that they were required to work in pairs or small groups to complete a task together more than once a month compared to ninety-six (96) percent of nurse educators who reported that they requested students to complete this task more than once a month.
From the data provided, it is evident that both nursing students and nurse educators concur that working in pairs or small groups to complete a task together was being effectively conducted in relation to 21st century learning and teaching.

b. Work with other students to set goals and create a plan for their team

Fifty-five (55) percent of nursing students reported that they were required to work with other students to set goals and create a plan for their team more than once a month compared to seventy (70) percent of nurse educators who reported that they requested students to complete this task more than once a month.
From the data provided, it is evident that both nursing students and nurse educators concur that working with other students to set goals and create a plan for their team was being effectively conducted in relation to 21st century learning and teaching.

c. Create joint products using contributions from each student

Forty-five (45) percent of nursing students reported that they were required to create joint products using contributions from each student more than once a month compared to sixty-seven (67) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty-five (55) percent of nursing students reported that they were required to create joint products using contributions from each student less than once a month compared to thirty-three (33) percent nurse educators who reported that they requested students to complete this task less than once a month. There is a variance of twenty-two (22)

percent between the nursing students and the nurse educators on both less or more than once a month.

From the data provided, it is evident that nursing students held differing opinions to those of the nurse educators and that creating joint products using contributions from each nursing student was not being effectively conducted in relation to 21st century learning and teaching and this affects the development of collaboration skills in nursing students.

d. Present their group work to the class, teacher or others

Fifty (50) percent of nursing students reported that they were required to present their group work to the class, teacher, or others more than once a month compared to ninety-three (93) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty (50) percent of nursing students reported that they were required to present their group work to the class, teacher or others less than once a month compared to seven (7) percent nurse educators who reported that they requested students to complete this task less than once a month. There is a variance of forty-three (43) percent between the nursing students and the nurse educators.

From the data provided, it is evident that nursing students were divided in their opinions as fifty (50) percent stated that they had to present their group work more than once a month and the other fifty (50) percent disagreed. This affects the development of collaboration skills in nursing students.

e. Work as a team to incorporate feedback on group tasks or products

Fifty-one (51) percent of nursing students reported that they were required to work as a team to incorporate feedback on group tasks or products more than once a month compared to seventy-eight (78) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Forty-nine (49) percent of nursing students reported that they were required to work as a team to incorporate feedback on group tasks or products less than once a month compared to twenty-two (22) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that both nursing students and nurse educators concur that working as a team to incorporate feedback on group tasks or products was being effectively conducted in relation to 21st century learning and teaching.

f. Give feedback to peers or assess other students' work

Forty-two (42) percent of nursing students reported that they were required to give feedback to peers or assess other students' work more than once a month compared to seventy-four (74) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty-eight (58) percent of nursing students reported that they were required to give feedback to peers or assess other students' work less than once a month compared to twenty-six (26) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions to those of the nurse educators and that when giving feedback to peers or assessing other students' work was not being effectively conducted in relation to 21st century learning and teaching and this affects the development of collaboration skills in nursing students.

Based on the responses from nurse educators and nursing students on the construct collaboration skills the survey asked about educators teaching practices that might support students' learning of 21st century skills the following three (3) questions were asked:

a. I have tried to develop students' collaboration skills
b. Most students have learned collaboration skills while in my class
c. I have been able to effectively assess students' collaboration skills

Figure 4.13 depicts the response of the nurse educators' perceptions of collaboration skills

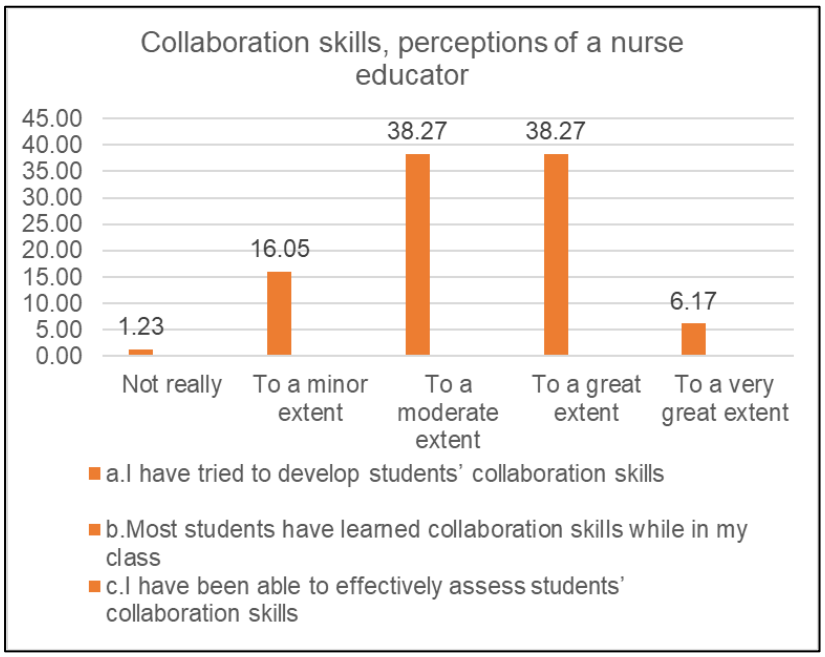


Figure 4.13 Collaboration skills, perceptions of a nurse educator

The researcher noticed that, based on the nurse educator's perception responses to all of the questions posed on the construct of collaboration skills, they all indicated that it was facilitated to a moderate extent or great extent (nurse educators' responses of thirty-eight-point twenty-seven (38.27) percent. These findings are in line with the overall findings of the questions about the practices or construct of nurse educators that were evaluated, where the final findings reveal that for all six questions taken together, eighty (80) percent of all nurse educators agreed that they were promoting collaboration skills appropriately for the 21st century.

Summary of findings regarding collaboration skills

The following information emerged from all six questions based on responses from nurse educators and nursing students about the construct collaboration skills:

Fifty (50) percent of nursing students reported that on the construct collaboration skills were enhanced more than once a month in comparison to nurse educators were eighty (80) percent reported that on the construct collaboration skills was facilitated more than once a month.

Both nursing students and nurse educators believe that learning and teaching about collaboration abilities is a successful strategy for the 21st century as the results show that they indeed agreed that collaboration was facilitated during their programmes.

4.2.2.2 Communication skills

Communication skills refer to students being able to organise their thoughts, data and findings and share these effectively through a variety of media, as well as orally and in writing (Hixson et al., 2012).

Based on the responses from nurse educators and nursing students on the construct communication skills the survey asked about educators teaching practices that might support students learning of 21st century skills the following data emerged from the five questions asked:

a. Structure data for use in written products or oral presentations (e.g., creating charts, tables, or graphs)
b. Convey their ideas using media other than a written paper (e.g., posters, video, blogs, etc.)
c. Prepare and deliver an oral presentation to the teacher or others
d. Answer questions in front of an audience
e. Decide how they will present their work or demonstrate their learning

Figure 4.14 depicts the results of communication skills for nurse educators and nursing students and is presented below

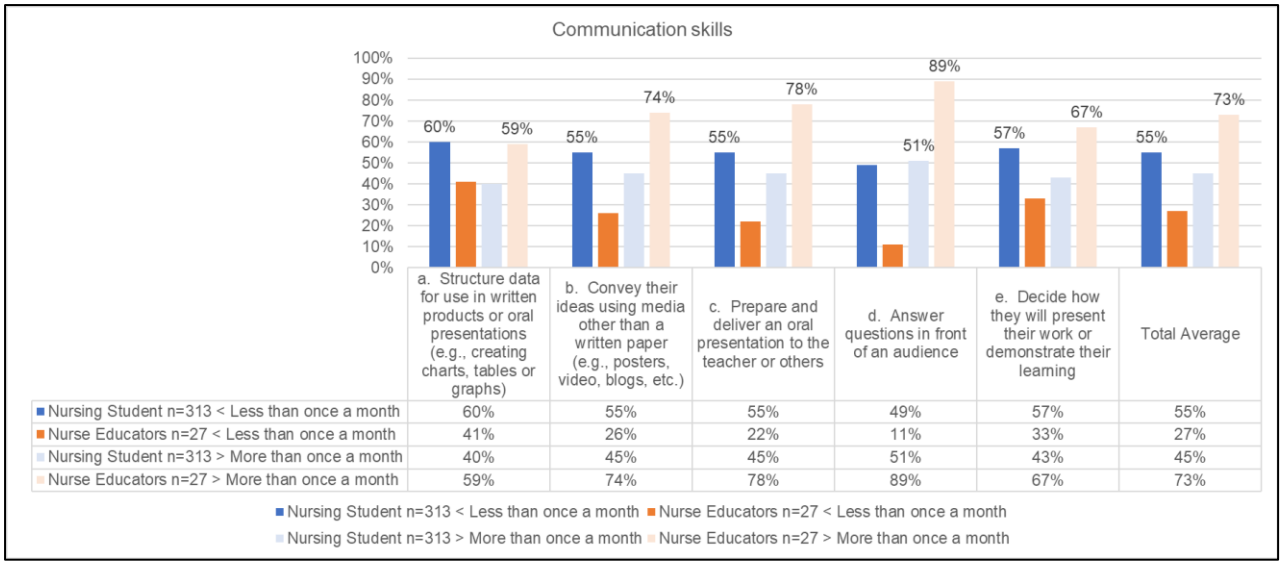


Figure 4.14 Communication skills

The following data and findings emerged regarding communication skills:

a. Structure data for use in written products or oral presentations (e.g., creating charts, tables, or graphs)

Forty (40) percent of nursing students reported that they were required to structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs) more than once a month compared to fifty-nine (59) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Sixty (60) percent of nursing students reported that they were required to structure data for use in written products or oral presentations (e.g., creating charts, tables or graphs) less than once a month compared to forty-one (41) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions to those of the nurse educators and that structuring data for use in written products or oral presentations (e.g., creating charts, tables or graphs) was not being effectively conducted in relation to 21st century learning and teaching and this affects the development of communication in nursing students.

b. Convey their ideas using media other than a written paper (e.g., posters, video, blogs, etc.)

Forty-five (45) percent of nursing students reported that they were required to convey their ideas using media other than a written paper (e.g., posters, video, blogs, etc.) more than once a month compared to seventy-four (74) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty-five (55) percent of nursing students reported that they were required to convey their ideas using media other than a written paper (e.g., posters, video, blogs, etc.) less than once a month compared to twenty-six (26) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions to those of the nurse educators and that conveying their ideas using media other than a written paper (e.g., posters, video, blogs, etc.) was not being effectively conducted in relation to 21st century learning and teaching and this affects the development of communication in nursing students.

c. Prepare and deliver an oral presentation to the teacher or others

Forty-five (45) percent of nursing students reported that they were required to prepare and deliver an oral presentation to the nurse educator or others more than once a month compared to seventy-eight (78) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty-five (55) percent of nursing students reported that they were required to prepare and deliver an oral presentation to the nurse educators or others less than once a month compared to twenty-two (22) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions to those of the nurse educators and that preparing and delivering an oral presentation to the nurse educators or others was not being effectively conducted in relation to 21st century learning and teaching and this affects the development of communication in nursing students.

d. Answer questions in front of an audience

Fifty-one (51) percent of nursing students reported that they were required to answer questions in front of an audience more than once a month compared to eighty-nine (89) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Forty-nine (49) percent of nursing students reported that they were required to answer questions in front of an audience less than once a month compared to eleven (11) percent of nurse educators reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that both nursing students and nurse educators concur that answering questions in front of an audience was being effectively conducted in relation to 21st century learning and teaching.

e. Decide how they will present their work or demonstrate their learning

Forty-three (43) percent of nursing students reported that they were required to decide how they will present their work or demonstrate their learning more than once a month compared to sixty-seven (67) percent of nurse educators who reported that they requested nursing students to complete this task more than once a month.

Fifty-seven (57) percent of nursing students reported that they were required to decide how they will present their work or demonstrate their learning less than once a month compared to thirty-three (33) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions felt differently to those of the response of the nurse educators and that deciding on how they will present their work or demonstrate their learning was not being effectively conducted in relation to 21st century learning and teaching and this affects the development of communication in nursing students.

Based on the responses from nurse educators and nursing students on the construct communication skills the survey asked about educators teaching practices that might support students' learning of 21st century skills the following three (3) questions were asked:

a. I have tried to develop students' communication skills
b. Most students have learned communication skills while in my class
c. I have been able to effectively assess students' communication skills

Figure 4.15 depicts the response of the nurse educators perceptions of communication skills

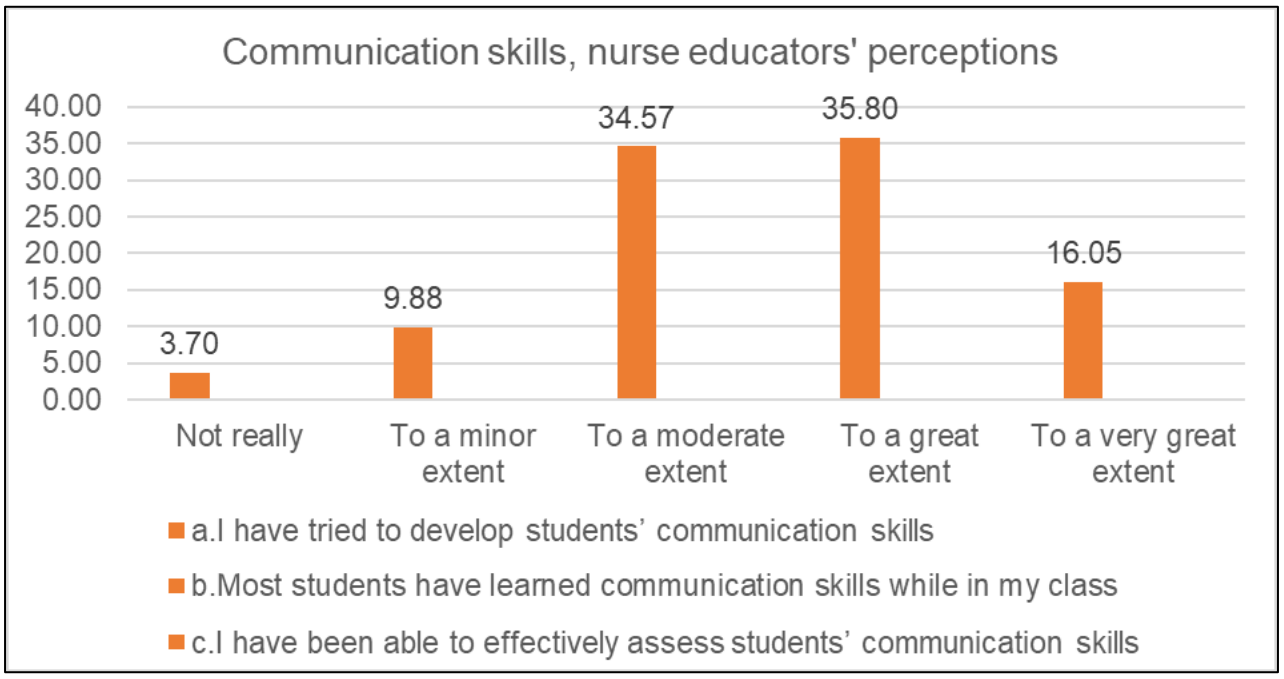


Figure 4.15 Communication skills, nurse educators' perceptions

Based on the nurse educator's perception and responses to all of the questions posed on the construct of communication skills, the educators indicated that communication

was facilitated to a great extent (nurse educators' responses of thirty-five-point eighty (35.80) percent. These findings are in line with the overall findings of the questions about the practices or construct of nurse educators that were evaluated, where the final findings reveal that for all five (5) questions taken together, seventy-three (73) percent of all nurse educators agreed that they were promoting communication skills appropriate for the 21st century.

Summary of findings regarding communication skills

The following information emerged from all five questions based on comments from nurse educators and nursing students about the construct communication skills:

Forty-five (45) percent of nursing students reported that on the construct communication skills was enhanced more than once a month in comparison to nurse educators were seventy-three (73) percent reported that on the construct communication skills was facilitated more than once a month.

Fifty-five (55) percent of nursing students reported that the construct communication skills was facilitated less than once a month compared to twenty-seven (27) percent of nurse educators indicated that they applied the construct communication skills less than once a month.

According to the research, nursing students and nurse educators do not agree with the belief that teaching and learning about communication abilities was being done effectively at this PNEI.

4.2.2.3 Creativity and innovation skills

Refers to students being able to generate and refine solutions to complex problems or tasks based on synthesis, analysis and then combining or presenting what they have learned in new and original ways. (Hixson, 2012).

Based on the responses from nurse educators and nursing students on the construct creativity and innovation skills the survey asked about educators teaching practices

that might support students' learning of 21st century skills the following data emerged from the five questions were asked:

a. Use idea creation techniques such as brainstorming or concept mapping
b. Generate their own ideas about how to confront a problem or question
c. Test out different ideas and work to improve them
d. Invent a solution to a complex, open-ended question or problem
e. Create an original product or performance to express their ideas

Figure 4.16 depicts the results of Creativity and innovation skills for nurse educators and nursing students is presented below

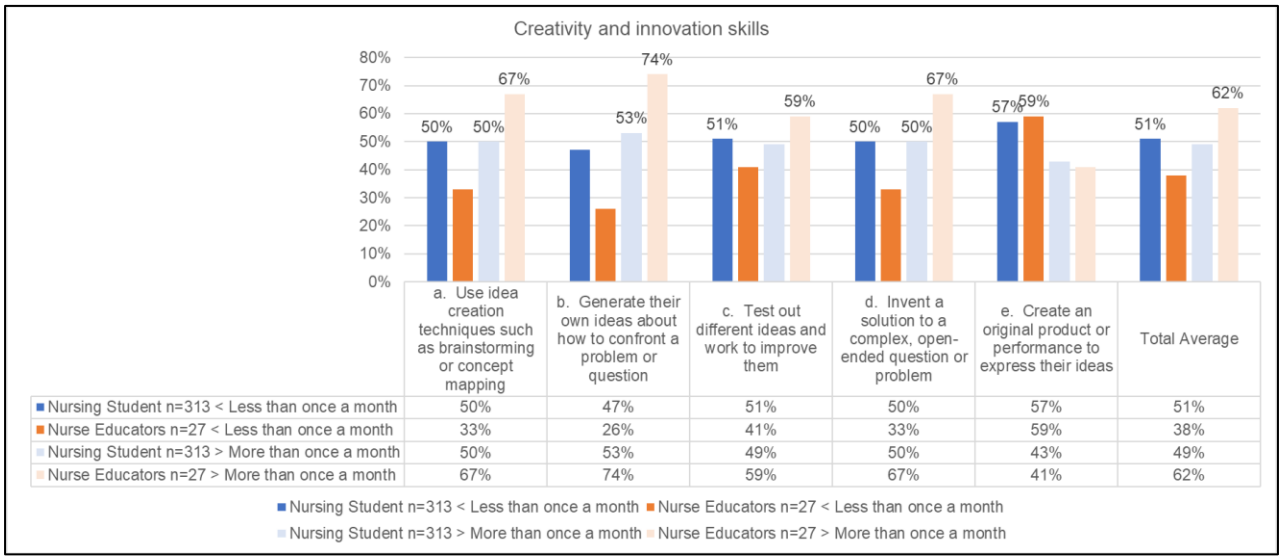


Figure 4.16 Creativity and innovation skills

The following data and findings emerged from creativity and innovation skills:

a. Use idea creation techniques such as brainstorming or concept mapping

Fifty (50) percent of nursing students reported that they were required to use idea creation techniques such as brainstorming or concept mapping more than once a month compared to sixty-seven (67) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty (50) percent of nursing students reported that they were required to use idea creation techniques such as brainstorming or concept mapping less than once a month compared to thirty-three (33) percent of nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions reporting that fifty (50) percent agreed that it was done less than once a month and fifty (50) percent indicating that it was compared more than once a month to that of the response of the nurse educators and that using idea creation techniques such as brainstorming or concept mapping was not being effectively conducted in relation to 21st century learning and teaching and this affects the development of creativity and innovation in nursing students.

b. Generate their own ideas about how to confront a problem or question

Fifty-three (53) percent of nursing students reported that they were required to generate their own ideas about how to confront a problem or question more than once a month compared to seventy-four (74) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Forty-seven (47) percent of nursing students reported that they were required to generate their own ideas about how to confront a problem or question less than once a month compared to twenty-six (26) percent of nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that both nursing students and nurse educators concur that generating their own ideas about how to confront a problem or question was being effectively conducted in relation to 21st century learning and teaching.

c. Test out different ideas and work to improve them

Forty-nine (49) percent of nursing students reported that they were required to test out different ideas and work to improve them more than once a month compared to fifty-nine (59) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty-one (51) percent of nursing students reported that they were required to test out different ideas and work to improve them less than once a month compared to forty-one (41) percent of nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions to those of the nurse educators and that testing out different ideas and work to improve them was not being effectively conducted in relation to 21st century learning and teaching and this affects the development of creativity and innovation in nursing students.

d. Invent a solution to a complex, open-ended question, or problem

Fifty (50) percent of nursing students reported that they were required to invent a solution to a complex, open-ended question, or problem more than once a month compared to sixty-seven (67) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty (50) percent of nursing students reported that they were required to invent a solution to a complex, open-ended question or problem less than once a month compared to thirty-three (33) percent of nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions reporting that fifty (50) percent agreed that it was done less than once a month and fifty (50) percent indicating more than once a month to that of the response of the nurse educators and that inventing a solution to a complex, open-ended question or problem was not being effectively conducted in relation to 21st century learning and teaching and this affects the development of creativity and innovation in nursing students.

e. Create an original product or performance to express their ideas

Forty-three (43) percent of nursing students reported that they were required to create an original product or performance to express their ideas more than once a month compared to forty-one (41) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty-seven (57) percent of nursing students reported that they were required to create an original product or performance to express their ideas less than once a month compared to fifty-nine (59) percent of nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that both nursing students and nurse educators concur that creating an original product or performance to express their ideas was not being effectively conducted in relation to 21st century learning and teaching.

