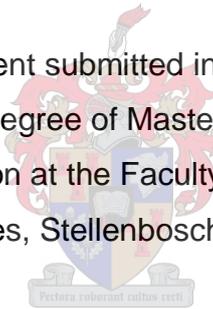


Exploring nursing educators’ perceptions about the use of technology in teaching

By
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Declaration

I, Lizette Kirstein, hereby declare that the work contained in this research assignment is my own original work and that I have not previously submitted it, in its entirety or in part, at any university for a degree.

Signature:

L Kirstein

Date: December 2019

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Acknowledgements

This MPhil in HPE ‘adventure’ was not an easy one and at times not fun at all, and I always believed that studying and enriching your skills and knowledge should be fun, making this a bit more difficult than I hoped. I cannot even count the amount of times I wanted to quit the programme. However, there were role-players along the way who kept rooting for me even when I did not root for myself, people who believed in me and in my abilities even when I did not think I was good enough. This has been one of the most difficult and challenging academic ‘adventures’ I ever took on and now when I look back at it all it has truly been a transforming journey for me, not only professionally but more so personally. Therefore, I would like to thank the following role-players.

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Abstract

In everyday life and especially in the healthcare system today, technology has increasingly become an essential part of daily functioning (Bastable *et al.*, 2019; Bonnel *et al.*, 2018; Oermann *et al.*, 2017). As a result, the use of technology has become a key feature in the training of healthcare professionals, including nurses. Academic staff are constantly challenged to adapt their own practices to incorporate technology in their teaching and adequately prepare their students to use technology once they enter the healthcare system (Risling, 2017; Bonnel, *et al.*, 2018; Roney *et al.*, 2017). Numerous studies have shown that nursing educators still often see technology as the last resort for teaching students (Ferszt *et al.*, 2017; Risling, 2017; Früst, 2011; Roney *et al.*, 2017) and that there is an overall ambivalence from them when it comes to technology.

This study set out to understand and explore the nurse educators' perspectives regarding technology for teaching purposes at a Western Cape government nursing education institution in South Africa. It was envisaged that the results of this study would assist in offering recommendations that may then assist in mediating or addressing any possible constraints that it identified. The intention was ultimately to develop a set of principles to support the integration of technology in teaching across all nursing education-training sectors.

In this qualitative research study, which adopted a phenomenological approach, semi-structured in-depth interviews were used to collect the data and thereafter the data was analysed using a thematic analysis process adapted from the work of Braun and Clarke (2012). Three final key themes were identified during the analysis process and each theme had subthemes that described similar concepts of the data. The first theme refers to the teaching context, the second theme refers to the teaching experience, and the third theme refers to the educators' aspirations.

From the findings, three dimensions were identified that appeared to be present across the findings. The first dimension was a personal dimension focusing on the nursing educators as individuals with their own individualised perceptions. Secondly, the structural space dimension focuses on the environmental aspects the nurse educators needed in order to function optimally in their work environment. The third dimension refers to the social aspects and entails those with whom the nurse educators engage in the work environment. As

educators, we make choices every day about what we are going to teach and how we are going to teach. These decisions are influenced by who we are (the personal dimension), the environment within which we work (the structural dimension), and by those with whom we interact (the social dimension).

The findings of this study suggest that educators need structures like professional development plans as well as faculty development programmes to be in place. These structures will supply the support and motivation needed for educators to embrace the use of technology as well as improve their understanding of it for teaching and learning purposes. However, it is important that technology resources should be firstly available and secondly kept up to date to enable educators to embrace it fully.

A set of guiding principles were conceptualised as a guide for institutions to help or motivate the use of technology in teaching amongst educators to its optimal level. The vision for implementation of these principles is that this may lead to educators understanding and embracing the use of technology for teaching purposes more willingly.