Based on the responses from nurse educators and nursing students on the construct creativity and innovation skills the survey asked about educators teaching practices that might support students' learning of 21st century skills the following six questions were asked:

Figure 4.17 below depicts the response of the nurse educators perceptions of creativity and innovation skills

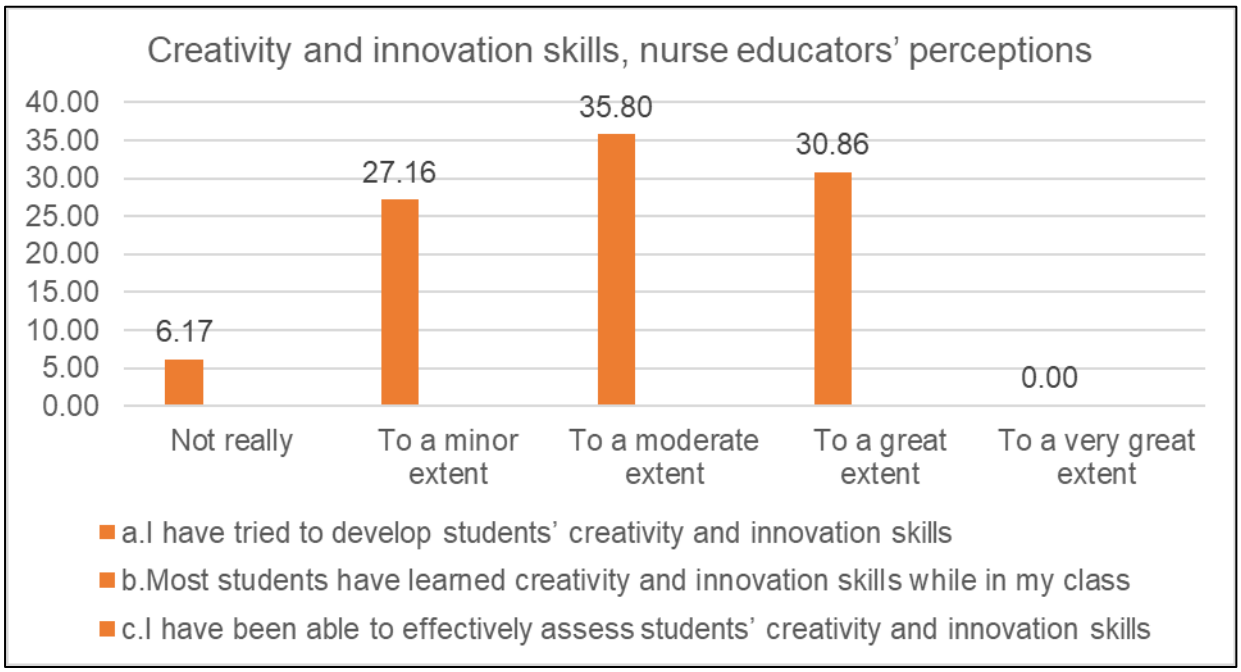


Figure 4.17 Creativity and innovation skills, nurse educators' perceptions

a. I have tried to develop students' creativity and innovation skills

b. Most students have learned creativity and innovation skills while in my class

c. I have been able to effectively assess students' creativity and innovation skills

The researcher observed that, based on the nurse educator's perception responses to all of the questions posed on the construct of creativity and innovation skills, they all said that it was facilitated to a moderate extent (nurse educators' responses of thirty five point eighty (35.80) percent. These findings are in line with the overall findings of the five (5) questions about the construct of nurse educators that was evaluated, where the final findings reveal that for all five questions taken together, sixty-two (62) percent of all nurse educators agreed that they were promoting creativity and innovation skills appropriately for the 21st century.

Summary of findings regarding creativity and innovation skills

The following information emerged from all five (5) questions based on comments from nurse educators and nursing students about the construct creativity and innovation skills:

Forty-nine (49) percent of nursing students reported that on the construct creativity and innovation skills were enhanced more than once a month in comparison to nurse educators were sixty-two (62) percent reported that on the construct creativity and innovation skills was facilitated more than once a month.

Fifty-one (51) percent of nursing students reported that the construct creativity and innovation skills was facilitated less than once a month compared to thirty-eight (38) percent applied the construct creativity and innovation skills less than once a month.

According to the research, nursing students and nurse educators do not agree with the belief that teaching and learning about creativity and innovation abilities was being done effectively at this PNEI.

4.2.2.5 Making global connections

Making global connections skills refers to students being able to understand global, geo-political issues including awareness of geography, culture, language, history, and literature from other countries, (Hixson, 2012).

Based on the responses from nurse educators and nursing students on the construct making global connections the survey asked about educators teaching practices that might support students learning of 21st century skills the following six questions were asked:

a. Study information about other countries or cultures
b. Use information or ideas that come from people in other countries or cultures
c. Discuss issues related to global interdependency (for example, global environment trends, global market economy)

d. Understand the life experiences of people in cultures besides their own

e. Study the geography of distant countries

f. Reflect on how their own experiences and local issues are connected to global issues

Figure 4.18 depicts the results of communication skills for nurse educators and nursing students is presented below

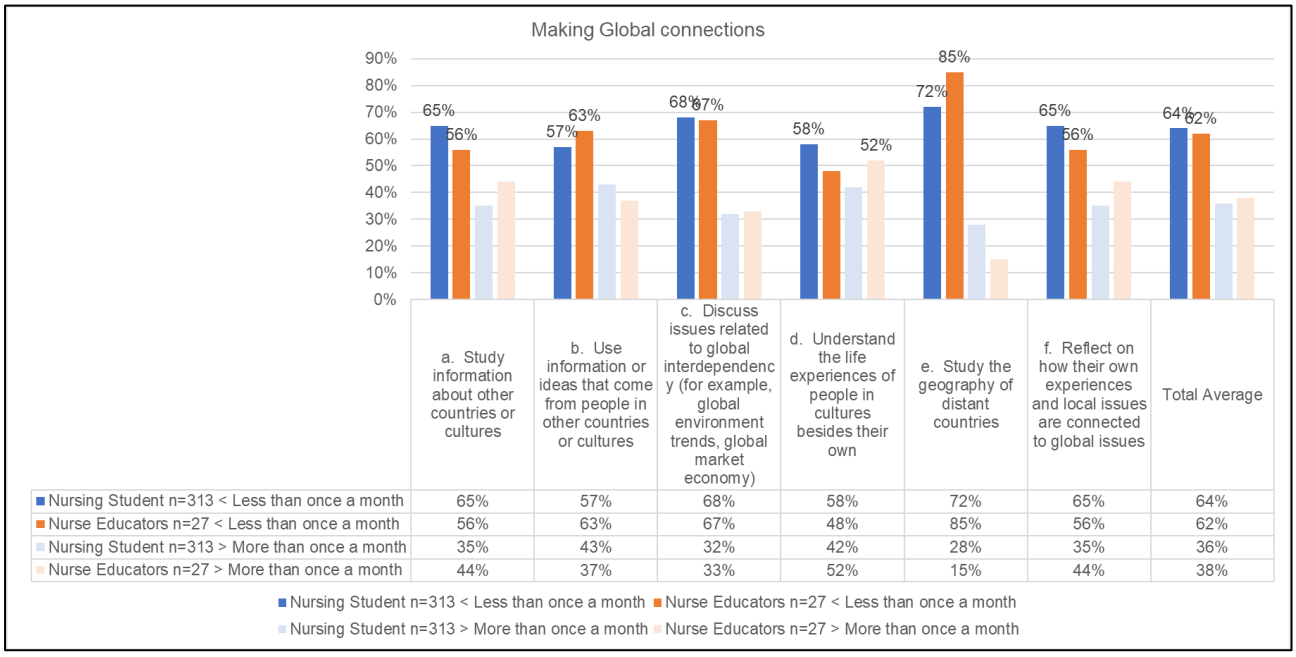


Figure 4.18 making global connections

The following data and findings emerged regarding making global connections:

a. Study information about other countries or cultures

Thirty-five (35) percent of nursing students reported that they were required to study information about other countries or cultures more than once a month compared to forty-four (44) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Sixty-five (65) percent of nursing students reported that they were required to study information about other countries or cultures less than once a month compared to fifty-

six (56) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that both nursing students and nurse educators concur that studying information about other countries or cultures was not being effectively conducted in relation to 21st century learning and teaching.

b. Use information or ideas that come from people in other countries or cultures

Forty-three (43) percent of nursing students reported that they were required to use information or ideas that come from people in other countries or cultures more than once a month compared to thirty-seven (37) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty-seven (57) percent of nursing students reported that they were required to use information or ideas that come from people in other countries or cultures less than once a month compared to sixty-three (63) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that both nursing students and nurse educators concur that studying information about other countries or cultures was not being effectively conducted in relation to 21st century learning and teaching.

c. Discuss issues related to global interdependency (for example, global environment trends, global market economy)

Thirty-two (32) percent of nursing students reported that they were required to discuss issues related to global interdependency (for example, global environment trends, global market economy) more than once a month compared to thirty-three (33) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Sixty-eight (68) percent of nursing students reported that they were required discuss issues related to global interdependency (for example, global environment trends, global market economy) less than once a month compared to sixty-seven (67) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that both nursing students and nurse educators concur that discussing issues related to global interdependency (for example, global environment trends, global market economy) was not being effectively conducted in relation to 21st century learning and teaching.

d. Understand the life experiences of people in cultures besides their own

Forty-two (42) percent of nursing students reported that they were required to understand the life experiences of people in cultures besides their own more than once a month compared to fifty-two (52) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty-eight (58) percent of nursing students reported that they were required to understand the life experiences of people in cultures besides their own less than once a month compared to forty-eight (48) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions to those of the nurse educators and that understanding life experiences of people in

cultures besides their own was not being effectively conducted in relation to 21st century learning and teaching and this affects the development of making global connections in nursing students.

e. Study the geography of distant countries

Twenty-eight (28) percent of nursing students reported that they were required to study the geography of distant countries more than once a month compared to fifteen (15) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Seventy-two (72) percent of nursing students reported that they were required to study the geography of distant countries less than once a month compared to eighty-five (85) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that both nursing students and nurse educators concur that studying the geography of distant countries was not being effectively conducted in relation to 21st century learning and teaching.

f. Reflect on how their own experiences and local issues are connected to global issues

Thirty-five (35) percent of nursing students reported that they were required to reflect on how their own experiences and local issues are connected to global issues more than once a month compared to forty-four (44) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Sixty-five (65) percent of nursing students reported that they were required to reflect on how their own experiences and local issues are connected to global issues less than once a month compared to fifty-six (56) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that both nursing students and nurse educators concur that reflecting on how their own experiences and local issues are connected to global issues was not being effectively conducted in relation to 21st century learning and teaching.

Nurse educators perception questions were asked to determine how much they have taught and evaluated nursing students using the construct Making global connections, nurse educators' we are asked the following three questions:

a. I have tried to develop students' skills in making global connections skills
b. Most students have learned to make global connections while in my class
c. I have been able to effectively assess students' skills in making global connections

Figure 4.19 depicts the response of the nurse educators perceptions of making global connections see below

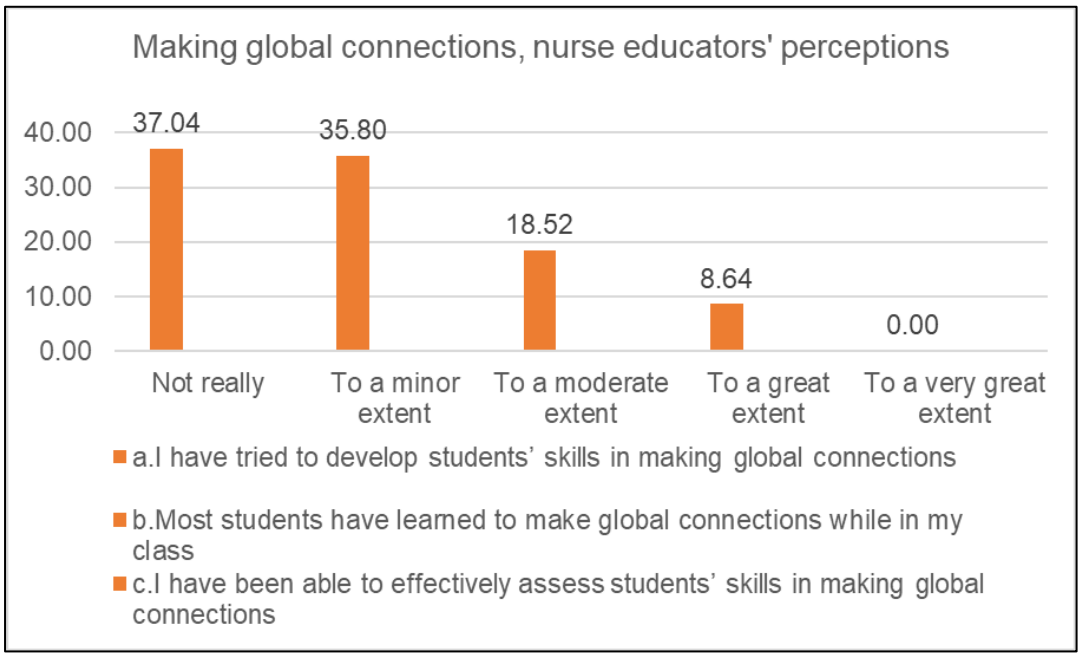


Figure 4.19 making global connections, nurse educators' perceptions

The researcher observed that, based on the nurse educator's perception responses to all of the questions posed on the construct of making global connections skills, they stated that it was facilitated not really (nurse educators' responses of thirty-seven-point four (37.04) percent. These findings are in line with the overall findings of the questions about the practices or construct of nurse educators that were evaluated, where the final findings reveal that for all six questions taken together, sixty-two (62) percent of all nurse educators agreed that they were not promoting making global connections skills appropriately for 21st century.

Summary of findings regarding making global connections:

The following information emerged from all six questions based on comments from nurse educators and nursing students about the construct making global connections skills:

Thirty-six (36) percent of nursing students reported that on the construct making global connections skills were enhanced more than once a month in comparison to nurse educators were thirty-eight (38) percent reported that on the construct making global connections skills was facilitated more than once a month.

Sixty-four (64) percent of nursing students reported that the construct making global connections skills was facilitated less than once a month compared to sixty-two (62) percent applied the construct making global connections skills less than once a month. There is a variance of two (2) percent between the nursing students and the nurse educators.

According to the research, both nursing students and nurse educators do not agree with the belief that teaching and learning about making global connections was being done effectively at this PNEI.

4.2.2.5 Making local connections skills

Making local connections skills refers to students being able to apply what they have learned to local contexts and community issues, (Hixson, 2012).

Based on the responses from nurse educators and nursing students on the construct making local connections the survey asked about educators teaching practices that might support students' learning of 21st century skills the following data emerged from the five questions were asked:

a. Investigate topics or issues that are relevant to their family or community
b. Apply what they are learning to local situations, issues or problems
c. Talk to one or more members of the community about a class project or activity
d. Analyse how different stakeholder groups or community members view an issue
e. Respond to a question or task in a way that weighs the concerns of different community members or groups

Figure 4.20 depicts the results of making local connections for nurse educators and nursing students is presented below

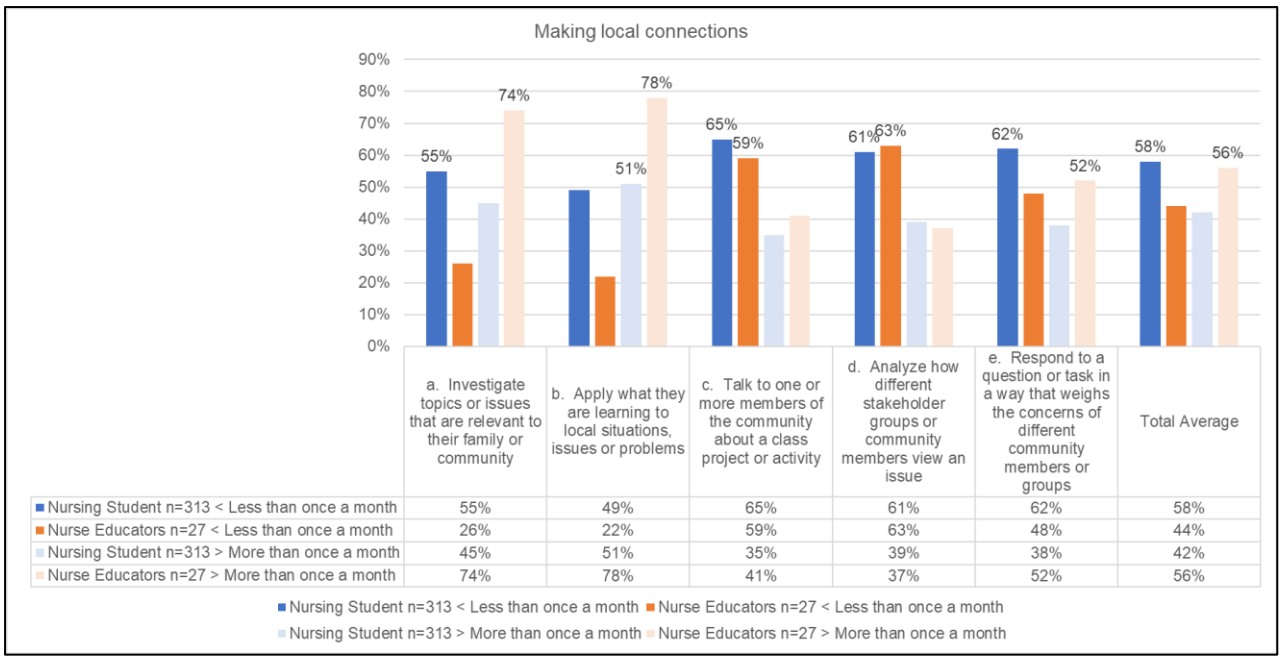


Figure 4.20 Making local connections

The following data and findings emerged from making local connections:

a. Investigate topics or issues that are relevant to their family or community

Forty-five (45) percent of nursing students reported that they were required to investigate topics or issues that are relevant to their family or community more than once a month compared to seventy-four (74) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty-five (55) percent of nursing students reported that they were required to investigate topics or issues that are relevant to their family or community less than once a month compared to twenty-six (26) percent of nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions to those of the nurse educators and that investigating topics or issues that are relevant to their family or community was not being effectively conducted in relation to 21st

century learning and teaching and this affects the development of making local connections in nursing students.

b. Apply what they are learning to local situations, issues or problems

Fifty-one (51) percent of nursing students reported that they were required to apply what they are learning to local situations, issues, or problems more than once a month compared to seventy-eight (78) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Forty-nine (49) percent of nursing students reported that they were required to apply what they are learning to local situations, issues, or problems less than once a month compared to twenty-two (22) percent of nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that both nursing students and nurse educators concur that applying what they are learning to local situations, issues or problems was being effectively conducted in relation to 21st century learning and teaching.

c. Talk to one or more members of the community about a class project or activity

Thirty-five (35) percent of nursing students reported that they were required to talk to one or more members of the community about a class project or activity more than once a month compared to forty-one (41) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Sixty-five (65) percent of nursing students reported that they were required to talk to one or more members of the community about a class project or activity less than once a month compared to fifty-nine (59) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that both nursing students and nurse educators concur that to talk to one or more members of the community about a class project or

activity was not being effectively conducted in relation to 21st century learning and teaching.

d. Analyse how different stakeholder groups or community members view an issue

Thirty-nine (39) percent of nursing students reported that they were required to analyse how different stakeholder groups or community members view an issue more than once a month compared to thirty-seven (37) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Sixty-one (61) percent of nursing students reported that they were required to analyse how different stakeholder groups or community members view an issue less than once a month compared to sixty-three (63) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that both nursing students and nurse educators concur that analysing how different stakeholder groups or community members view an issue was not being effectively conducted in relation to 21st century learning and teaching.

e. Respond to a question or task in a way that weighs the concerns of different community members or groups

Thirty-eight (38) percent of nursing students reported that they were required to respond to a question or task in a way that weighs the concerns of different community members or groups more than once a month compared to fifty-two (52) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Sixty-two (62) percent of nursing students reported that they were required to respond to a question or task in a way that weighs the concerns of different community members or groups less than once a month compared to forty-eight (48) percent of

nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions to those of the nurse educators and that responding to a question or tasks in a way that weighs the concerns of different community members or groups was not being effectively conducted in relation to 21st century learning and teaching and this affects the development of making local connections in nursing students.

Nurse educators perception questions were asked to determine how much they have taught and evaluated nursing students using the construct making local connections, nurse educators' we are asked the following three (3) questions:

a. I have tried to develop students' skills in making local connections skills
b. Most students have learned to make local connections while in my class
c. I have been able to effectively assess students' skills in making local connections

Figure 4.21 depicts the response of the nurse educators perceptions of making local connections, presented below

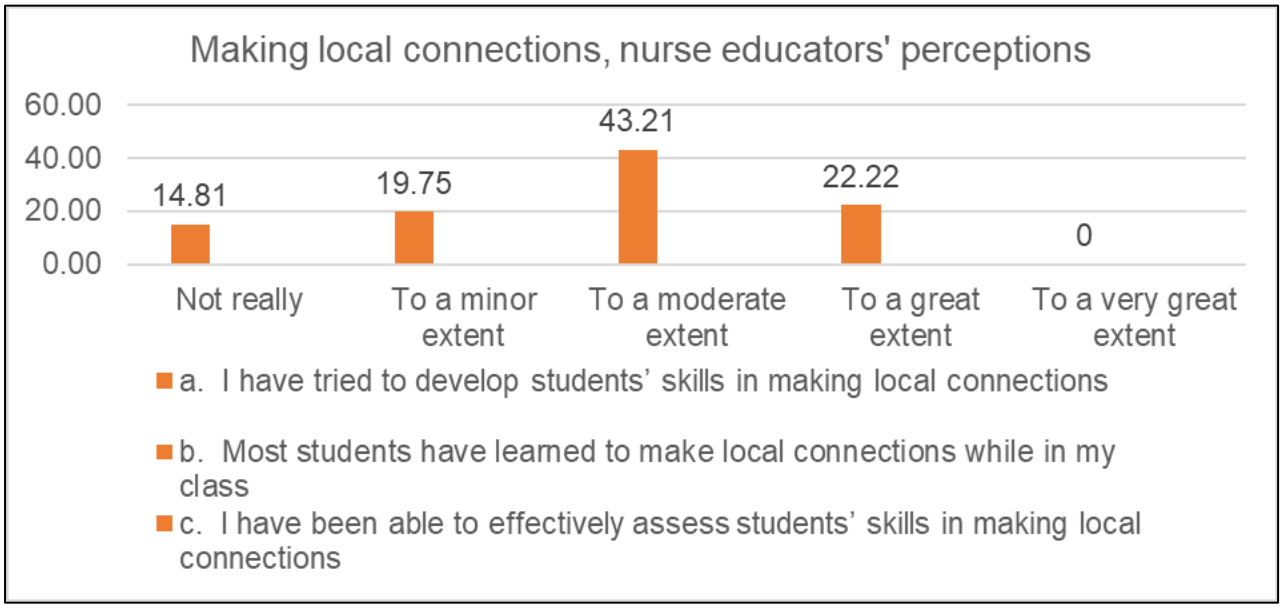


Figure 4.21 making local connections, nurse educators' perceptions

The researcher observed that, based on the nurse educator's perception responses to all of the questions posed on the construct of making local connections skills, they all said that it was facilitated to a moderate extent (nurse educators' responses of forty three point twenty-one (43.21) percent. These findings are not in line with the overall findings of the five (5) questions about the practices or construct of nurse educators that were evaluated, where the final findings reveal that for all five questions taken together, fifty (56) percent of all nurse educators agreed that they were promoting making local connections skills appropriately for 21st century.

Summary of findings regarding making local connections:

The following information emerged from all five (5) questions based on responses from the nurse educators and nursing students about the construct making local connections skills:

Forty-two (42) percent of nursing students reported that on the construct making local connections skills were enhanced more than once a month in comparison to nurse educators were fifty-six (56) percent reported by the nurse educators that on the construct making local connections skills were facilitated more than once a month.

Fifty-eight (58) percent of nursing students reported that the construct making local connections skills was facilitated less than once a month compared to forty-four (44) percent applied the construct making local connections skills less than once a month.

According to the research, nursing students and nurse educators do not agree with the belief that teaching and learning about creativity and innovation abilities was being done effectively at this PNEI.

4.2.2.6 Self-direction skills

Self-direction skills refer to students being able to take responsibility for their learning by identifying topics to pursue and processes for their own learning and being able to review their own work and respond to feedback, (Hixson, 2012).

Based on the responses from nurse educators and nursing students on the construct self-direction skills the survey asked about educators teaching practices that might support students learning of 21st century skills the following data emerged from the seven questions were asked:

a. Take initiative when confronted with a difficult problem or question

b. Choose their own topics of learning or questions to pursue

c. Plan the steps they will take to accomplish a complex task

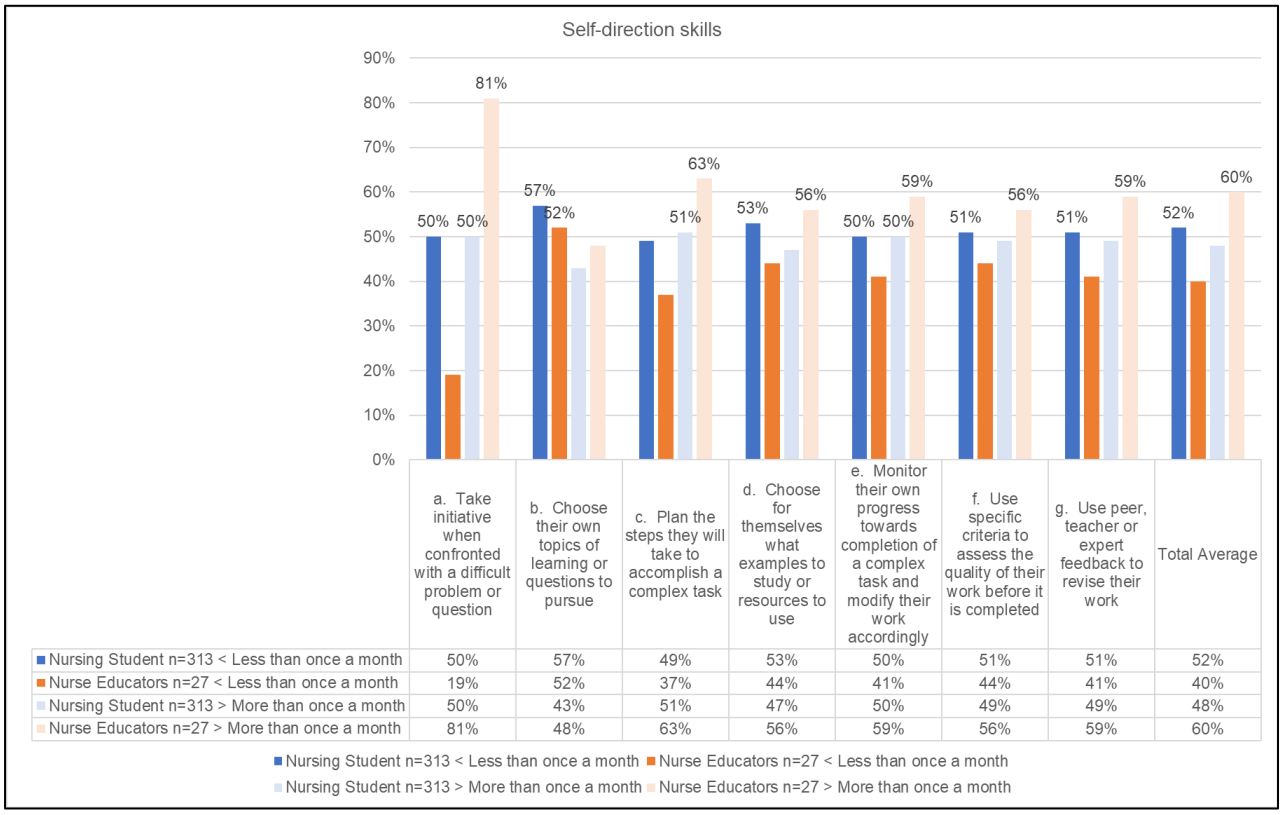
d. Choose for themselves what examples to study or resources to use

e. Monitor their own progress towards completion of a complex task and modify their work accordingly

f. Use specific criteria to assess the quality of their work before it is completed

g. Use peer, teacher, or expert feedback to revise their work

Figure 4.22 depicts the results of self-direction skills for nurse educators and nursing students and is presented below



	a. Take initiative when confronted with a difficult problem or question	b. Choose their own topics of learning or questions to pursue	c. Plan the steps they will take to accomplish a complex task	d. Choose for themselves what examples to study or resources to use	e. Monitor their own progress towards completion of a complex task and modify their work accordingly	f. Use specific criteria to assess the quality of their work before it is completed	g. Use peer, teacher or expert feedback to revise their work	Total Average
Nursing Student n=313 < Less than once a month	50%	57%	49%	53%	50%	51%	51%	52%
Nurse Educators n=27 < Less than once a month	19%	52%	37%	44%	41%	44%	41%	40%
Nursing Student n=313 > More than once a month	50%	43%	51%	47%	50%	49%	49%	48%
Nurse Educators n=27 > More than once a month	81%	48%	63%	56%	59%	56%	59%	60%

Figure 4.22 Self-direction skills

The following data and findings emerged from self-direction skills:

a. Take initiative when confronted with a difficult problem or question

Fifty (50) percent of nursing students reported that they were required to take initiative when confronted with a difficult problem or question more than once a month compared to eighty-one (81) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty (50) percent of nursing students reported that they were required to take initiative when confronted with a difficult problem or question less than once a month compared to nineteen (19) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions with an equal split between fifty (50) percent whereby they agreed that it was done less and more times per month when taking initiative when confronted with a difficult problem or question in relation to 21st century learning and teaching and this affects the development of self-direction skills in nursing students.

b. Choose their own topics of learning or questions to pursue

Forty-three (43) percent of nursing students reported that they were required to choose their own topics of learning or questions to pursue more than once a month compared to forty-eight (48) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty-seven (57) percent of nursing students reported that they were required to choose their own topics of learning or questions to pursue less than once a month compared to fifty-two (52) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that both nursing students and nurse educators concur that choosing their own topics of learning or questions to pursue is not being effectively conducted in relation to 21st century learning and teaching.

c. Plan the steps they will take to accomplish a complex task

Fifty-one (51) percent of nursing students reported that they were required to plan the steps they will take to accomplish a complex task more than once a month compared to sixty-three (63) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Forty-nine (49) percent of nursing students reported that they were required to plan the steps they will take to accomplish a complex task less than once a month compared to thirty-seven (37) percent nurse educators who reported that they requested students to complete this task less than once a month.
From the data provided, it is evident that both nursing students and nurse educators concur that planning the steps they will take to accomplish a complex task was being effectively conducted in relation to 21st century learning and teaching.

d. Choose for themselves what examples to study or resources to use

Forty-seven (47) percent of nursing students reported that they were required to choose for themselves what examples to study or resources to use more than once a month compared to fifty-six (56) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty-three (53) percent of nursing students reported that they were required to choose for themselves what examples to study or resources to use less than once a month compared to forty-four (44) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions to those of the nurse educators and that choosing for themselves what examples to study or resources to use was not being effectively conducted in relation to 21st century

learning and teaching and this affects the development of self-direction skills in nursing students.

e. Monitor their own progress towards completion of a complex task and modify their work accordingly

Fifty (50) percent of nursing students reported that they were required to monitor their own progress towards completion of a complex task and modify their work accordingly more than once a month compared to fifty-nine (59) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty (50) percent of nursing students reported that they were required to monitor their own progress towards completion of a complex task and modify their work accordingly less than once a month compared to forty-one (41) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions an equal split between fifty (50) percent whereby they agreed that it was done less and more times per month when monitoring their own progress towards completion of a complex task and modifying their work accordingly in relation to 21st century learning and teaching and this affects the development of self-direction skills in nursing students.

f. Use specific criteria to assess the quality of their work before it is completed

Forty-nine (49) percent of nursing students reported that they were required to use specific criteria to assess the quality of their work before it is completed more than once a month compared to fifty-six (56) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty-one (51) percent of nursing students reported that they were required to use specific criteria to assess the quality of their work before it is completed less than once

a month compared to forty-four (44) percent of nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions to those of the nurse educators and that using specific criteria to assess the quality of their work before it is completed was not being effectively conducted in relation to 21st century learning and teaching and this affects the development of self-direction skills in nursing students.

g. Use peer, teacher, or expert feedback to revise their work

Forty-nine (49) percent of nursing students reported that they were required to use peer, teacher or expert feedback to revise their work more than once a month compared to fifty-nine (59) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty-one (51) percent of nursing students reported that they were required to use peer, teacher or expert feedback to revise their work less than once a month compared to forty-one (41) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions to those of the nurse educators and that using peer, teacher, or expert feedback to revise their work was not being effectively conducted in relation to 21st century learning and teaching and this affects the development of self-direction skills in nursing students.

Nurse educators' perception questions were asked to determine how much they have taught and evaluated nursing students using the construct Self-direction skills, nurse educators' we are asked the following three (3) questions:

a. I have tried to develop students' self-direction skills
b. Most students have learned self-direction skills while in my class
c. I have been able to effectively assess students' self-direction skills

Figure 4.23 depicts the response of the nurse educators perceptions of self-direction skills, presented below

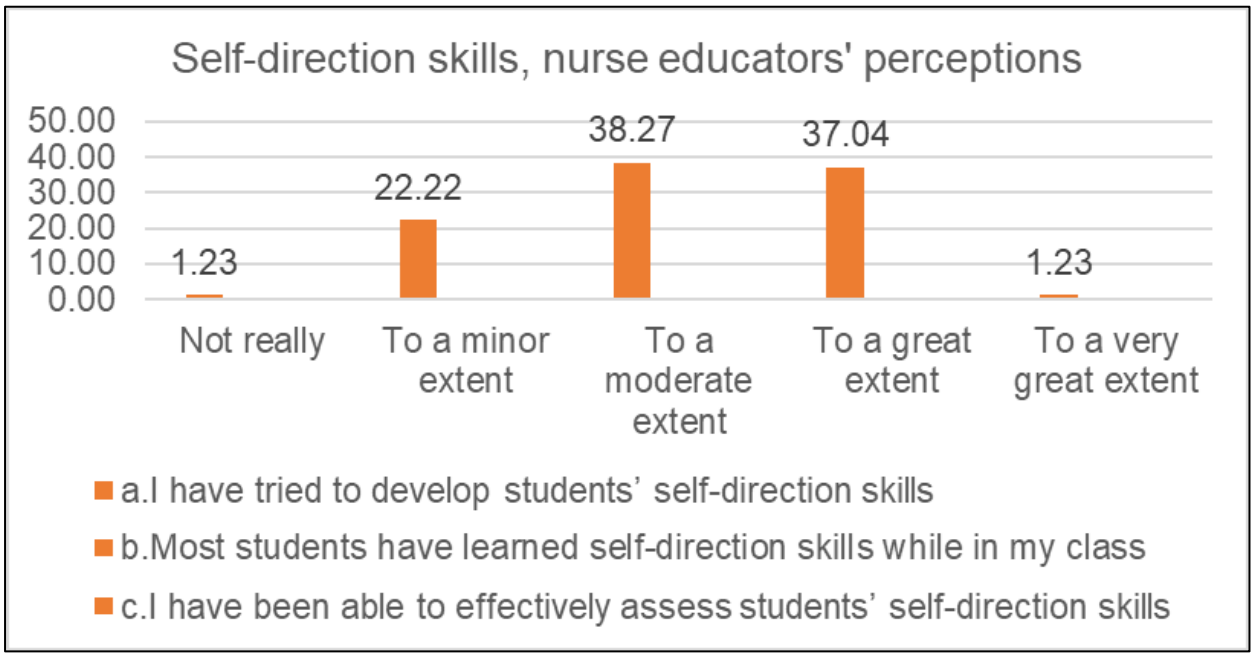


Figure 4.23 Self-direction skills, nurse educators' perceptions

The researcher observed that, based on the nurse educator's perception responses to all of the questions posed on the construct of self-direction skills, they all said that it was facilitated to a moderate extent (nurse educators' responses of thirty-eight point twenty-seven (38.27) percent. These findings are in line with the overall findings of the seven (7) questions about the practices or construct of nurse educators that were evaluated, where the final findings reveal that for all seven (7) constructs taken together, sixty (60) percent of all nurse educators agreed that they were promoting self-direction skills appropriate for the 21st century.

Summary of findings regarding self-direction skills:

The following information emerged from all seven (7) questions based on comments from nurse educators and nursing students about the construct self-direction skills: Forty-eight (48) percent of nursing students reported that on the construct self-direction skills were enhanced more than once a month in comparison to nurse

educators were sixty (60) percent reported that on the construct self-direction skills was facilitated more than once a month.

Fifty-two (52) percent of nursing students reported that the construct self-direction skills was facilitated less than once a month compared to forty (40) percent applied the construct self-direction skills less than once a month.

According to the research, nursing students and nurse educators do not agree with the belief that teaching and learning about self-directions skills was being done effectively at this PNEI.

4.2.2.7 Using technology as a tool for learning

Using technology as a tool for learning refers to students being able to manage their learning and produce products using appropriate information and communication technologies, (Hixson, 2012).