Opsomming

In die alledaagse lewe en veral tans in die gesondheidsorgstelsel, het tegnologie toenemend 'n wesenlike deel van die daaglikse funksionering geword (Bastable et al., 2019; Bonnel et al., 2018; Oermann et al., 2017). As gevolg hiervan het die gebruik van tegnologie 'n sleutelfunksie geword in die opleiding van gesondheidsorgpersoneel, insluitend verpleegkundiges. Akademiese personeel word voortdurend uitgedaag om hul eie praktyke aan te pas om tegnologie in hul onderrig te inkorporeer en om hul studente voldoende voor te berei om tegnologie te gebruik sodra hulle die gesondheidsorgstelsel betree (Risling, 2017; Bonnel, et al., 2018; Roney et al., 2017). Talle studies het getoon dat verpleegopvoeders tegnologie steeds gereeld beskou as die laaste uitweg vir die onderrig van studente (Ferszt et al., 2017; Risling, 2017; Früst, 2011; Roney et al., 2017) en dat daar 'n algehele ambivalensie van hulle is as dit kom by tegnologie.

Hierdie studie het gemik om die perspektiewe van verpleegkunde-dosente te ondersoek rakende tegnologie vir onderrigdoeleindes by 'n Wes-Kaapse regeringsinstituut vir verpleegkundiges in Suid-Afrika. Daar word voorsien dat die resultate van hierdie studie sou help om aanbevelings aan te bied, wat dan kan help met bemiddeling of die aanspreek van moontlike beperkings wat geïdentifiseer is. Die bedoeling was dat dit die ontwikkeling van 'n professionele ontwikkelingsprogram vir tegnologie-integrasie vir verpleeg dosente sou bewerkstellig en 'n stel beginsels is ontwikkel om die integrasie van tegnologie in verpleegonderrig in alle sektore vir verpleegonderwys te ondersteun.

In hierdie kwalitatiewe navorsingstudie, wat 'n fenomenologiese benadering gebruik het, is daar gebruik gemaak van semi-gestruktureerde, diepgaande onderhoude om die data te versamel en daarna is die data geanaliseer met behulp van 'n tematiese ontledingsproses wat aangepas is uit die werk van Braun en Clarke (2012). Drie finale sleuteltemas is tydens die ontledingsproses geïdentifiseer en elke tema het subtemas bevat wat soortgelyke konsepte van die data beskryf. Die eerste tema het verwys na die onderrigkonteks, die tweede tema na die onderrigervaring en die derde tema na die aspirasies van verpleegkunde-dosente.

Uit die bevindings is daar drie dimensies geïdentifiseer wat. Die eerste dimensie is 'n persoonlike dimensie wat fokus op die verpleegkunde-dosente as individue met hul eie geïndividualiseerde persepsies. Tweedens, die strukturele ruimtedimensie fokus op die

omgewingsaspekte wat die verpleegkunde-dosente nodig het om optimaal in hul werkomgewing te funksioneer. Die derde dimensie verwys na die sosiale aspekte en behels diegene by wie die verpleegkunde-dosente betrokke is in die werksomgewing. As dosente neem ons elke dag besluite rondom wat ons gaan onderrig en hoe ons gaan onderrig. Hierdie besluite word beïnvloed deur wie ons is (die persoonlike dimensie), die omgewing waarin ons werk (die strukturele dimensie) en deur diegene met wie ons omgaan (die sosiale dimensie).

Die bevindinge van hierdie studie dui daarop dat dosente behoeftes het aan 'n professionele ontwikkelingsplan sowel as fakulteitsontwikkelingsprogramme. Hierdie strukture sal die ondersteuning en motivering bied wat dosente benodig om die gebruik van tegnologie te bevorder, asook om hul begrip daarvan vir onderrig- en leerdoeleindes te verbeter. Dit is egter belangrik dat tegnologiese hulpbronne eerstens beskikbaar moet wees en tweedens op datum moet bly om dosente in staat te stel om dit ten volle te benut.

'n Stel leidende beginsels is gekonseptualiseer as 'n riglyn vir die gebruik van tegnologie in onderrig om sodoende dosente tot die optimale vlak te help of te motiveer. Die visie vir die implementering van hierdie beginsels is dat dit daartoe kan lei dat dosente die gebruik van tegnologie vir onderrigdoeleindes meer begryp en omhels.

Table of contents

Declaration	ii
Acknowledgements	iii
Abstract	iv
Opsomming	vi
Table of contents	viii
List of boxes and figures	xii
Abbreviations	xiii
Chapter 1: Orientation of the study	1
1.1. Introduction	1
1.2. Background and context	1
1.3. Problem statement	2
1.4. Rationale and motivation for the study	2
1.5. Research question	4
1.6. Aim	4
1.7. Objectives	4
1.8. Role of the researcher	4
1.9. Assumptions	4
1.10. Outline of the study	5
Chapter 2: Literature review	7
2.1. Introduction	7
2.2. Theoretical perspectives	7
2.3. Technology in teaching	8
2.4. Using technology for learning: The students	10
2.4.1. The Millennials	10
2.4.2. The Gen Zs	11
2.4.3. Approaches to learning for these generations	12
2.5. Using technology for teaching: The educators	13
2.6. Nursing education in South Africa	15
2.7. Conclusion	15

Chapter 3: Methodology	17
3.1. Introduction	17
3.2. Role of researcher	17
3.2.1. The researcher	17
3.2.2. Researcher's role as insider-researcher	18
3.2.3. Importance of reflexivity	19
3.3. Research approach	19
3.3.1. Qualitative research	19
3.3.2. Phenomenological approach	19
3.3.3. Thematic analysis	20
3.4. Population and sampling	21
3.5. Data collection and management	22
3.6. Data analysis	24
3.6.1. Braun and Clarke's six phase thematic analysis	25
3.6.1.1. Phase 1: Familiarising myself with the data	25
3.6.1.2. Phase 2: Generating initial codes	25
3.6.1.3. Phase 3: Searching for themes	26
3.6.1.4. Phase 4: Reviewing themes	27
3.6.1.5. Phase 5: Defining and naming themes	28
3.6.1.6. Phase 6: Produce a report	28
3.7. Quality assurance	28
3.8. Ethical procedure	29
3.9. Limitations	30
3.10. Conclusion	30
Chapter 4: Findings of the study	32
4.1. Introduction	32
4.2. Findings	33
4.2.1. The participants	33
4.2.2. Discussion of findings	34
Theme A: The teaching context	34
Subtheme A1: Access	34
Subtheme A2: Resources and infrastructure	35
Subtheme A3: Approaches	36

Theme B: The teaching experience	37
Subtheme B1: Feelings and perspectives	38
Subtheme B2: A matter of confidence and competence	39
Subtheme B3: A generational issue?	39
Subtheme B4: Important for teaching and learning	40
Theme C: Aspirations	41
Subtheme C1: Support and infrastructure	41
Subtheme C2: Being agents of change	42
Subtheme C3: Keeping up to date	43
4.3. Conclusion of findings	44
Chapter 5: Discussion	46
5.1. Introduction	46
5.2. Discussion	46
5.2.1. Dimensions of exploration	47
5.2.1.1. Personal dimension	47
5.2.1.2. Structural space dimension	49
5.2.1.3. Social dimension	50
5.3. Guiding principles drawn from the dimensions	51
5.3.1. Principle 1: Add value and customise	52
5.3.2. Principle 2: Encourage continuous, lifelong learning	52
5.3.3. Principle 3: Cultivate a community of educator support	52
5.3.4. Principle 4: Facilitate access	52
5.3.5. Principle 5: Improve quality	52
5.4. Conclusion	53
Chapter 6: Conclusion	54
6.1. Overview	54
6.2. Contribution of the study	56
6.3. Recommendations based on the study	56
6.4. Recommendations for further studies	57
References	58
Addenda	66