Based on the responses from nurse educators and nursing students on the construct using technology as a tool for learning the survey asked about educators teaching practices that might support students learning of 21st century skills the following data emerged from the eight questions asked:

a. Use technology or the Internet for self-instruction (e.g., Kahn Academy or other videos, tutorials, self-instructional websites, etc.)
b. Select appropriate technology tools or resources for completing a task
c. Evaluate the credibility and relevance of online resources
d. Use technology to analyse information (e.g., databases, spreadsheets, graphic programs, etc.)
e. Use technology to help them share information (e.g., multi-media presentations using sound or video, presentation software, blogs, podcasts, etc.)
f. Use technology to support teamwork or collaboration (e.g., shared workspaces, email exchanges, giving and receiving feedback, etc.)
g. Use technology to interact directly with experts or members of local/global communities

h. Use technology to keep track of their work on extended tasks or assignments

Figure 4.24 depicts the results of communication skills for nurse educators and nursing students is presented below

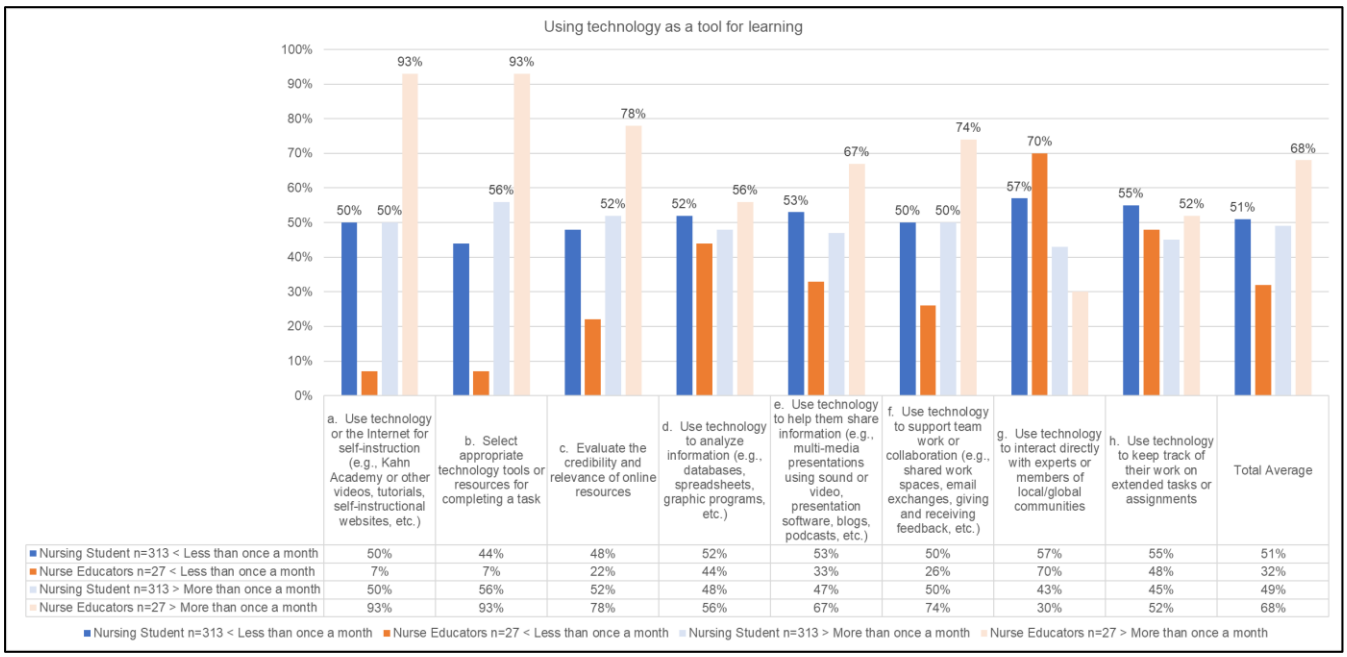


Figure 4.24 Using technology as a tool for learning

The following data and findings emerged from using technology as a tool for learning:

a. Use technology or the Internet for self-instruction (e.g., Kahn Academy or other videos, tutorials, self-instructional websites, etc.)

Fifty (50) percent of nursing students reported that they were required to use technology or the Internet for self-instruction (e.g., Kahn Academy or other videos, tutorials, self-instructional websites, etc.) more than once a month compared to nighty-three (93) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty (50) percent of nursing students reported that they were required to use technology or the Internet for self-instruction (e.g., Kahn Academy or other videos,

tutorials, self-instructional websites, etc.) less than once a month compared to seven (7) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions an equal split between fifty (50) percent whereby they agreed that it was done less and more times per month when using technology or the Internet for self-instruction (e.g., Kahn Academy or other videos, tutorials, self-instructional websites, etc.) in relation to 21st century learning and teaching and this affects the development of using technology as a tool for learning in nursing students.

b. Select appropriate technology tools or resources for completing a task

Fifty-six (56) percent of nursing students reported that they were required to select appropriate technology tools or resources for completing a task more than once a month compared to nighty-three (93) percent of nurse educators who reported that they requested students to complete this task more than once a month.

From the data provided, it is evident that both nursing students and nurse educators concur that selecting appropriate technology tools or resources for completing a task was being effectively conducted in relation to 21st century learning and teaching.

c. Evaluate the credibility and relevance of online resources

Fifty-two (52) percent of nursing students reported that they were required to evaluate the credibility and relevance of online resources more than once a month compared to seventy-eight (78) percent of nurse educators who reported that they requested students to complete this task more than once a month.

From the data provided, it is evident that both nursing students and nurse educators concur that evaluating the credibility and relevance of online resources was being effectively conducted in relation to 21st century learning and teaching.

d. Use technology to analyse information (e.g., databases, spreadsheets, graphic programs, etc.)

Forty-eight (48) percent of nursing students reported that they were required to use technology to analyse information (e.g., databases, spreadsheets, graphic programs, etc.) more than once a month compared to fifty-six (56) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty-two (52) percent of nursing students reported that they were required to use technology to analyse information (e.g., databases, spreadsheets, graphic programs, etc.) less than once a month compared to forty-four (44) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions to those of the nurse educators and that using technology to analyse information (e.g., databases, spreadsheets, graphic programs, etc.) was not being effectively conducted in relation to 21st century learning and teaching and this affects the using technology as a tool for learning in nursing students.

e. Use technology to help them share information (e.g., multi-media presentations using sound or video, presentation software, blogs, podcasts, etc.)

Forty-seven (47) percent of nursing students reported that they were required to use technology to help them share information (e.g., multi-media presentations using sound or video, presentation software, blogs, podcasts, etc.) more than once a month compared to sixty-seven (67) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty-three (53) percent of nursing students reported that they were required to use technology to help them share information (e.g., multi-media presentations using sound or video, presentation software, blogs, podcasts, etc.) less than once a month compared to thirty-three (33) percent of nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions to those of the nurse educators and that using technology to help them share information (e.g., multi-media presentations using sound or video, presentation software, blogs, podcasts, etc.) was not being effectively conducted in relation to 21st century learning and teaching and this affects the using technology as a tool for learning in nursing students.

f. Use technology to support teamwork or collaboration (e.g., shared workspaces, email exchanges, giving and receiving feedback, etc.)

Fifty (50) percent of nursing students reported that they were required to use technology to support teamwork or collaboration (e.g., shared workspaces, email exchanges, giving and receiving feedback, etc.) more than once a month compared to seventy-four (74) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty (50) percent of nursing students reported that they were required to use technology to support teamwork or collaboration (e.g., shared workspaces, email exchanges, giving and receiving feedback, etc.) less than once a month compared to twenty-six (26) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that nursing students held differing opinions an equal split between fifty (50) percent whereby they agreed that it was done less and more times per month when using technology to support team work or collaboration (e.g., shared work spaces, email exchanges, giving and receiving feedback, etc.) in relation to 21st century learning and teaching and this affects the development of using technology as a tool for learning in nursing students.

g. Use technology to interact directly with experts or members of local/global communities

Forty-three (43) percent of nursing students reported that they were required to use technology to interact directly with experts or members of local/global communities more than once a month compared to thirty (30) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty-seven (57) percent of nursing students reported that they were required to use technology to interact directly with experts or members of local/global communities less than once a month compared to seventy (70) percent nurse educators who reported that they requested students to complete this task less than once a month.

From the data provided, it is evident that both nursing students and nurse educators concur that using technology to interact directly with experts or members of local/global communities is not being effectively conducted in relation to 21st century learning and teaching.

h. Use technology to keep track of their work on extended tasks or assignments

Forty-five (45) percent of nursing students reported that they were required to use technology to keep track of their work on extended tasks or assignments more than once a month compared to fifty-two (52) percent of nurse educators who reported that they requested students to complete this task more than once a month.

Fifty-five (55) percent of nursing students reported that they were required to use technology to keep track of their work on extended tasks or assignments less than once a month compared to forty-eight (48) percent of nurse educators who reported that they requested students to complete this task less than once a month. There is a variance of seven (7) percent between the nursing students and the nurse educators.

From the data provided, it is evident that nursing students held differing opinions to those of the nurse educators and that using technology to keep track of their work on

extended tasks or assignments was not being effectively conducted in relation to 21st century learning and teaching and this affects the development of using technology as a tool for learning in nursing students.

Nurse educators' perception questions were asked to determine how much they have taught and evaluated nursing students using the construct using technology as a tool for learning, nurse educators' we are asked the following three (3) questions:

a. I have tried to develop students' skills in using technology as a tool for learning

b. Most students have learned to use technology as a tool for learning while in my class

c. I have been able to effectively assess students' skills in using technology for learning

Figure 4.25 depicts the response of the nurse educators' perceptions of using technology as a tool for learning, presented below

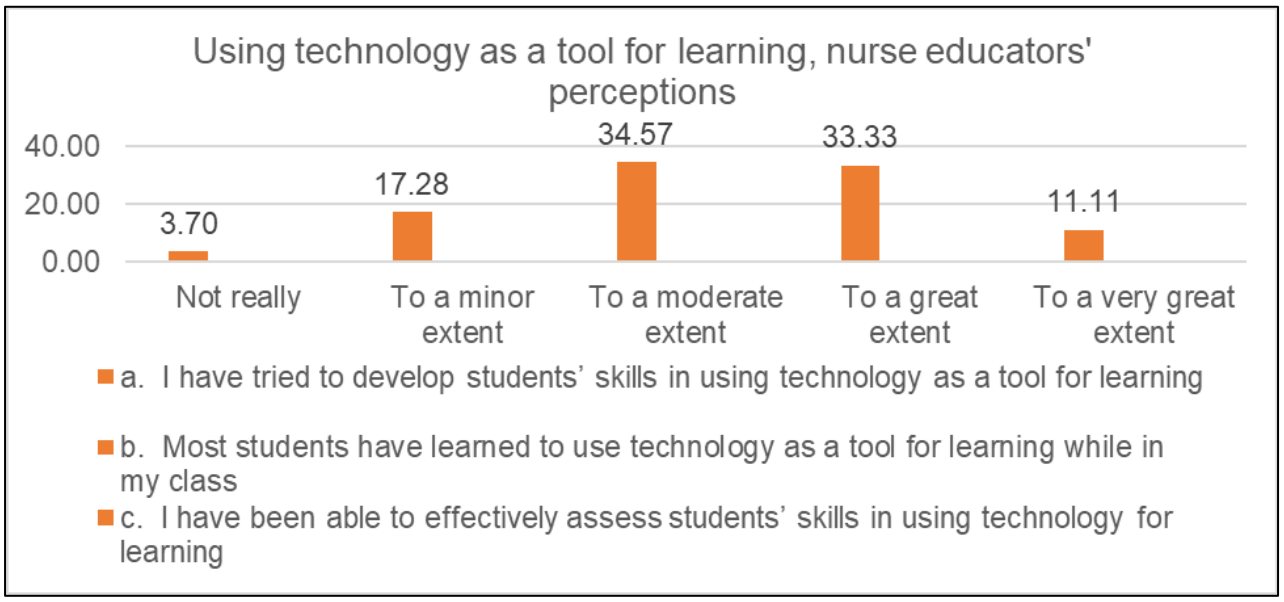


Figure 4.25 Using technology as a tool for learning, nurse educators' perceptions

The researcher observed that, based on the nurse educator's perception responses to all of the questions posed on the construct of using technology as a tool for learning, they all said that it was facilitated to a moderate extent (nurse educators' responses of thirty four point fifty seven (34.57) percent. These findings are in line with the overall findings of the eight (8) questions about the practices or construct of nurse educators that were evaluated, where the final findings reveal that for all eight (8) questions taken together, sixty-eight (68) percent of all nurse educators agreed that they were promoting using technology as a tool for learning appropriate for the 21st century.

Summary of the findings of using technology as a tool for learning:

The following information emerged from all eight questions based on comments from nurse educators and nursing students about the construct using technology as a tool for learning:

Forty-nine (49) percent of nursing students reported that on the construct using technology as a tool for learning were enhanced more than once a month in comparison to nurse educators were sixty-eight (68) percent reported that on the construct using technology as a tool for learning was facilitated more than once a month.

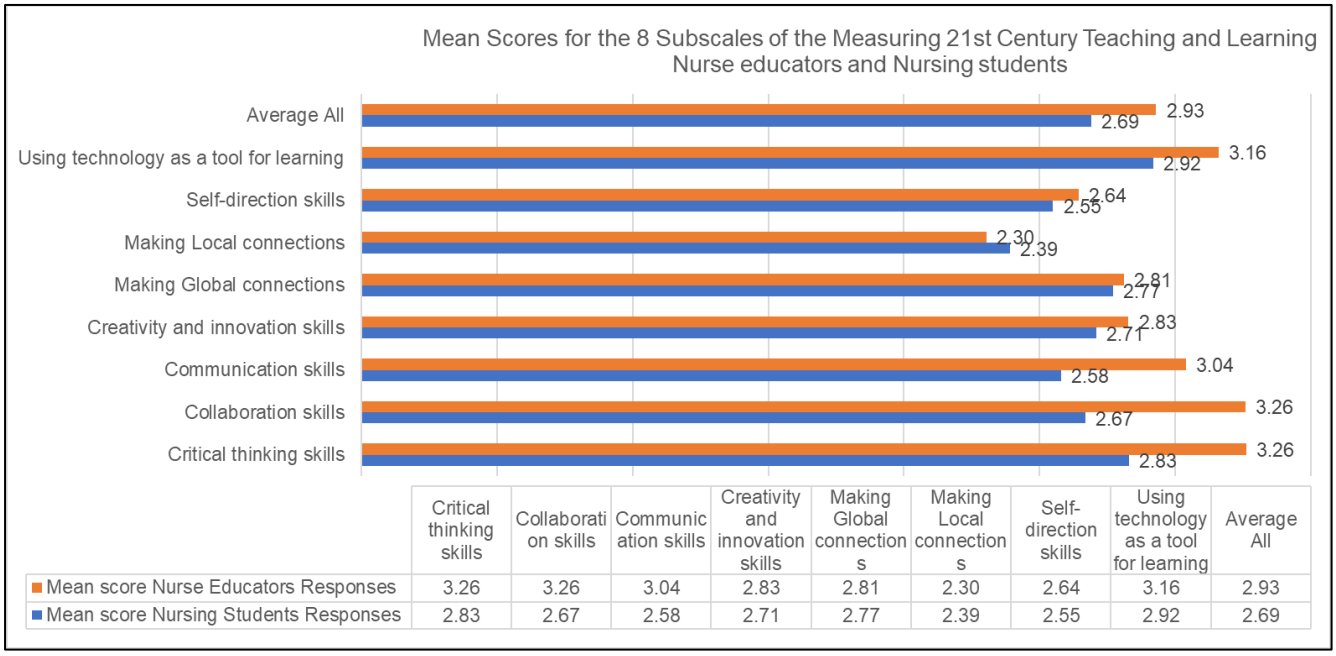
Fifty-one (51) percent of nursing students reported that the construct using technology as a tool for learning was facilitated less than once a month compared to thirty-two (32) percent applied the construct using technology as a tool for learning less than once a month.

According to the research, nursing students and nurse educators do not agree with the belief that teaching and learning about using technology as a tool for learning was being done effectively at this PNEI.

4.3 Discussion of findings / results

When summarising the Mean Scores as indicated in figure 4.26 the entire dataset, the researcher noticed that the central tendency was leaning towards the nursing students

experiencing that 21st century facilitation during their programs was done less than once a month while nurse educators felt that it was facilitated more frequently. This represented that the data's centre point or typical value was that the nursing students felt differently than those of the nurse educators.



	Critical thinking skills	Collaboration skills	Communication skills	Creativity and innovation skills	Making Global connections	Making Local connections	Self-direction skills	Using technology as a tool for learning	Average All
Mean score Nurse Educators Responses	3.26	3.26	3.04	2.83	2.81	2.30	2.64	3.16	2.93
Mean score Nursing Students Responses	2.83	2.67	2.58	2.71	2.77	2.39	2.55	2.92	2.69

Figure 4.26 Mean scores for the 8 sub-scales of the Measuring 21st century teaching and learning nurse educators and nursing students

According to the findings, nursing students had different viewpoints than nurse educators. The nurse educators expressed that they had taught nursing students in a way that facilitated the utilisation of 21st century skills applied during their teaching and learning practices, whereby the nursing students had opposing views.

The ages of the participants reveals the difference in perceptions of the nursing students and nurse educators that revealed that the majority of the nursing students were from the millennial generation, while the majority of the nurse educators were from generation X. Millennial nursing students may prefer social media or technology, which in turn affects the nursing students abilities to read or write and convey or prepare answers, presentations, or decide how their work will be presented as nurse educators may be providing the instruction and nursing students are not being provided the opportunity to communicate to be free to convey their ideas through media, blogs or decide how they will present their work or demonstrate their learning in the 21st century environment which affects communication skills. Nursing students

may have a better idea of what could be done than the nurse educators. Millennial nursing students may be more likely to struggle with the construct communication skills with their nurse educators who come from a generation X where reading and writing is prioritised, and millennial nursing students prefer social media or technology.

As a possibility there may be social desirability whereby the nurse educators want to believe or demonstrate that they are doing a good job whilst facilitating 21st century skills during teaching and learning.

There may be factors that could explain, or have given rise to the phenomenon.

Nursing students whose first language is not English may have a negative impact on their ability to learn and accept the 21st century learning and teaching world of learning because English is perhaps their second or third language; the same can be said for nurse educators whose first language is not English. This could have an impact on communication skills, critical thinking skills, collaboration skills, creativity and innovation skills, and the ability to effectively being able to make local or global connections in a 21st century learning environment. It can also be noted that nursing students come from public schools and that their standard of education may be in question when not being taught from schooling backgrounds how to thrive in a 21st century environment in a Higher education institution.

The definitions of each of the aforementioned categories, a list of relevant behaviours, and questions on the nurse educators' perceptions were all included in each section of the survey. The statistical analysis and evaluation made it clear that the nursing students and nurse educators disagreed on five (5) constructs where there were divergent opinions on the application of 21st century learning techniques at the PNEI. The results show that both nursing students and nurse educators believed that learning and teaching in the 21st century was not carried out in an efficient manner. But agreed that critical thinking skills construct was facilitated effectively at the PNEI. The majority of the nursing students came from the basic programmes (Diploma in Nursing, Bridging course and Higher certificate in nursing programmes). This could have implications on the way the 21st century learning and teaching is implemented and embraced as the Higher certificate and Diploma in Nursing students would have

only had exposure to online learning given that the first cohort commenced in 2020. The bridging students in turn, could have compared their experiences of face-to-face traditional classroom teaching versus online teaching which could have made them feel like they have less contact with academics and the PNEI, thus affecting 21st century learning and teaching.

CHAPTER 5

FINDINGS OF PHASE 2.1 OF THE STUDY - FOCUS GROUPS WITH NURSE EDUCATORS AND MANAGERS.

5.1 Introduction

Chapter five discusses the findings of the data collected from phase 2.1 of the study which was guided by the Steps for Developing a Strategy Checklist 258 developed by the Chartered Management Institute (January 2014). The goal of this phase was to reflect on how we got there, to be clear about corporate identity, to analyse one's strengths and weaknesses as well as the business environment. Focus group interviews were conducted with nurse educators and managers to assess how nurse educators at a PNEI in South Africa are utilising 21st century learning and teaching practices. This information will then be used, together with the data from the literature and the survey results from phase 1 (one), to develop a strategy to assist nurse educators in developing skills for 21st century learning and teaching.