Addendum A: Email invitation	66
Addendum B: Demographic information	67
Addendum C: Participant information leaflet and consent	68
Addendum D: Coding and theme development	70
Addendum E: Stellenbosch University Health Research Ethics Committee: Approval Notice	72
Addendum F: Provincial Government Ethics Approval	74
Addendum G: Permission from Nursing Education Institution	76

List of boxes and figures

Box 1:	Interview questions	23
Figure 1:	Phases of thematic analysis	25
Figure 2:	Code generating process	26
Figure 3:	Theme generating process	27
Figure 4:	Key themes and subthemes	33
Figure 5:	Dimensions of exploration	47

Abbreviations

CPUT.....	Cape Peninsula University of Technology
HEI.....	Higher Education Institution
NE.....	Nursing Education
NEI.....	Nursing Education Institution
SANC.....	South African Nursing Council
WHO.....	World Health Organisation

Chapter 1

Orientation of the study

1.1. Introduction

Since the commencement of the 21st century, technology has increasingly become an essential part not only of everyday life but also of the healthcare system (Bastable *et al.*, 2019; Bonnel *et al.*, 2018; Oermann *et al.*, 2017). As a result, the use of technology, especially digital technology, has become a key feature in the training of healthcare professionals, including nurses. This has implications for academic staff who are constantly challenged to adapt their own practices to incorporate technology in their teaching and adequately prepare their students to use technology once they enter the healthcare system (Risling, 2017; Bonnel *et al.*, 2018; Roney *et al.*, 2017).

While there are various tried and tested teaching methods one could make use of in teaching, it is evident that incorporating technology ought to be a core component of furthering education in all nursing education institutions (Früst, 2011) as technology can assist the educators to reach students on various levels and platforms. Numerous studies, however, have shown that nursing educators still often see technology as the last resort for teaching students (Ferszt *et al.*, 2017; Risling, 2017; Früst, 2011; Roney *et al.*, 2017).

Although the incorporation of technology is a point of interest across all health professions education fields, this study will focus on the perspectives of nurse educators at a Western Cape government nursing education institution in South Africa. It is envisaged that the results of this study will assist in offering recommendations that may then assist in mediating or addressing any possible constraints that it identifies. The intention is ultimately that it will inform the development of a technology-integrated training programme for nurse educators and develop a set of principles to support the integration of technology in teaching across all nursing education-training sectors.

Technology is a broad term and has various descriptions. For the purpose of this study, the term technology will refer to the use of digital technology for teaching purposes, which can include for example the use of internet and social media resources, electronic tools, systems or devices, computer software programmes as well as electronic teaching aids like interactive white boards and clickers.

1.2. Background and context

Health professions education is becoming more and more technology-based (Bastable *et al.*, 2019; Bonnel *et al.*, 2018) and nursing education is not excluded from this transformation. The incorporation of technology in health professions education has significant potential for educators and students to embrace this transformation. Bastable *et al.* (2019) are of the opinion that using technology can empower health professions educators and lead to transforming teaching and learning on a tertiary level to ensure they prepare students adequately for their future careers.

The digital age has changed the way in which people learn and access information (Bastable *et al.*, 2019) and educators have to be prepared (Oermann *et al.*, 2017), willing to embrace the technology revolution and adapt to teaching in response to the current digitally skilled generation. The use of technology is, however, according to Roney *et al.* (2017) still not viewed by nurse educators as an essential teaching and learning strategy.

Specific to the nursing education field, the South African Nursing Council (SANC) (2014) emphasises the fact that all nursing educators have a responsibility to uphold the highest standards of education to ensure the nursing profession's standards are sustained. In order to accomplish this, nursing educators are encouraged to embrace technology as part of their teaching to enhance student learning. Likewise, the World Health Organisation (WHO) (2016:14) stipulates that as part of their core competencies, nurse educators should be able to "use technology appropriately and effectively", where the WHO refers to various types of technology including digital technology. However as will be discussed in chapter 2 (section 2.6) in more detail, the official training for nurse educators, a postgraduate diploma in nursing education is currently a requirement for those involved in the education of under- and postgraduate nursing students (SANC, 2014). The value and relevance of such training can, however, be questioned, as current curricula do not include any form of training regarding technology (Stellenbosch University, 2018; University of Witwatersrand, 2018; University of the Free State, 2019:94).s

1.3. Problem statement

Student populations are constantly changing from generation to generation and these generations come with various challenges (Oermann *et al.*, 2017; Williams, 2018). Different studies that have explored students' perceptions regarding the use of technology in teaching (Bozalek *et al.*, 2013b; Button *et al.*, 2014; D'Souza *et al.*, 2014; Gachago *et al.*, 2013; Ivala

& Gachago, 2012; Bozalek *et al.*, 2013b) highlight how important they believe the use of technology in their teaching and learning environment is (Bonnell *et al.*, 2018). However, there is still limited research that focuses on the educators' perceptions regarding the use of technology and the topic, therefore, warrants further investigation.

1.4. Rationale and motivation for the study

In order to become a professional nurse in South Africa, a nursing qualification must be obtained through a higher education institution accredited by the SANC (SANC, n.d.). The qualification is a full-time four-year integrated theoretical and clinical learning course following one of three routes, as stipulated by the SANC (SANC, n.d.). Firstly, there is the option to do a degree qualification at a higher education institution (HEI); secondly, an integrated diploma at a public nursing education institution (NEI); and thirdly, one can obtain a nursing qualification through training and full-time employment at private hospital groups like Netcare Education, Life College or Medi-Clinic Learning (SANC, 2018). All of these qualifications must fulfil the requirements stipulated by the SANC and after successful completion, the person must be registered at the SANC in order to work as a professional nurse in South Africa (SANC, n.d.).

In the Western Cape there is only one government nurse education institution providing the integrated four-year course (SANC, 2018). The institution is currently in the process of obtaining HEI status and part of the requirements for becoming an HEI is that the institution should be technologically advanced (Council of Higher Education, 2016). However, I (an educator at this education institution) have first-hand experience of the limited availability and use of technology in the classroom as well as its lack of internet connectivity and insufficient resources. It could be argued that inevitably these factors could lead to the exclusion of technology from teaching and learning strategies at the institution.

The institution nevertheless attempts to promote the use of technology by encouraging the use of an online learning system called Blackboard. Incorporation thereof in everyday teaching is encouraged. However, based on an email from the head of campus (received on 29 May 2018) pertaining the statistics regarding the usage of Blackboard amongst educators, it indicated that the system remains underutilised (Bock, 2018). In addition, according to student feedback, educators cling to old practices such as handing out hard copies of notes and lectures, reading from textbooks and use PowerPoint presentations flooded with content as found in the textbooks. According to the Blackboard statistical report

(Bock, 2018), the interaction on the online learning system lacks utilisation by the educators, which in turn leads to the lack of student participation on this system. Regardless of the various in-service training opportunities available during the year, wherein the benefits and utilisation of the service were communicated, there remains a reported underutilisation by nurse educators (Bock, 2018). The benefits of the online system do not seem to have adequately motivated the nurse educators to use the service to its full capacity and the use of the online system is seen as merely adding to, rather than relieving, their existing workload. This perception might contribute to the hesitance to give the system a fair chance as part of everyday work life.

The aforementioned served as a rationale for me to undertake this study. The study, therefore, endeavoured to identify and understand the perceptions of nurse educators regarding the use of technology in teaching at the government nurse education institution in the Western Cape.

1.5. Research question

What are the perceptions of nursing educators at the Western Cape government nurse education institution regarding the use of technology in teaching?