5.2. Biographical data of Participants

As explained in chapter 3, the sample for this phase of the study consisted of 24 registered professional nurse educators and managers with a secondary qualification in nursing education. In this study, a nurse educator is an individual whose primary responsibility is to facilitate the learning and teaching of nursing students. Twenty (20) participants (P) work as nurse educators, three (3) as managers, and one (1) as an academic head at the selected PNEI. There were 23 female participants and one (1) male participant, with an average age of 49 years. After three (3) focus groups, no new additional information was discovered, and data saturation was confirmed by the researcher and supervisor.

Table 5.2. Displays a summary of the participants' biographical information.

Table 5.2 Summary of the participants' biographic information

Participant	Age	Gender	Qualification	Ethnicity	Years of Experience
Participant 1	62	Female	Management/Nurse Educator	White	20
Participant 2	37	Female	Nurse Educator	Indian	16
Participant 3	38	Female	Nurse Educator	Indian	19
Participant 4	49	Female	Nurse Educator	White	22
Participant 5	40	Female	Nurse Educator	Coloured	10
Participant 6	33	Male	Nurse Educator	White	8
Participant 7	39	Female	Nurse Educator	White	10
Participant 8	38	Female	Nurse Educator	White	15
Participant 9	41	Female	Nurse Educator	Indian	21
Participant 10	51	Female	Nurse Educator	White	14
Participant 11	53	Female	Nurse Educator	White	16
Participant 12	69	Female	Nurse Educator	White	29
Participant 13	60	Female	Nurse Educator	White	15
Participant 14	55	Female	Nurse Educator	White	16
Participant 15	41	Female	Nurse Educator	African	3
Participant 16	55	Female	Management/Nurse Educator	White	24
Participant 17	34	Female	Nurse Educator	Indian	6
Participant 18	66	Female	Management/Nurse Educator	Coloured	21
Participant 19	64	Female	Academic Head/Nurse Educator	White	31
Participant 20	55	Female	Nurse Educator	Coloured	6
Participant 21	38	Female	Nurse Educator	White	15
Participant 22	47	Female	Nurse Educator	White	23
Participant 23	68	Female	Nurse Educator	White	17
Participant 24	64	Female	Nurse Educator	Coloured	15

5.3. Findings

A template analysis was conducted using the three themes of Kereluik et al., (2013) viz Foundational knowledge, Meta-knowledge and Humanistic knowledge to analyse the data as well as the nine categories as illustrated in Table 5.3. Below. The categories of the model were used as a *priori* codes and the data analysed using these a *priori* codes to organise the data. The verbatim quotes are italicized and enclosed in quotation marks. An asterisk (*) was used at the end of a quotation to show that it was written in improved English to facilitate good reading. Yet, the meaning remained unchanged.

Table 5.3. Themes and categories based on the 3 x 3 model of 21st century learning based on the Mishra et al., (2013) framework.

Themes	Categories
Theme 1: Nurse Educators Foundational Knowledge (to Know) in 21st century learning.	1.1 Digital /ICT Literacy (information and communication technology)
	1.2 Core Content Knowledge
	1.3 Cross -disciplinary Knowledge
Theme 2: Nurse Educators Humanistic Knowledge (to Value) in 21st century learning.	2.1 Life/Job Skills
	2.2 Ethical/Emotional Awareness
	2.3 Cultural Competence
Theme 3: Nurse Educators Meta Knowledge (to Act) in 21st century learning.	3.1 Creativity and Innovation
	3.2 Problem Solving and Critical Thinking
	3.3 Communication and Collaboration

5.3.1 Themes and Categories

5.3.1.1 Nurse Educators Foundational Knowledge (to Know) in 21st century learning.

Kereluik et al., (2013:130;133), states that foundational knowledge addresses the "what" question (i.e., "What do students need to know?") and suggests that foundational knowledge is what we need to know which consists of core content knowledge, cross-disciplinary knowledge, and digital/ICT (information and communication technology) literacy.

The foundational knowledge that both nurse educators and nursing students need to know is recognised in this framework, and it is given a significant amount of importance by (Mishra & Mehta 2017:6, 8, 16). This component of foundational knowledge is viewed as most important for learning and teaching where it addresses the question “what do the students need to know? “.

5.3.1.2. Digital /ICT Literacy (information and communication technology)

Kereluik et al., (2013:130), define Digital/ICT literacy as knowledge of how to learn and use technology, like basic topic understanding, digital and information literacy was frequently mentioned as a skill essential for success in the 21st century.

It can be defined as the ability to use a variety of digital technologies to efficiently and carefully analyse, explore, and produce knowledge and hence to do tasks in a digital environment. The capacity to efficiently gather, arrange, and process data from a variety of media is a crucial component of this. Beyond understanding fundamental facts, this type of literacy also incorporates a component of ethical and morally acceptable usage of technology and media technology, including communication platforms and media types.

The participants in this study had a working understanding of information and communication technology and mentioned some of the methods they had used which included instant messaging as mentioned by P14 and the learning platform in use at the college verbalised by P8.

They understood how quickly new developments are occurring and expressed a difficulty in keeping up with the changes in technology. This was illustrated by P13 who said, *"Technology (is) so fast moving … you just think you (are) grasping something and it moves on to something else. Ummm, so yes, technology is an amazing tool for learning uh, but it's fast growing. We need to keep up."* *

In order to "keep up" P14 indicated that specialised support is needed as the use of technology in education is not a simple matter. P14 said, *"…I'm not talking about your little stuff here, I'm talking about the major integration of the stuff and the activities and whatever is going on, we need someone with IT (Information technology) knowledge and support to make sure that we, have quite a professional image when we start to use technology ourselves".* P14.*

P1 indicated another problem in the use of technology is that lecturers do not know what technology is available making it impossible to use it. *“... I think that everyone doesn't always understand all (the technology) that is available”*. P1. *

P13 agreed that lecturers have much to learn about technology. *“I think there's so much more room for improvement (regarding technology) from both sides learners as well as educators”.* P13. *

Other participants spoke about the impact technology has had on learning and teaching. One of the areas of great impact (both positive and negative) of the use of technology was on communication and collaboration.

P8 indicated that a positive start had been made with regards to technology usage but that there was still room for improvement and that further training is required, especially for the students, to maximise its impact. *“...there's many different techniques that we can use to collaborate right (now) in the classroom... I don't think we have actually done the leg work to teach our students this skill of collaboration..."* P8.*

P18 raised believes that technology is not being used in such a way that it enhances higher order learning, partly because of a lack of resources including time to do the job adequately. She/he believes that the onus is on the lecturer to maximise the use of technology for this purpose. *"....The constraint of time (and) logic that doesn't come (from the students) learnings are not transferred … the learnings that they learn … is not transferred into their writing the other thing also is that because of our constraints (at) the PNEI, we very resource constraint(ed), so we've got to be strategic in how you design your questions … how you structure your day, … we've got to be very efficient in terms of resources..."* P18. *

On the other hand, Participants think that the students need to take some responsibility to maximise their learning but agreed that the introduction of technology has brought about great change to both teaching and learning. *“Moving to digital platforms of teaching and learning also impacted on different teaching and learning facilitation strategies and methodologies used in the classroom compared to face to face.*

Students are more exposed to working on their own, find their own knowledge. Taking responsibility more for their own learning". P16.

P14 was concerned that, due to the fact that the use of instant messaging specifically was, of necessity brief, students were missing out on learning. She/he said, *"So we sort of quickly send a message to someone instead of talking and then the technology doesn't really encourage people always to communicate thoroughly with each other. So, we got into a comfortable space where it's easier to just jump on technology and send the message and then the students talk to each other, and then we are not teaching the students to talk the talk of nursing".* P14.

5.3.1.3. Core Content Knowledge

Core content knowledge and disciplined modes of thinking involve vastly complex and deeply established mental processes specific to traditional domains, such as employing scientific thinking to understand the natural world. Core content understanding and excellent academic proficiency in traditional fields appeared to be the most frequently mentioned essential talents for success in the 21st century. It was assumed that mastery of traditional academic subjects such as English and mathematics would serve as the foundation for the development of other 21st century skills (Kereluik et al., 2013:130).

Kereluik et al., (2013:138) further describes core content knowledge by classifying the knowledge type, elements with clear descriptions. The researcher included curriculum issues into this category as participants contributed greatly on this subject.

The curriculum was developed in accordance with recognised curriculum design principles, relevant qualifications and guidelines, legal requirements, standards, norms, and the PNEI values. However, nurse educators shared that the curriculum was not modified to account for the change, and as a result, the curriculum delivery is content-heavy with no balance between blended learning requirements affecting nurse educators teaching skills essential for ensuring nursing students talents for success in the 21st century.

As stipulated by P14 *"…we have to analyse our curriculum; I think that's extremely important … we didn't know what we didn't know…"* Whereby P19 added on to say *"…the programmes are too content laden making it difficult to deal with all the objectives in the teaching time available…"* P18 *"…So when you get into the classroom … these programs are content laden, and you have to lay the foundation as … you're doing constructivist learning…"*

Participants had all been involved in the introduction of a new curriculum and expressed concerns. P10 articulated the concerns that nurse educators are facilitating a new curriculum and learning while implementing it, which could affect academic standards because rigorous curricula cannot be done. P10 said *"I'm talking about obviously for the basics … but the fact that it's a new program… everything is new. The facilitators are still learning themselves".**

Participants made the point that learning activities should relate to students individual objectives, make the connection between theory and practice, and encourage in-depth, critical reflection. P11 said, *"…over the years we've been giving students information … It's like being in a boat and you guiding the boat in a certain direction, guiding the students, giving them the information, they require (whilst) teaching …" **

Not many of the Participants discussed the core content aspect of foundational knowledge but those who did referred either to core knowledge which they considered should have been acquired at school, or core knowledge that should have been acquired in programmes prior to commencing post-registration programmes.

The type of core foundational knowledge cited that should have been acquired at school related predominantly to language skills with P21 saying that *"language is a major problem"* P12 and P15 explained that the students are being taught in a language other than their home language, and P10 agreeing that there are language barriers. P15 was more specific saying that the students were not able to *"write formal, proper English".* P20 thought that "reading skills" were important and P19 believed that not only were language skills necessary but that students need to, *"read, write and arithmetize."**

It was assumed by that mastery of traditional academic subjects such as English was not only important in itself but that it had an effect on the acquisition of other core content knowledge. P12 said*, "It's a new program that we're teaching. (The poor grasp of English) is a very big barrier …students are learning in a language which sometimes they are not proficient at and so when you say read an article, read three articles, read the textbook. Some students struggle to read the textbook simply because of the English. Therefore, we must advance the students…"* P15 supported P12, *"I think with the communication skills (it) …goes back to the language… are the students really comfortable in the language they are being taught ... I think most students are not comfortable … in English…" **

Participants put forward theories as to why students had not acquired foundational knowledge prior to entering nursing programmes which revolved around the poor schooling system in the country. P12 said, *"… I think it is the educational history"*

P6 raised an important point relating to the acquisition of core knowledge by stating that nursing students who gain access into the PNEI should be assessed during the selection process which should entail understanding what the PNEI requires of their nursing students need to know regarding foundational knowledge 21st century skills. He/she said "*…if it would be possible to test, but within our student selection, could we not select a student that naturally has some of these tendencies … so that they are adaptable? They are, open to the 21st century…"*

Of those referring to core foundational knowledge which should have been acquired in basic nursing programmes, P6 mentioned that though a "solid solidified knowledge" was important and P12 specifically thought a grounding in anatomy and physiology was necessary.

Nursing science requires scientific competence in knowledge, skills, values, and attitudes. P13 indicates that *"Time has (impacted) on developing skills, as learners often have limited spare time"*. Students ability to reason, think, problem solve, and critically think all of which have an impact on healthcare when faced with having to make informed decisions is negatively impacted because participants agreed that the time was used to get through content rather than teaching or facilitating skills as a

scientific competence. This was validated by a comment made by P19 *"…Time constraints with content intensive programmes. Also maybe lack of knowledge and insight into the strategies to develop creativity and innovation, or the importance thereof…"* P8 supports P19 by stating: *"… two things are standing (out) for me … skill from an educators point of view and skill from students point of view … There all techniques on how you could facilitate … It's just because we … don't know how to use it properly … we often feel that we are pushed for time because we need to get X amount of content done in a short period of time…"**

An interesting issue that was raised by P13 was that lecturers too need core knowledge and need to update their own knowledge and skills when learning and teaching takes place. Nurse educators *"…remain lifelong learners, so anything new …let's explore that further, that's Socrates method as well (as) asking why, (when) something new comes up and you follow through with that. … so we learn, we learn as we go along".**

5.3.1.4. Cross -disciplinary Knowledge

Kereluik et al., (2013:130,132), defines cross-disciplinary knowledge is applying knowledge to different contexts to achieve specific goals. Synthesis can be used to create meaning and generate new ideas (i.e., trans-disciplinary creativity). The framework developers typically claimed that this type of knowledge is essential to success in the 21st century since it requires the ability to interpret, organise, and connect the vast amounts of digital media-based information. More importantly, the digital computer has transformed disciplinary knowledge and its acquisition. Digital technologies have transformed knowledge creation, representation, and modification in almost all fields. To keep up with these changes, education for the next generation must evolve.

The nurse educators recognised the importance of cross- disciplinarily knowledge but indicated that this was lacking in the newly introduced curriculum. They perceived a lack of synergy and alignment in terms of knowledge within different context to create meaning and generate new ideas of their curriculum whilst online on a technological platform. P4 spoke more generally of the problem saying, *"I think that (educators) have a tendency to put things in silos, when I have an objective to talk about global …*

*agendas or comparisons, then I facilitate (it). But when it comes to my real work that I'm doing, I don't understand myself the (global) connection. So, I'm not going to facilitate it". **

P14 mentions that *"what we need to do when it comes to technology is we definitely need a bit of a mind shift"* as P13 said *"there's a lot of stuff that we can do and have to do …. I think one of the things is that we have to realise that we don't necessarily have to seize knowledge and understanding … I know we still very much on Blooms Taxonomy and that … I don't negate ... But what I do say is that we should start to evaluate not only the knowledge and understanding, but the constructs of learning. So in other words, what is the student doing with what they have learned in the moment that we start to look at … evaluating (and) support(ing) them with the use of technology, for example, the students can make their own little YouTube…"**

P21 contributes to state that *"…change is inevitable …people need to be willing (to) move out of (their) comfort zones to fit in with changes around (them). I think we've spoken a lot today about the challenges our students face and we need to somehow try and assist in developing our students to be able to fit into this world as well this technological world".**

Other Participants spoke of the lack of cross-disciplinary knowledge within the PNEI and expressed varying explanations for this phenomenon.

P10, indicated that nurse educators facilitate learning and teaching nationally across all five (5) PNEI, but there is a lack of the nurse educators coming together to be able to connect, interpret and organise the content. P10 indicated that it *"…depends on the Subject area committees and how it's managed, but we tend to have different facilitators or different designers, let's say of each, learning unit or section. So, it's easy for sometimes me to say, oh well, you know what I'll do? What I'm used to and someone else will pick it up somewhere".* P10 continued to say *"And then perhaps other people are not picking it up because maybe there's no cohesion from that point of view for a plan for the teaching. I don't mean the actual preparing of lectures. I'm talking about the methodology that you are using for the teaching of the entire module".**

P14 described a lack of synergy and constructive alignment in terms of integration and cohesion between subject area committee members when teaching across modules and curriculum design not aligning to what nursing students are taught, resulting in the lack of transformed knowledge, creation gaps, and limited opportunities for modification whilst also teaching online in different parts of the country. *"...the teaching methodology or strategy, not in terms of a session or learning, but in terms of (an) entire module, I think that is one of the things that I picked up lately is especially lacking because as you said, you've got the person designing or working on the study material or the study guide and they follow a certain …process and we use a lot of sources to compile the study guide, but when it comes to the teaching part, that logic behind designing that study guide is not, can I say, made owned by the entire subject area committee. So what happens is if you go back and you evaluate what was taught … didn't get across to the students. So basically for me it comes back to … constructive alignment. In other words, we are not teaching what is in the study guide and then we not assessing. And I think if we can get that going, we would also encourage students to use more of those resources..." **

Nurse educators must change their views on local or global connections in national programs. Examples of the need to improve the integration of cross-disciplinary knowledge included the teaching of pharmacology which was mentioned by P2 who said, *"Pharmacology, maybe because we look at what the World Health Organisation says, and those guidelines and International Confederation of Midwives guidelines for Ethos and professional practice. But that's where it stops".* P2 continues to say *"…the first point is that the educators must understand why they need to know so that they can guide the students on (what) to know".**

5.3.2. Nurse Educators' Humanistic Knowledge (to Value) in 21st century learning.

Kereluik (2013:131) states that humanistic knowledge is to value what we bring to our knowledge and action. During the process of exploring the various frameworks, a humanistic connection became apparent. This type of knowledge gives the student a vision of themselves and where they fit in the larger social and global contexts in which

they belong. Under the umbrella of this more general framework, three primary subcategories emerged: life skills, job skills, and leadership; cultural competency; and ethical and emotional awareness. It became clear that the nurse educators felt that there needs to be a common vision amongst the educators for 21st century learning which will influence the nursing student's vision by understanding their local context. P11 stated that *"(Academics) and the whole team (need to) have the same vision. And then further mentioned that "…understanding from where we coming from and we (as) South Africa and globally, we are placed compared to that … we need to … understand our local context much better so that we can understand our students (and were they) need to go…" **

Mishra and Mehta (2017:8, 16), shared that the values we bring to knowledge and action, such as life/job skills, ethical/emotional awareness, and cultural competency, are known as humanistic knowledge. The lower weight according to humanistic knowledge also reveals a constrained understanding of the values we bring to the educational endeavor. Nurse educators noted that nursing student's value learning, but don't understand the importance of skill. P8 indicated that *"students are seeing … (the) value (of) learning … but they don't understand the importance of (the) skill".*

Melrose, Park, and Perry (2021:31), states that personal development and growth are emphasised from a humanist perspective. Learning from a humanistic perspective encourages students to reach their full potential. Humanists believe that people should be nourished because they are self-sufficient and have limitless potential. They also believe that people have a responsibility to the human race. Learning is viewed as self-directed, highly motivated, and the learner's responsibility. Humanist educators collaborate with students rather than managing or directing their learning. The nurse educators made it clear that nursing students should take ownership for self-directedness but questioned if they are facilitating or allowing nursing students to do this. P5 stated that *"self-direction (is) also … taking ownership of your own learning. How much of their (students) learning? … that's the thing (it) should not be described … it's the student's responsibility to ensure that they come prepared for class, that they have the relevant pre knowledge … all comes to them being self-directed. Are we instilling (this) in them their own sense of responsibility for their learning about education".**

5.3.2.1. Life/job skills/leadership.

Kereluik et al., (2013:130), states that Life skills, job skills, and leadership (including components of personal and professional leadership) contribute to the development of lifelong learners who are capable of achieving success outside the classroom.

The most frequently mentioned job and life skills centered on three domains: those that serve to effectively manage and organise one's efforts, those that serve to coordinate and organise relevant and important information, and those that serve in the development of end products (tangible and intangible) in the pursuit of specific solutions to relevant problems.

Nurse educators recognised the importance of preparing students for their working lives and perceived that content should facilitate the learning process but stated that they do not allow for adaptability and flexibility for nursing students personal leadership but find themselves spoon feeding. P13 said *"…over the years we've been giving students information …we need to maybe perhaps (be) guiding. It's like being in a boat and you guiding the boat in a certain direction, guiding the students, giving them the information they require (while) teaching, … (this is the students) learning. This is adult learning and this is (their) learning experience and (they) need to start learning to take lead … I think in the past we just been spoon feeding (and) now (they not) able to take lead. And what are we doing? We're trying to encourage leaders to go forth and … improve on what's already been set". **

P1 further elaborated that nurse educators need to themselves step back as they enter a new paradigm and embrace self-direction learning which will make these nursing students successful outside of classroom. *"It's important that we as teachers step back, and now it's a new paradigm, but it's still difficult to do so we need to step back a bit and regard ourselves as guiders of learning and not just as the determinants of learning. Determinants of learning is so the teacher must give direction … and the problem is why often there's less freedom for the students is because there's this ability, … this perception that you have to cover certain content and maybe that's the*

way that curriculums are written and … the students need to talk about something today and then we will switch it around, it should … be acceptable and … the educators should be adaptable enough to do (apply) self - direction skills I think we must understand that we tend to sit on the students and … I often hear that if I don't sit on them, that don't get finished, And then we don't teach them self-direction. We actually teach them dependency". *

P19 spoke of the required skill in the job within nursing and expressed that nursing students require skill. *"In our context, what happens in the job? I wonder if (students) actually require to be critical thinkers".* P13 *"spoke more generally of the problem saying, nursing students need to be taught how to lead".*

The nurse educators understood that the nursing students need to be career ready and successful outside classroom environment, this was confirmed by P20 who mentions *"...the responsibility at the end of the day is for them (the students) when it comes to teamwork … it's very necessary, you know, when they (the students) go into the units. And another thing … for me (is) the time spent … in the … clinical area for me it's … less. And yet they need to know the content, yes they need to have the theory, but they also need that exposure in … the clinical area to actually combine these two and you find that they don't they cannot work with the next person. They find it difficult to go into that unit".* P20. *

5.3.2.2. Ethical/Emotional Awareness.

Kereluik et al., (2013:131), states that ethical awareness encompasses the knowledge and skills necessary for success in a culturally varied society, such as the capacity to place oneself in the position of another person and empathise with them, as well as the capacity to make ethical decisions. It also involves the ability to anticipate the emotions of others, a skill deemed essential for success in the 21st century, when success in the social and economic spheres requires a profound awareness of human emotions and successful human interactions.

According to nurse educators, ethical and emotional awareness occurs when nursing students and nurse educators coexist in a culturally diverse society and are able to

empathise with each other by making ethical decisions by effectively reading human emotions and interactions in order to ensure success in the 21st century of learning and teaching which will impact clinical practice and integration of theory and practice.

P11 expressed concerns regarding the humanistic knowledge about the culturally diverse connections that are required at the PNEI. *"...We must understand (the) environment of South Africa (is) completely diverse, very fragile and … there's a lack of consensus in our communities at large and … unfortunately that is carried into our system. So we need to deliberately not by accident or not, just because I believe in it. We need to, (as a) institution, deliberately decide how do we want to teach people … in South Africa..."*.Nurse Educators had general consensus that nurses need to be empathetic, P11 eluded *to "individuals come from various backgrounds which influence … the way we treat individuals. (Students) must zoom in with this individual in front of (them) set aside everything zoom in to this person and … then she (will be) willing to share…"**

People come from diverse background and that P14 states that *"we (are a) connected society and nurse educators need to understand this to ensure ethic decision making and have successful human interactions…. So we need to … be expected to be challenged by students with new information and to have the open mind to go and then you know, resource that information and then be able to adjust your own practices and ways and knowledge regarding to that."* * Whereby P4 further responded to say *"... dilemmas that (people) could face in their culture. And that is when I said, I want to see how the ethics is brought in to all the subjects*."

5.3.2.3. Cultural Competence.

Kereluik et al., (2013:131), define cultural competence as components of personal, interpersonal, and intercultural, as demonstrated by good communication, collaboration, and appreciation of the thoughts and emotions of different types of people. Cultural competency, like ethical awareness, is believed to be crucial for social and economic success in the 21st century as a result of globalisation's increased cultural diversity.

Cultural competence was recognised as important for social success in nursing and 21st century learning by nurse educators who recognised that nursing students come from diverse backgrounds that impact their learning environments.

Examples of nursing students learning environment impacted by diverse backgrounds/cultures as mentioned by P14 who said,"*…we must transform our teaching practices to take cognizance of different cultures and different viewpoints…"* P13 added on *"You know, we can't be serious and sometimes we got to respect one another's culture…"* P11 could relate to P13 *"…related with her culture and that she had to step away from that, which was a big thing to acknowledge and to share, especially to somebody from a different culture…"*

Other Participants spoke of the lack of Cultural Competence knowledge with specific regards to, cultural diversity, communication and team work within the PNEI and expressed varying explanations for this phenomenon.

*"I'm not sure of this the students that come in their school curriculums, but a lot of them come from different backgrounds, different personalities huge amount of generation gaps, age groups and different cultures that they come … from. So I've found that conflict management was very much, I had to use a lot of conflict management trying to set-up the groups to collaborate, so maybe going forward as part of the curriculum, we can include a little bit of the conflict management and also with the interact integrating the (*PNEI*) ways, the values and the professional nursing code of conduct would will assist these students to perhaps be able to collaborate" **

Whereby P11 stated that nurse educators must understand that proper communication is linked to understanding the environment of South Africa *"... I don't have the skills (on) communication. We must understand that (our) environment of South Africa's (is) completely diverse, very fragile and there's a lack of consensus in our communities at large and unfortunately that is carried into our system...." **

Nurse educators responded to state that components of personal, interpersonal, and intercultural competence should be deliberately taught by nurse educators, when P11 stated, *"…I believe we must deliberately develop interpersonal skills…"* she further

mentioned that nurse educators *"…need to teach interpersonal skills. How to talk, how to deal with people, how to adapt your tone of voice, tone of voice can give a lot of offense, while the words was not meant to be offensive the tone of voice is (and) we need to call that out and … (teach) them to rephrase or just take a breather and say the same thing again". **

P21 expressed that *"…a major factor that plays a role is the maturity of the student… (is) not only in terms of where they are in their programme, but their own personal and professional development as well"*. * P19 goes on to say that culture varies in learning *"…about the cultures, there's a significant amount of culture work that is done in the under graduate programmes in any case but maybe it's the way in which the learning is facilitated that doesn't impact the students enough, and it could be such an enlightening experience to … be present in (a) place were culture and knowledge about culture and understanding and connecting culturally, it could be such a wonderful experience". **

5.3.3. Nurse Educators Meta Knowledge (to Act) in 21st century learning.

This category involved understanding of the process for using foundational knowledge on how we act on that knowledge (To act). This can also be viewed through the lens of three subcategories: problem solving, critical thinking, communication and collaboration, and creativity and innovation. (Kereluik et al., 2013:130-131).

Mishra et al., (2017:8, 16), explains the concept further by saying it is about how we act on the knowledge we have when being creative and innovative, able to problem solve/ think critically, and communicate or collaborate. Karatas and Arpaci (2021:2) State that being able to act and communicate, share, and use information to solve complicated problems and controlling and extending the power of technology to produce new knowledge are critical success factors in recent times.

5.3.3.1. Creativity and Innovation.

Kereluik et al., (2013:131), states that Creativity was one of the most frequently cited abilities necessary for success in the 21st century. Creativity and innovation need the application of a broad range of knowledge and abilities to the development of innovative and valuable (tangible or intangible) products, as well as the capacity to evaluate, elaborate, and refine ideas and products. It is commonly believed that the extremely complex problems facing society in the 21st century require new and creative solutions.

Nurse educators perceived that creativity and innovation were hampered during their facilitation of learning and teaching, as well as during nursing student assessments, because programs are content-heavy, there is no time, and they lack the skills due to online teaching being forced upon them from face-to-face teaching, which reduced engagement with their nursing students to be able to be creative and innovative which affects nursing students ability to think creatively or innovatively.

The following quotes articulate the participant's views on the category of their experiences with creativity and innovation:

P11 indicated that the start of change needs to occur at the PNEI with regards to how they facilitate and allow for creativity and innovation as it is often viewed as rules based versus creativity being rewarded *"…our profession is quite a rules based profession, the whole idea is just to follow rules and unfortunately that follows through in how we think and teach, know the rules, follow them to the tee and then you'll be good. I also think that we need some consensus about what creativity (as) I think there is a lot of creativity out there. … So, there is some innovation and creativity going. It's just to harness and … grow it in the right direction. I think as educators we need to let go of our own way of thinking and be able to follow through with the student … so I don't think we really have consensus about what is creativity (is) and how to reward it". **

P2 shared *"…we need to then review our … learning and teaching practices and how we can facilitate these different 21st century skills, where the students have … their own authenticity, their own identity, to be able to show us (how) people learn in*

different ways and forms. Let's see how you … learn in your own group… With so many rules in place, this demonstrated that nurse educators must be cautious not to stifle the creativity and originality of nursing students which was also conquered by *P4* when she stated*: "I don't have myself as an educator … critical thinking ability to say this mind map looks different than mine … but it can also still be correct. Right. So, I don't realise I'm busy developing creativity and innovation skills. So, I don't reward that. I'm saying no, why are you linking these two things together…" **

P5 stated with conviction that *"… (This PNEI) says disruptive innovation. What are we doing next? So we telling the media, but we tell (the students) how we want the end product to look well (we) actually limiting (the students)".** P12 continued by stating that her innovation is limited by her online skills affecting her ability to collaborate*"…collaboration online is (not) easy for me because perhaps … of my age as well, I am sort of newish to online things and I found that when I tried to put the … students into small groups, I lost some of them. Some of them couldn't find each other. It wasn't a success. So I sort of seemed to steer away from that. And so perhaps the … way forward with … collaborating is to make sure that the educators, such as me knows how to get the students to collaborate online. First of all, and then she could get the students to collaborate online…" **

5.3.3.2. Problem Solving and Critical Thinking.

Kereluik et al., (2013:130), states that critical thinking frequently requires the ability to evaluate information and make well-informed decisions based on that interpretation. Problem solving is sometimes conceptualised as the use of critical thinking abilities toward the effective resolution of a specific issue or the achievement of a certain objective. Problem-solving and critical thinking are the cognitive skills most frequently required for success in new economic and social domains.

Nurse educators believe that critical thinking is important in nursing, but that it must be developed and applied purposefully in teaching practices, as they have found it difficult to teach and facilitate this to nursing students online. P16 made a bold statement to say that *"…The link between creativity and critical thinking is also important, as students need to be creative to do problem solving and decision-making*

thus teaching and learning strategies and methodologies are important to cultivate creativity…"

"From a learning and teaching point of view, the majority of students at the PNEI *are in basic programmes and a lot of knowledge and understanding needs to be established first before purposeful critical thinking facilitation can be embarked on. Also, it could be that students do not recognise that a teaching event has the purpose of developing critical thinking. It could also be that academic staff do not understand the methodologies of facilitating critical thinking and think that they are doing it and over reports on it in the research and it is not perceived as such by the students". ** P19.

P22 further eludes to the fact that critical thinking in nursing is critical *"I think critical thinking in nursing is very necessary and is required in most contexts - part of it involves problem-solving and decision-making. How can decisions be made if critical thinking is not activated…"*

P1 verbalised that *"…you know, (I) wouldn't facilitate in that way if (I) was in a class. And I think that we need to look at those things and shift … our minds (if) that's how we do it, because it depends on the capacity of the educator in terms of critical thinking as well, and the capacity of the student to be responsive to what is expected of them. And then the other thing is I've recently been doing a lot of student interviews and they said to me, when I asked them about the online learning, they said to me that they find that the national class is not good for them, because a lot of the times the educators don't respond to all their questions that they type in the box…". **

5.3.3.3. Communication and Collaboration.

Kereluik et al., (2013:130,131), state that Communication most frequently entails the ability to communicate oneself well across all modes of communication - oral, written, nonverbal, and digital — as well as the abilities required to be an active and respectful listener to diverse audiences. Collaboration entails aspects comparable to those of communication, as well as significant individual contributions, such as adaptability, willingness to contribute, and appreciation of collective and individual

accomplishment. As working with diverse groups becomes of the utmost importance in our increasingly globalised society and economy, communication and collaboration are identified as crucial to success in the 21st century.

Nurse educators believe that effective communication and collaboration skills are required at the PNEI because it is influenced by online, skills gaps, team willingness to collaborate, language barriers, social media terminology, levels of engagement, and the need to broaden collaborative relationships locally and globally which will impact their abilities to effectively communicate and collaborate.

Examples of nursing students learning environment impacted by communication and collaboration as mentioned by P1 who said, *"… is the motivation of the student. I think that we can also say that it's the motivation of the educator in terms of what they're setting out to do. And some will be very engaging…"*

P12 mentions that nursing students don't communicate online and shy away easily so they find themselves having to force communication and collaboration with the students *"…But in addition to that we have to draw students out. And … in a way force them to communicate with us, even though we are online. I found that it's necessary to address a person specifically and say, what do you think of this? And … then to try and draw them out but somehow they seem to sidestep my efforts by saying I can't open my mic and then they write something which then is negating the … objective of trying to get them to actually speak in the group…".* P14 shared the same sentiments but stated, *"…if we do that the students are not going … somewhere (they) have to start to change the practice that the students are not communicating, you know, (so that they) have good written communication skills". **

P15 eluded to the fact that English is a challenge and social media does not help nursing students as it effects their ability to communicate or even write properly *"It's the English. They're not comfortable in which they don't understand, so that they're not able to express themselves even when it comes to writing, it would be difficult for this individual student to express themselves in writing orally, or even to put to say we think in pictures. How do you pick, put this picture when you don't even understand even to say … you are using … other forms of media. You cannot express yourself in*

*this language. So, I think it will be more for me the communication barrier is more of the English, more of it and to say also what she just said now says about the communication using maybe this WhatsApp. The more of this shorthand thing. You'll see, it reflects on what also the student writes. They're failing to express to write correct proper English, because now (the students) are used to this fast writing (when) communicating … you know they're writing (what) they thinking (in) that language which they use when they're communicating in their social media … social media is affecting the (students) communication skill…" **

P11 mentions that *"…if English is a problem and … it is all about the educator to set the tone and the group and say we are all learning and developing our English (don't allow) people to make fun of other people who can't speak English, and that will also improve the collaboration skills so these two are very closely linked*". *

P14 expressed that we need to find a way to assist the students with communication *"…the right communication skills or written communication skills is that we need to teach the students is that they have to evaluate what they are writing so that they realise they're writing the same thing in three different ways. … We need to structure it so that we develop these skills*". * P11 stated *"…each person comes from his own environment and that comes with that whole communication thing … that we talked about in the collaboration…"*

*"I think perhaps for the campuses or the different areas within our (*PNEI*) to communicate more, get to know one another more so we can support another more and you know, get (to) unify and standardise were we all come from…"* P13 made reference to the importance of collaborating and communicating nationally between nurse educators.

5.4. Discussion

Nurse educators struggle to utilise digital technologies to examine, investigate, and produce knowledge and perform digital activities. Nurse educators and nursing students struggled to collect, organise, and analyse media data. They struggled to determine the ethical and moral use of technology and media technologies, including what communication platforms and media types are used to facilitate learning and teaching on an online platform, which was new to them. They understood how quickly new developments emerge and that keeping up with technology improvements is difficult but vital. Tusiime, Johannesen & Gudmundsdottir, (2022:554) indicated, however, that the use of digital technologies in teaching, educators face various challenges that prevent the successful adoption of such technologies in the classroom. Nursing students have become more autonomous when learning online. As they shifted to digital platforms for learning and teaching, technology had a big impact (both positive and negative) on engagement and collaboration, which changed classroom facilitation strategies and approaches. Nursing requires scientific skills, beliefs, and attitudes. Tusiime et al. (2022:554) state that time is a challenge in the classroom integration of technology for educators. “Time has (impacted) skills development, since nursing students typically have little free time and the curriculum content is not teaching or encouraging scientific competency, which negatively impacts nursing students' ability to reason, analyse, problem solve, and critically think, which impacts healthcare when making informed decisions. Nurse educators must update their knowledge and skills while teaching since they are lifelong learners. 21st century nursing students struggled with English. Zang and Wilson (2023:01) state that the English language plays a powerful role in today’s world and has far reaching implications for policy and practice in English language teaching. Nursing students study in a second language, which impacts their "reading, writing, and arithmetic" and "professional, acceptable English." English proficiency is essential for mastering other important subjects. The country's poor education system has an impact on how nursing students cope in a 21st century environment. PNEI should measure nursing students' 21st century skills. Nurse educators said the new curriculum lacked cross-disciplinary expertise. To assist nursing students to learn, nurse educators must change their perspective and assess not just knowledge and comprehension but also learning constructs in a technology environment. Nurse

educators don't collaborate to link, analyse, and organise content because the PNEI lacks cross-disciplinary knowledge. A lack of synergy and constructive alignment in terms of integration and cohesion between subject area committee members when teaching across modules and curriculum design not aligning to what nursing students are taught, resulting in the lack of transformed knowledge, creation gaps, and limited opportunities for modification whilst also teaching online in different parts of the country, which impacts their ability to facilitate local or global connection and in 21st century.

The nurse educators thought that a shared vision for 21st century learning would affect nursing students' visions and where they belong by knowing their local environment. Kereluik (2013:131) supports this statement suggesting that redesigning the philosophy for the inclusion of a unified shared vision for 21st century learning would be beneficial. Nursing educators said students enjoy learning but don't grasp skill. Humanistic education inspires students to succeed. Self-directed, motivated learning is the nursing student's duty. Humanist educators interact with students, not manage them. The nurse educators emphasised that nursing students should be self-directed but wondered whether they were assisting them. Life/skills and leadership enable lifelong learners succeed beyond the classroom. Nurse educators acknowledged the necessity of preparing students for their working life and believed that content should encourage learning, but they spoon-fed nursing students instead of allowing them to adapt and lead. Nurse educators must encourage self-direction learning to help nursing students succeed outside of the classroom. Nurse educators promote dependency, not self-direction. Nurse educators knew that nursing students must be career-ready and successful beyond the classroom. Khehra and Steinberg (2022:1369) supported this concept stating that students need to be motivated to excel in their career and to become life-long learners. In a culturally diverse society, nursing students and educators must be able to empathise with each other and make ethical decisions by reading human emotions and interactions to succeed in the 21st century of learning and teaching, which will affect clinical practice and theory-practice integration. The PNEI humanistic grasp of culturally varied relationships concerned nurse educators as a linked society and nurse educators need to comprehend this to assure ethical choices and have effective human interactions." Individuals come from varied backgrounds. Nurse educators acknowledged that nursing students came from varied backgrounds that affect their learning environments and highlighted cultural

competency for social success in nursing and 21st century learning. Nurse educators said that the PNEI lacked cultural competence in cultural diversity, communication, and teamwork. Nurse educators must understand that South African culture affects communication. Culture affects learning.

Nurse educators perceived that creativity and innovation is hampered during their facilitation of learning and teaching, as well as during nursing student assessments, because programs are content-heavy, there is no time, and they lack the skills due to online teaching being forced upon them from face-to-face teaching, which reduced engagement with their nursing students and affected their ability to think creatively. With so many rules, nurse educators must be careful not to stifle student creativity and innovation. Nurse educators are also required to advance their skills, knowledge, and attitudes to advance their careers in the 21st century (Ozga et al. 2020:4-5). Online skills limit nurse educators' innovation and collaboration. Nurse educators feel critical thinking is vital to nursing, but they struggle to teach and facilitate it online. Nurse educators assume they're fostering critical thinking, but students don't see it that way. Nurse educators believe that PNEI need effective communication and collaboration skills due to online, skills gaps, team willingness to collaborate, language barriers, social media terminology, levels of engagement, and the need to broaden collaborative relationships locally and globally. Nurse educators said they have to encourage students to engage and collaborate online because they shy away. Social networking is affecting nursing students with English, communication and writing. Nurse educators must collaborate and communicate nationally.

5.5. Conclusion

In this chapter, the researcher presented the findings of the focus group interviews with regards to the experiences of nurse educators and managers in relation to their readiness for learning and teaching in the 21st century. The researcher presented the data acquired during phase 2.1 of the study. The phase's goal was to reflect on how we arrived at this point, to define corporate identity, and to assess the businesses strengths and weaknesses, as well as the business environment. Along with data from the literature and survey findings from phase 1 (one), this information will be used to create a strategy to assist nurse educators in developing skills for 21st century learning

and teaching in chapter 6 (six). The chapter also presents the results, themes, and categories that emerged from the participants' descriptions of their experiences during phase 2.1. In the next chapter, the researcher will offer the consolidation of main findings, objectives and an implementation plan leading to a strategy and personal reflections.

CHAPTER 6

DEVELOPMENT OF STRATEGIC OPTIONS AND OBJECTIVES

6.1 Introduction

In Chapter 5, the researcher provided a comprehensive overview of the study results based on the experiences of 24 nurse educators and managers on how nurse educators might be prepared for 21st century learning and teaching at a PNEI in South Africa. Chapter 6 will present the results of the triangulation of the data collected in the previous phases resulting in strategic options and a broad implementation plan to support nurse educators develop their skills for 21st century teaching and learning. This is to meet the objective for phase 2.2 which was "To develop a strategy to support nurse educators develop their skills for 21st century learning and teaching".

During phase 2.1. of the study, the 3 x 3 model of 21st century learning formulated by Kereluik et al., (2013) was used as a template for analysis. The same three elements, viz nurse educators' foundational knowledge, nurse educator's humanistic knowledge and nurse educators' Meta knowledge have been used in this section as strategic options as they cover all aspects required for successful implementation of 21st century learning and facilitated the process of triangulating the data.

6.2 Objectives and implementation plan

A detailed implementation plan was beyond the scope of this research, and is intended for doctoral studies; but the broad elements of the implementation plan are provided below and details such as specific requirements, timeframes, and responsibilities will be developed in the follow up study.

In the table below, the elements of the implementation have all been drawn from the evidence collected in the previous phases and are referenced as follows: where the element is drawn from the literature study, the author/s are cited. Where the elements

is drawn from the participant's input, they too have been referenced but according to their participant number. The objectives were developed by the researcher based on an in depth understanding of Kereluik et al., framework (2013) by drawing together the elements of implementation required.

Strategic option	Objectives	Implementation plan
1. Nurse Educators Foundational Knowledge (to Know) in 21st century learning.	To develop and upskill nurse educators' understanding of fundamentals of information and communication technology (often known as "digital literacy").	• Design and implement a training and development plan for nurse educators on how to effectively utilise technological tools. Literature study (Thomas, 2021:9). • Provide nurse educators with the opportunities to explore different communication and online platforms, attending conferences, seminars, sharing articles and self-development so that they understand what technology is available. Literature study (Kereluik et al., 2013:130). (P1 and P13). • Assess and improve the Information technology support structures at the PNEI in order to close the gap of 21st century learning and teaching. (P14).
	To educate nursing students regarding the skills necessary for success in the 21st century, such as basic topic understanding, digital and information literacy.	Nurse educators to design lesson plans that indicate an array of digital technologies which includes ethical and moral use of technology and media technologies, including communication platforms and media types. Literature study Kereluik et al., (2013:130).
	To incorporate technology and computer training for nursing students to enhance their skills and abilities in the 21st century online environment to effectively collaborate and communicate.	Offer a computer literacy programme in the first month of training and teach nursing students on how to collaborate in an online environment. (P8).
	To encourage nurse educators to facilitate learning across Core	• Design standard operating procedure on blended learning teaching

Strategic option	Objectives	Implementation plan
	Content and Cross-disciplinary knowledge so that it is well executed in a 21st century learning and teaching environment.	techniques, teaching strategies, methodologies, and practices to align with curriculum and nurse educators practices. Literature study (González-Pérez et al., 2022:2). • Provide in-service training for nurse educators to assist them in creating meaning and new ideas in different contexts (i.e., Trans disciplinary creativity). Literature study Kereluik et al., (2013:130,132).
	To review the PNEI curriculum so that it aligns to 21st century learning and teaching practises nationally to ensure constructive alignment of learning and teaching and curriculum.	• Review the current nursing curriculum at the PNEI to incorporate 21st century skills. Literature study Muyambo-Goto, Naidoo & Kennedy, 2022: np). • Modify the curriculum to reduce content-heavy programmes and ensure content alignment. (P14). • Develop a policy regarding positive collaboration between the national PNEI to support synergy and constructive alignment for the integration and cohesion between subject area committee members. (P14). • Host national online meetings with all five (5) campuses of the PNEI where nurse educators come together to be able to connect, interpret and organise the content and have a common understanding of the curriculum. (P10).
	To review the current nursing students' support measures at the PNEI that assess and promote nursing students' English proficiency during their programmes.	Design a support programme for nursing students whose first language is not English to improve their proficiency. (P12, P15).

Strategic option	Objectives	Implementation plan
2. Nurse Educators Humanistic Knowledge (to Value) in 21st century learning.	To establish a common vision amongst the nurse educators for 21st century learning which will influence the nursing students visions themselves and understand where they belong by understanding their local context.	• Redesign the PNEI philosophy for the inclusion of a unified shared vision for 21st century learning. Literature study Kereluik (2013:131) and (P11). • Foster a culture of self-directed learning and teaching which will support nursing students understanding of where they fit in the larger social and global contexts in which they belong. (P11). • Host a workshop with stakeholders in clinical practise to support nursing students who are 21st century inclined and technologically advanced and prepared for the digital era. Literature study (Delaney et al., 2022: xi) • Design and implement communication and innovation strategies to facilitate the understanding of South African environment. Literature study (Yeung et al., 2022: np).
	To incorporate Life/Job Skills development into nursing education so that nurse educators can foster the growth of nursing students who can thrive and appreciate a 21st century environment that can contribute to the development of lifelong learners who are capable of achieving success outside the classroom.	• Design of a personal development and training needs analysis for nursing students from a humanist perspective so that students can reach their full potential. Literature study Melrose, Park, and Perry (2021:31). • Include lesson plans that encourage nursing students to be self-directed, highly motivated, and encourages the nursing students to take responsibility. (P5). • Host workshops on how to collaborate with students rather than managing or directing their learning. (P5). • Encourage nurse educators to do a self-assessment or keep a reflective journal on their self-directed facilitation strategies and methodologies used in

Strategic option	Objectives	Implementation plan
		the classroom to assess if nursing students are more exposed to working on their own, finding their own knowledge and taking responsibility more for their own learning". (P16).
	Nurse educators to facilitate learning and teaching that encompasses Ethical/Emotional Awareness and Cultural Competence.	• Conduct emotional awareness continuous professional development sessions with focus on how to teach empathy, sympathy and cultural diversity as a module. Literature study Rahmawati, et al., (2021: 030034-1). • Review and realign Nurse Educators' orientation programs, job descriptions, self-development, Ethical/Emotional Awareness and Cultural Competence to 21st century learning and teaching. Literature study Perry, et al., (2021:31). • Conduct cultural competency role-playing or seminars with specific focus on recognising that nursing students come from varied backgrounds that influence their learning settings. (P11, P13 and P14).
	To ensure that nursing students are educated and guided by nurse educators in a manner that enables them to make ethical decisions in clinical practice.	Host ethical and emotional awareness days to celebrate that nursing students and nurse educators coexist in a culturally diverse society and are able to empathise with each other by making ethical decisions which will impact clinical practice and integration of theory and practice. Literature study Kereluik et al., (2013:131) and (P11).
3. Nurse Educators Meta Knowledge (to Act) in 21st century learning.	Embracing and facilitating 21st century skills, which involve Creativity/Innovation and problem Solving techniques by nurse educators.	• Design workshops on critical thinking, problem solving, creativity, communication and collaboration to be hosted for nurse educators and nursing students. Literature study Hixson et al., (2012: np).

Strategic option	Objectives	Implementation plan
		• Re design student assessments to allow for creative and innovative responses. (P14).
	Nurse educators to incorporate and facilitate creative and innovative ideas involving a wide variety of knowledge and skills to analyse, elaborate, and enhance ideas and products required in 21st century environment.	• Conduct a situational analysis with regards to how they facilitate and allow for creativity and innovation as it is often viewed as rules based versus creativity being rewarded in nursing which could encourage consensus on what would be permitted. (P11). • Nurse educators to conduct a self-assessment on their own learning and teaching practices on how they facilitate creativity, innovation and communication as 21st century skills. (P2).
	To foster problem solving and critical thinking in nursing students and nurse educators within the 21st century environment.	• Design workshops on problem solving and critical thinking to be hosted for nurse educators and nursing students. Hixson et al., (2012: np). • Conduct role plays or case scenarios when teaching nursing students regarding problem-solving and critical thinking. Literature study Kereluik et al., (2013:130). • Include critical thinking scenarios or videos in nursing practise when facilitating learning and teaching. (P16).
	To facilitate 21st century skills, which promote effective communication and collaboration by nurse educators.	• Formulate a communication plan to improve communication throughout all modes of communication: oral, written, nonverbal, and digital to actively and respectfully listen to diverse audiences. (P12). • Design a communication and collaborative plan at the PNEI to broaden collaborative relationships

Strategic option	Objectives	Implementation plan
		locally and globally. (P11, P14 and P15).

6.3 Discussion

In this chapter, methods of addressing the need for nurse educators and nursing students to receive training, support, and awareness to strengthen their skills in the 21st century learning and teaching environment was identified. Understanding the experiences of nurse educators and managers was essential. Nurse educators will always have challenges facilitating 21st century learning and teaching in the face of formal and established training programs or support systems.

As per phase 2.2 of the research study based on the CMI Steps for Developing a Strategy Checklist 258 developed by the Chartered Management Institute (January 2014) framework, the researcher after careful review and analysis of all data from phase 1 and phase 2.1 of the research study, was able to identify the focus areas based on the 3 x 3 model of 21st century learning formulated by Kereluik et al., (2013). This will provide the basis of the strategy to support nurse educators develop their skills for 21st century learning and teaching. This has subsequently informed the objectives of the implementation plan presented above.

The strategy above is based on the opinions of the nurse educators and these opinions were used to formulate the objectives and the implementation plan for the strategy to prepare nurse educators for 21st century learning at a PNEI in South Africa together with data gathered from the literature study.

The researcher is of the opinion that the objectives and the implementation plan maybe be limited as it is based on the participant's opinions, who have a limited experience and understanding of 21st century learning. However the nurse educators are of the opinion that they already provide for 21st century learning and teaching whereas the responses of the nursing student differ in many aspects. This implies that the strategic plan may be limited. The researcher will report this as a limitation to the study in the next chapter.

The strategic plan does however leave room for many opportunities for growth and development and some constraints that may arise as the plan is implemented.

Opportunities arising from the strategic plan:

The development of human resources is defined as the mobilisation of human skill and potential through lifelong learning, in order to contribute to a constantly changing society. This includes society's social, economic, cultural, and intellectual life with the skills and competencies needed to contribute to today's world of 21st century learning as described in the National Plan for Higher Education (2001: 4-5). Design and implementation of any workshop, policy, procedure, support programme, training and development events or In-service programmes allow for the academic and self-development of nurse educators improving their skills and knowledge and contributing positively to the support of nursing students.

The design of lesson plans is always seen as an opportunity to improve the educational quality of the content and allows for self-development and a better student experience. Nurse educators are also required to advance their skills, knowledge, and attitudes to advance their careers in the 21st century (Ozga et al., 2020:4-5).

A key core competency of a nurse educator is to ensure the skilful utilisation of technology in learning and teaching (SANC, 2014:81). In doing so, they support nursing students effectively during the learning and teaching process and become change agents and/or leaders by supporting innovative practices of learning and teaching in the educational environment (SANC, 2014:4). Opportunities for exploration and communication across different platforms allows for the development of core competencies of nurse educators which impacts positively on the quality of 21st century learning and teaching. The improvement of information technology information support structures allows for the opportunity to explore, trial and purchase new hardware, software, educational application software and other tools that will enable a better nurse educator and student experience. The trialling of new products also allows for Nurse educators to put forth motivations for the purchase of new products which will in return offer a better student experience and greater support.

Twenty first century learning revolves around several skills. These skills include critical thinking; collaboration; communication; creativity and innovation; self-direction; global connections; local connections; and using technology as a tool for learning (Hixson, et

al., 2012). Review and modification of the curriculums allows for nurse educators to become more exposed and immersed in the curricula. This then allows for the nurse educators to implement the curriculums more successfully and provide a better learning and teaching experience as they are more aware of the learning objectives, learning outcomes and exit level outcomes of the curriculums. With a greater knowledge on the curriculums, they will be able to incorporate 21st century learning and teaching more easily.

Constraints that may arise based on the strategic plan:

The PNEI is, across all five (5) campuses, currently short staffed and several vacancies exist across the campuses. The human resources required to host and ensure attendance to the sessions might be affected. The researcher however is of the opinion that should the sessions be strategically planned around the logistics and availability of all nurse educators; it will not be impossible to host successful sessions with a reasonable attendance that will be meaningful and impactful.

The other possible constraint might be attendance and co-ordination of the events across the five (5) campuses as contact will mostly be online and dependent largely on server capacity, information technology infrastructure and platforms as well as load shedding schedules. Again the researcher is of the opinion that detailed planning and co-ordination could allay these constraints to some extent.

As the South African economy is still in recovery from the effects of the Covid-19 Pandemic and the PNEI is no exception to this. The budget and funding might become a constraint to successfully implement the strategic plan however the researcher is of the opinion that this can be overcome as sessions will mostly be held online so this will allay costs in relation to travelling, catering, printing and other sundry costs with hosting workshops and events face to face.

The current nursing student population in South Africa mainly consists of millennial nursing students who may prefer social media or technology, which can impact on their communication and collaboration skills in the 21st century. Calvo-Porral & Pesqueira-Sanchez (2019) reported that millennials mostly use and get engaged with

technologies for entertainment while Generation X individuals use it to make their lives easier and to obtain information. This would appear to indicate that millennials do not necessarily benefit from their ease of use of technology and do not see the use of technology on education through the same lens as the nurse educators. If the PNEI overlooks 21st century learning, nursing students may have different skills to the nurse educators. Nurse educators and nursing students are expected to evolve and adapt to this modified era so that they possess the skills to prepare them for coping with life and work demands of this rapidly transforming era (Choudhary et al., 2021).

Social desirability may make nurse educators to state they are teaching 21st century skills when the findings of this study indicate to the contrary.

Qualitative research demonstrated nurse educators struggle to understand, plan, and execute digital activities. Media data analysis challenged nurse educators and nursing students. “Time has also been shown to impact on skills development, since nursing students typically have little free time and the curriculum content is not teaching or encouraging scientific competency, which negatively impacts nursing students' ability to reason, analyse, problem solve and critically think, which impacts healthcare when making informed decisions.

The PNEI should evaluate nursing students' 21st century skills. Nursing students need digital learning frameworks from nurse educators. Nurse educators do not collaborate to connect, assess, and organise information because the PNEI lacks cross-disciplinary skills. A lack of synergy and constructive alignment in terms of integration and cohesion between subject area committee members when teaching across modules and curriculum design is not aligning to what nursing students are taught, resulting in a lack of transformed knowledge, creation gaps, and limited opportunities for modification while teaching online in different parts of the country, affecting their ability to facilitate local or global connection in the 21st century.

6.4 Conclusion

In the next chapter, the researcher will describe the summary of the findings, the limitations and recommendations of the research study.

CHAPTER 7

SUMMARY OF FINDINGS, LIMITATIONS, RECOMMENDATIONS AND CONCLUSION.

7.1 Introduction

This chapter of the research report provides the summary of findings, the limitations, and recommendations for nursing education, research, nursing practice and the conclusion of the study.

7.2 Summary of the findings

The literature on 21st century learning assisted to clarify the concept of 21st century learning. It was evident from the literature that creativity, collaboration, and communication are essential for students to grasp in order to take their place in the workplace. Digital health will play an important role in nurses futures, and nurses are uniquely positioned to capitalise on its potential (Delaney et al., 2022), Students need to be assisted to make sense of information, use it, and be able to share it both digitally and in person making local connections and using technology as a tool for learning (Hixson et al., 2012). Teaching in nursing colleges has traditionally involved a great deal of content which is not conducive to the acquisition of creative thinking skills so alternative methods of teaching compatible with 21st Century learning need to be introduced. The difficulty is that despite, or maybe because, the nurse educators were forced into teaching online during the COVID pandemic, they are commonly resistant to alternative methods. A lack of internet skills hinders nurse educators innovation and collaboration, and nurse educators struggle to teach critical thinking online. Nurse educators must encourage online collaboration and participation when students withdraw. Social media influences nursing students' English literacy, communication, and writing. González-Pérez and Ramírez-Montoya (2022:7) points out that nurse

educators have to be trained on how to incorporate technology into the classroom – one of the features of 21st Century learning.

Two of the objectives of this study related to the evaluation of the utilisation of 21st century learning practices of nursing students and nurse educators at a PNEI in South Africa. The literature was explored to find ways of measuring 21st Century learning and teaching skills. The West Virginia 21st Century teaching and learning Survey [WVDE-CIS-28] was used to evaluate critical thinking skills, collaboration skills, communication skills, creativity with innovation skills, self-direction skills, global connections skills, local connections skills, and using technology as a tool for learning - all of which are central to 21st century learning (Hixson et al., 2012:np). The literature showed consensus regarding the meaning and importance of each of these constructs.

The quantitative evidence collected during the study indicated that the nurse educators and nursing students had differing views. Nurse educators said they taught using 21st century skills, but nursing students disagreed. Most nursing students were millennials, while most educators were generation X. Nurse educators believe that the millennials are not able to read and write well which affects their abilities to read or write and convey or prepare answers, presentations, or decide how their work will be presented. Nurse educators, on the other hand, may not be giving students the opportunity to communicate through media, blogs, or decide how they will present their work or demonstrate their learning. If the PNEI does not embrace 21st century learning comprehensively in both teaching and learning this may lead to discord and poor learning outcomes – hence the need for a strategy.

The qualitative findings demonstrated that nurse educators struggle to utilise digital technologies to study, plan, and implement digital activities. Media data analysis was difficult for nurse educators and nursing students. They were unfamiliar with the ethical and moral use of technology and media technologies. Time has impacted upon skills development, since nursing students typically have little free time and the curriculum content is not teaching or encouraging scientific competency, which negatively impacts nursing students' ability to reason, analyse, problem solve, and critically think, which impacts healthcare when making informed decisions.

Nursing students' 21st century survival is negatively affected by the country's poor education system. To assist nursing students to learn, nurse educators must transition from knowledge and understanding to digital learning frameworks. Nurse educators do not collaborate to link, evaluate, and organise content because the PNEI lacks cross-disciplinary skills. A lack of synergy and constructive alignment in terms of integration and cohesion between subject area committee members when teaching across modules and curriculum design is not aligning to what nursing students are taught which results in a lack of transformed knowledge, creation gaps, and limited opportunities for modification while teaching online in different parts of the country, which impacts their ability to facilitate local or global connection in the 21st century.

7.3 Limitations of the study

Grove et al., (2019) defines limitations as constraints that limit a research study which can have an impact on whether findings can be generalised or not.

The identified limitations of the study were as follows:

a. Two of the focus groups included senior members of staff, and their opinions dominated the discussion. The findings were therefore possibly biased towards to their opinions.

b. Participants included both nurse educators who teach under-graduate and those who teach post-registration nursing students. The undergraduate nurse educators teach a younger group of nursing students who are more likely to be computer literate than the post-registration students and therefore responded differently to 21st century teaching.

c. All the nurse educators included in the study had been forced to adapt to on-line learning as a result of the Covid epidemic and therefore based their responses on this unnatural context which may have led them to be more negative about the possibilities of introducing 21st century learning.

d. The study was limited to one PNEI and therefore the researcher cannot say that the findings are transferable to other PNEIs or to public nursing colleges.

e. Due to the PNEI having decentralised campuses, some participants attended focus groups in person whereas others were online which may have impacted on their contribution to the study.

f. It is possible that social desirability bias played a part in the data collection during focus groups as nurse educators may have felt obliged to speak positively about 21st century learning as it is the intended focus in the PNEI.

7.4 Recommendations

a. Nursing Education

A training and development plan to assist nurse educators to effectively utilise technological tools needs to be developed. This will improve nurse educators' foundational knowledge and improve the practice of nursing education.

The current nursing curricula at the PNEI need to be reviewed to ensure they encourage content which incorporates 21st century skills. This will facilitate a more successful implementation plan and cross over to 21st century teaching and learning skills in comparison to the norm of face-to-face learning and teaching.

A culture of self-directed learning and teaching needs to be fostered in nursing education to develop critical thinkers and problem solvers in nursing. This will ultimately add great value and improvement to patient outcomes and improve nursing care. Further to this, workshops on critical thinking, problem solving, creativity, communication and collaboration for nurse educators and nursing students need to be offered.

A shared unified vision for 21st century teaching and learning needs to be cultivated within the PNEI and the philosophy assessed and redesigned to ensure the alignment to 21st century learning and teaching practices.

The orientation programmes for nurse educators need to be reviewed and realigned as well as their job descriptions, to ensure the growth and development of nurse educators in nursing practise.

The review and design of a policy or guideline on blended learning teaching techniques, teaching strategies, methodologies, and practices to align with curriculum and nurse educators' practices is important to ensure successful student outcomes.

A policy should be developed regarding positive collaboration among the five (5) campuses of the PNEI to support synergy and constructive alignment for the integration and cohesion between subject area committee members. This is important at this PNEI for successful curriculum implementation and the achievement of learning and teaching objectives and outcomes.

b. Nursing Research

To conduct a pre and post-test study when the strategy is implemented to measure the success or otherwise of the strategy.

The study could be replicated in both the public sector nursing education institutions and other private sector nursing education institutions in order to develop a national strategy for implementation of 21st century learning in nursing education institutions.

c. Nursing practise

The Clinical model of the PNEI should be reviewed to align to 21st century learning and teaching skills, and implementation to improve nursing practise.

The nursing staff in the nursing units should be orientated regarding 21st century skills that nursing students will be taught and simultaneously be offered a short course on 21st century learning for clinical nurses and preceptors.

7.5 Conclusion

The National Plan for Higher Education (2001: 4-5) outlines the vision for the transformation of the higher education system and provides an implementation framework that identifies the strategic interventions and controls required for the transformation of higher education in South Africa, with a focus on changes in the 21st century, knowledge, and information processing as the driving forces for wealth creation and thus social and economic development.

It is vital to ensure that nursing education is prepared for this rapid change of 21st century learning and teaching.

The findings of this study have identified several strategic focus options for both nurse educators and nursing students that need assessment, review, development, alignment, and implementation to support nurse educators and nursing students develop their skills for 21st century learning and teaching at private nursing education institutions in South Africa.

The strategic focus areas, in line with the eight (8) constructs of the West Virginia 21st Century teaching and learning Survey to evaluate critical thinking skills, collaboration skills, communication skills, creativity with innovation skills, self-direction skills, global connections skills, local connections skills, and using technology as a tool for learning by (Hixson et al., 2012:np).

The findings of this research study have answered the following research questions and objectives:

d. To evaluate the utilisation of 21st century teaching and learning practices of nurse educators at a PNEI in South Africa.

e. To evaluate the utilisation of 21st century learning practices of nursing students at a PNEI in South Africa.

f. To develop a strategy to support nurse educators develop their skills for 21st century teaching and learning.

The important factors that have influenced this study are that In South Africa, we have a shortage of nurses and preserving the few we have to practice optimally is imperative for the preservation of the profession (Armstrong, Geyer & Bell, 2019). To ensure the preservation of our nurse educators and nursing students we need to ensure that we develop their skills for 21st century learning and teaching. The future is now and the need for 21st century skills has never been more urgent as we move into an era of a more blended approach in nursing education in comparison to the conventional face to face classroom teaching and learning.

ANNEXURES

Annexure 1

Annexure 1

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

R14/49 Mrs Cindy-Ann Menino

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M211030

NAME: (Principal Investigator)	Mrs Cindy-Ann Menino
DEPARTMENT:	School of Therapeutic Sciences Private Nursing Education
PROJECT TITLE:	A strategy to prepare nurse educators for 21st century learning at a private nursing education institution in South Africa
DATE CONSIDERED:	29/10/2021
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Dr S. Armstrong
APPROVED BY:	Dr CB Penny, Chairperson, HREC (Medical)
DATE OF APPROVAL:	10/12/2021

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary on the Third Floor, Faculty of Health Sciences, Phillip Tobias Building, 29 Princess of Wales Terrace, Parktown, 2193, University of the Witwatersrand. I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions.Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report.** The date for annual re-certification will be one year after the date of convened meeting where the study was initially reviewed. In this case, the study was initially reviewed in **October** and will therefore be due in the month of **October** each year. Unreported changes to the application may invalidate the clearance given by the HREC (Medical).

Principal Investigator Signature _____ Date _____

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Annexure 2

INVITATION TO PARTICIPATE IN THE RESEARCH STUDY: A STRATEGY TO PREPARE NURSE EDUCATORS FOR 21ST CENTURY LEARNING AT A PRIVATE NURSING EDUCATION INSTITUTION IN SOUTH AFRICA NURSING STUDENTS

Good day,

My name is Cindy Menino. I am currently doing a Masters of Science Degree in Nursing Education at the University of Witwatersrand. I am required to conduct a research study as part of the course requirements.

Research is a process to learn the answer to a question. In this study I want to answer the following question: How can nurse educators be prepared for 21st century teaching and learning at a private nursing education institution in South Africa?

Objectives of the study are:

- To evaluate the utilisation of 21st century teaching and learning practices of nurse educators at a PNEI in South Africa.
- To evaluate the utilisation of 21st century learning practices of nursing students at a PNEI in South Africa.
- To develop a strategy to support nurse educators develop their skills for 21st century teaching and learning.

This survey is expected to last about 8 minutes and you have no obligation to participate. Your participation in this research study will not affect your work situation or studies as a nursing student. There will be no risks attached to participating in this study or no consequence should you wish to not participate in this study. Your participation is voluntary and you can decide to withdraw from participating at any time without any penalty even prior to final submission of the researcher submission. Confidentiality and anonymity will be ensured. There will be no direct link to you, but

the findings of the study will be made available to you once it is complete. There will be no cost or payment to you as the participant.

I hereby invite you to participate in this research study by please completing the following link below:

https://kwiksurveys.com/s/StudentSurvey

Should you have any questions or concerns about any aspects of this study, please email me at Cindy.menino@netcare.co.za or call on 0725321340.

You can also contact my supervisor, Dr Sue Armstrong at Sue.armstrong@wits.ac.za or phone: 011 488 4272.

In case you have concerns over the way the study is being conducted, please contact: The Chairperson of the University of the Witwatersrand Ethics Committee, Professor Clement Penny, who may be contacted on the telephone at 011 717 2301, or by e-mail at Clement.Penny@wits.ac.za. The telephone numbers for the Committee secretariat are 011 717 2700/1234. The names and e-mail addresses of the secretaries are Zanele Ndlovu Zanele.Ndlovu@wits.ac.za and Rulani Mukansi: Rhulani.Mukansi@wits.ac.za.

By participating in the survey, your consent to do so is assumed.
Thank you for your time and consideration.

Cindy Menino
0725321340 / 011 628 7614
Cindy.menino@netcare.co.za

Annexure 3

INVITATION TO PARTICIPATE IN THE RESEARCH STUDY: A STRATEGY TO PREPARE NURSE EDUCATORS FOR 21ST CENTURY LEARNING AT A PRIVATE NURSING EDUCATION INSTITUTION IN SOUTH AFRICA FOR NURSE EDUCATORS

Good day,

My name is Cindy Menino. I am currently doing a Masters of Science Degree in Nursing Education at the University of Witwatersrand. I am required to conduct a research study as part of the course requirements.

Research is a process to learn the answer to a question. In this study I want to answer the following question: How can nurse educators be prepared for 21st century teaching and learning at a private nursing education institution in South Africa?

Objectives of the study are:

- To evaluate the utilisation of 21st century teaching and learning practices of nurse educators at a PNEI in South Africa.
- To evaluate the utilisation of 21st century learning practices of nursing students at a PNEI in South Africa.
- To develop a strategy to support nurse educators develop their skills for 21st century teaching and learning.

This survey is expected to last about 14 minutes and you have no obligation to participate. Your participation in this research study will not affect your work situation. There will be no risks attached to participating in this study or no consequence should you wish to not participate in this study. Your participation is voluntary, and you can decide to withdraw from participating at any time without any penalty even prior to final submission of the researcher submission. Confidentiality and anonymity will be ensured. There will be no direct link to you, but the findings of the study will be made

available to you once it is complete. There will be no cost or payment to you as the participant.

I hereby invite you to participate in this research study by please completing the following Kwiksurvey below:
https://kwiksurveys.com/s/NurseEducatorsurvey

Should you have any questions or concerns about any aspects of this study, please email me at Cindy.menino@netcare.co.za or call on 0725321340.

You can also contact my supervisor, Dr Sue Armstrong at Sue.armstrong@wits.ac.za or phone: 011 488 4272.

In case you have concerns over the way the study is being conducted, please contact: The Chairperson of the University of the Witwatersrand Ethics Committee, Professor Clement Penny, who may be contacted on the telephone at 011 717 2301, or by e-mail at Clement.Penny@wits.ac.za. The telephone numbers for the Committee secretariat are 011 717 2700/1234. The names and e-mail addresses of the secretaries are Zanele Ndlovu Zanele.Ndlovu@wits.ac.za and Rulani Mukansi: Rhulani.Mukansi@wits.ac.za.

By participating in the survey, your consent to do so is assumed.

Thank you for your time and consideration.

Cindy Menino
0725321340 / 011 628 7614
Cindy.menino@netcare.co.za

Annexure 4

From: Jason Ravitz [mailto:jason.ravitz@gmail.com]
Sent: Tuesday, 15 June 2021 21:40
To: Cindy Menino <Cindy.Menino@netcare.co.za>
Cc: Jason Ravitz <jason@evaluationbydesign.com>
Subject: Re: Survey permission A Survey for Measuring 21st Century Teaching and Learning

---

Cindy,

I am very pleased you want to use the survey, and happy to give permission to use the survey.

If you haven't seen I have created a website for this project here: http://evaluationbydesign.com/survey21cs

If you are interested, I have created a couple student versions that have proven useful already.

One is just a short check-in, but the other would be appropriate for research and replication in your context.

I can provide technical data on the student version I created to support its use, if you want to see it.

I am also happy to look at the student version you created if you already have one.

Please let me know what would be most helpful and what your timeframe is. Thank you! ~ Jason

p.s. As an aside, given your context, I would like to draw your attention to this rubric I helped validate for this nursing school study.

Cindy Menino

From: Jason Ravitz <jason@evaluationbydesign.com>
Sent: Friday, 18 June 2021 00:31
To: Cindy Menino
Cc: jason.ravitz@gmail.com
Subject: Re: Survey permission A Survey for Measuring 21st Century Teaching and Learning

---

Cindy, Thank you for the kind words and sharing your work. The survey looks great. I understand you need to move ahead with your committee, and am happy to give my permission to use the surveys as described in your email (with attributions, etc.). I will also produce a document that provides psychometrics from prior use with students. If anyone asks about this let me know and I will try to provide these right away!

Please keep me posted on the study and your analyses, and if you have any further questions. I've seen that teacher and student perceptions can be quite different, but I also believe in these measures, so I will be very interested in what you learn! Best wishes ~ Jason

||: Jason Ravitz | Evaluation by Design | Richmond, CA | 510-684-5926 :||

On Wed, Jun 16, 2021 at 10:04 PM Cindy Menino <Cindy.Menino@netcare.co.za> wrote:

> Dear Mr Ravitz.
>
> I trust this e mail finds you well.
>
> I am so thankful for your quick response and assistance, your work is amazing ☺
>
> I have not seen the website but I will definitely join and make use of it, thank you so much.
>
> I would appreciate seeing your thesis, were will I be able to get a copy of this please.
>
> Yes please I would love to see the student versions you have created.
>
> Please see below kwiksurvey link I would like to send to students, if this would be in order with you please.
>
> https://kwiksurveys.com/s/StudentSurvey
>
> - The purpose of this study is to evaluate the utilization of 21st century learning practice of nurse educators and nursing students at this private nursing education institution which will inform the development of a strategy to support nurse educators to develop their skills for 21st century teaching and learning at a private nursing education institution (PNEI) in South Africa.
>
> - A sequential mixed method study (QUANQUAL) approach will be used.
>
> **My idea is data collection to be done as follows:**

Annexure 5

RESEARCH OPERATIONS COMMITTEE FINAL APPROVAL OF RESEARCH

Approval number: UNIV-2022-0005

Ms C Menino

E mail: cindymenino85@gmail.com

Dear Ms Menino

RE: A STRATEGY TO PREPARE NURSE EDUCATORS FOR 21ST CENTURY LEARNING AT A PRIVATE NURSING EDUCATION INSTITUTION IN SOUTH AFRICA

The above-mentioned research was reviewed by the [redacted] Research Operations Committee's delegated members and it is with pleasure that we inform you that your application to conduct this research at [redacted] has been approved, subject to the following:

i) Research may now commence with this FINAL APPROVAL from the [redacted] Research Operations Committee.

ii) All information regarding [redacted] will be treated as legally privileged and confidential.

iii) [redacted] name will not be mentioned without written consent from the [redacted] Research Operations Committee.

iv) All legal requirements with regards to participants' rights and confidentiality will be complied with.

v) All data extracted may only be used in an anonymised, aggregated format and for the purposes of this specific study as specified in the proposal. The data may under no circumstances be used for any other purpose whatsoever.

vi) [redacted] must be furnished with a STATUS REPORT on the progress of the study at least annually on 30th September irrespective of the date of approval from the [redacted] Research Operations Committee as well as a FINAL REPORT with

reference to intention to publish and probable journals for publication, on completion of the study.

vii) A copy of the research report will be provided to the [redacted] Research Operations Committee once it is finally approved by the relevant primary party or tertiary institution, or once complete or if discontinued for any reason whatsoever prior to the expected completion date.

viii) [redacted] has the right to implement any recommendations from the research.

ix) [redacted] reserves the right to withdraw the approval for research at any time during the process, should the research prove to be detrimental to the subjects / [redacted] or should the researcher not comply with the conditions of approval.

x) Please note that you are -

1. Specifically made aware that this approval is granted to you on the basis of you being a permanent employee in good standing of [redacted]
2. Should you cease to be an [redacted] of Netcare at any time for the duration of the research study this approval granted to you for access to, analysis and/or publication of [redacted] data will be automatically revoked.
3. You are required to inform the [redacted] Research Operations Committee of the change in your employment status at [redacted] within 30 (thirty) days of you leaving [redacted] employment
4. You will be required to re-apply to the [redacted] Research Operations Committee for approval to continue with your research

xi) APPROVAL IS VALID FOR A PERIOD OF 36 MONTHS FROM DATE OF THIS LETTER OR COMPLETION OR DISCONTINUATION OF THE STUDY, WHICHEVER IS THE FIRST.

- This approval granted applies strictly to the proposal as stipulated in the original application received.
- Should any amendments or variation to the materiality of the content of the research study become necessary during the course of the study, the principal

investigator/researcher must apply for approval of these amendments/changes to the [redacted]Research Operations Committee, prior to implementation.

- Any extension of the duration, and / or site, and / or investigators of the authorisation granted in this approval must be applied for in writing timeously for consideration by the[redacted]Research Operations Committee in order to ensure continuity of the study/research.

We wish you success in your research.

Yours faithfully

24/01/2022

Prof Dion du Plessis
Full member: Netcare Research Operations Committee & Medical Practitioner evaluating research applications as per Management and Governance Policy

Dr Shannon Nell
Chairperson [redacted]Research Operations Committee
[redacted]Hospitals (Pty) Ltd
Date: 27/01/2022

Annexure 6

INFORMATION LETTER ON THE STUDY: A STRATEGY TO PREPARE NURSE EDUCATORS FOR 21ST CENTURY LEARNING AT A PRIVATE NURSING EDUCATION INSTITUTION IN SOUTH AFRICA FOR NURSE EDUCATORS

Good day.

Thank you for showing interest in participating in this research study in which I want to learn about the perceptions on how ready nurse educators are for the 21st century learning and to understand your current position optimally and confidently.

A Survey using the tool: "A Survey for Measuring 21st Century Teaching and Learning: West Virginia 21st Century Teaching and Learning Survey [WVDE-CIS-28]"designed by Jason Ravitz (2014). To evaluate the utilization of 21st century learning practices of nurse educators at a PNEI in South Africa.

You are hereby invited to participate in a focus group session which will be conducted digitally due to COVID-19 pandemic using Teams meeting link or face to face as per your preference. To begin with, a presentation will be given by the researcher to share with you the findings of the first phase of the study.

Date:
Time:
Venue:

Following this you will be asked to partake in a focus group , so as to develop a strategy to prepare nurse educators for 21st Century Learning at your PNEI. The researcher accompained by the researchers supervisor will conduct three focus groups sessions.

This focus group session is expected to last about 2 hours with eight nurse educators per session and will be digitally recorded with your consent. Your participation in this research study will not affect your work situation. There will be no risks attached to participating in this study. Your participation is voluntary, and you can decide to

withdraw from participating at any time without any penalty. Confidentiality and anonymity cannot be assured due to the nature of a focus group but all participants will be asked not to share the discussions outside of the group. In the event of direct quotes being used in the dissertation or any publication, participants will be identified by means of a code which cannot be traced back to you.

All data, inclusive of consent forms, audio tape recordings and triangulated data completed for the study will be locked away in a secure locked up safe for two years after publication of the results or for six years if no publications emanate from the study.

Should you have any questions or concerns about any aspects of this study, please email me at Cindy.menino@netcare.co.za or call on 0725321340.

You can also contact my supervisor, Dr Sue Armstrong at Sue.armstrong@wits.ac.za or phone: 011 488 4272.

In case you have concerns over the way the study is being conducted, please contact: The Chairperson of the University of the Witwatersrand Ethics Committee, Professor Clement Penny, who may be contacted on the telephone at 011 717 2301, or by e-mail at Clement.Penny@wits.ac.za. The telephone numbers for the Committee secretariat are 011 717 2700/1234. The names and e-mail addresses of the secretaries are Zanele Ndlovu Zanele.Ndlovu@wits.ac.za and Rulani Mukansi: Rhulani.Mukansi@wits.ac.za.

Thank you for your time and consideration.

Cindy Menino

Annexure 7

CONSENT FORM CONSENT FOR AUDIO-TAPING OF THE INTERVIEW

I, …….have consented to be a participant in the study being conducted by Cindy Menino. I have been given the information document on the study and have read and understood the information document.

I have been asked to give my consent to the interview being audio-taped to aid accurate collection and analysis of information. I also understand that if I decide not to consent to the Interview being audio-taped that I will be excluded from the study.

I give my consent for the interview being audio-taped □
I do not consent to the interview being audio-taped □

Should you have any questions or concerns about any aspects of this study, please email me at Cindy.menino@netcare.co.za or call on 0725321340.

You can also contact my supervisor, Dr Sue Armstrong at Sue.armstrong@wits.ac.za or phone: 011 488 4272.

In case you have concerns over the way the study is being conducted, please contact: The Chairperson of the University of the Witwatersrand Ethics Committee, Professor Clement Penny, who may be contacted on the telephone at 011 717 2301, or by e-mail at Clement.Penny@wits.ac.za. The telephone numbers for the Committee secretariat are 011 717 2700/1234. The names and e-mail addresses of the secretaries are Zanele Ndlovu Zanele.Ndlovu@wits.ac.za and Rulani Mukansi: Rhulani.Mukansi@wits.ac.za.

…….
Signature of participant

……
Date

Annexure 8

Language editor

LANGUAGE EDITING CERTIFICATE

MRS S.J.E. KATZKE

sariek70@yahoo.com

083 287 2166

This is to certify that I, Mrs. SJE Katzke confirm that I have completed the language editing for the qualitative study of Ms Cindy Menino.

Research Topic

A STRATEGY TO PREPARE NURSE EDUCATORS FOR 21ST CENTURY LEARNING AT A PRIVATE NURSING EDUCATION INSTITUTION IN SOUTH AFRICA

March 2023

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