1.6. Aim

This research study set out to explore nursing educators' perceptions regarding the use of technology in teaching at the government nurse education institution in the Western Cape with a view to making recommendations to mediate or address any possible constraints. The intention was to develop a set of principles to support the use of technology in teaching in the nurse education context.

1.7. Objectives

- To determine the nursing educators' perceptions regarding the use of technology in teaching.
- To determine enablers and/or constraints with regards to the use of technology in teaching.
- To facilitate staff development by developing a set of principles to support the use of technology in teaching at a public nurse education institution.

1.8. Role of the researcher

My role and relationship to the study, the impact of being an insider-researcher as well as how reflexivity plays a role will be discussed in chapter 3.

1.9. Assumptions

The nurse educators at the nurse education institution have access to various resources of technology for teaching purposes. All the nurse educators are given the opportunity to receive training on the online education systems and other technology related training. Furthermore, a requirement of employment at the institution concerned is that the nurse educators should have a basic understanding of technology for teaching.

1.10. Outline of the study

The study is presented in six chapters. Chapter 1 offers an introduction to the topic and provides background and contextual information supporting the aim to investigate educators' perceptions regarding the use of technology in teaching.

Chapter 2 aims to give the reader an understanding of the use of technology in teaching and the importance thereof by providing an in-depth literature review. Barriers, challenges, constraints, and enablers for educators regarding the use of technology are discussed at length to motivate why the study is necessary.

Chapter 3 outlines the methodology and research design. This includes the rationale for the research approach, population and sample, data collection, coding, and data analysis methods. A thematic analysis process were followed (Braun & Clarke, 2012; Nowell *et al.*, 2017; Javadi & Zarea, 2016; Castleberry & Nolen, 2018) to interpret the data and present the findings. Assumptions and limitations for this study are clearly set out in chapter 3 as well as the ethical considerations. Furthermore, there will be explanations on how credibility, dependability, conformability, and transferability throughout the process were maintained (Frambach *et al.*, 2013, Bengtsson, 2016) to ensure that the study outcome was trustworthy.

Chapter 4 captures the findings of the study and describe the themes identified through the data analysis process by using the thematic analysis process (Braun & Clarke, 2012; Nowell *et al.*, 2017; Javadi & Zarea, 2016, Castleberry & Nolen, 2018).

Chapter 5 entails the discussion of the research findings as well as the set of principles to support the use of technology in teaching at a public nurse education institution. Furthermore, recommendations are provided for how the government nurse education institution can incorporate the findings to facilitate staff development.

Chapter 6 will conclude the study by connecting the findings with the research question and objectives of the study as well as provide recommendations for any possible further research into the topic.

Chapter 2

Literature review

2.1. Introduction

Healthcare systems across the world are in a state of flux as technology continues increasingly to influence every dimension of what health professionals do (Bastable *et al.*, 2019; Hopkins *et al.*, 2018). Therefore, it could be argued that the field of health education training is in a process of transformation becoming more and more technology orientated (Bastable *et al.*, 2019).

Higher education is continuously required to keep up with the development of new technology (Skiba *et al.*, 2008; Hopkins *et al.*, 2018). This has a significant impact on the students and even more so on the educators. Educators are challenged to keep up with the development and improvement of technology (Bastable *et al.*, 2019) in order to provide the highest level of education to students.

Technology in health education, as well as higher education has the potential to shape future healthcare professionals to empower them individually and transform their learning experiences (Bastable *et al.*, 2019). Therefore, there is a great need for educators to adapt to the changes regarding technology use in higher education in order to shape these future healthcare professionals (Hopkins *et al.*, 2018). This change process can be assisted by understanding educators' perceptions of technology, their fears, barriers, challenges, and limitations as well as what motivates them currently and will motivate them in the future to embrace technology use.

This chapter will explore the role of technology in health professions as well as the theoretical positioning of technology in health education, particularly in the context of nursing students. It will describe the characteristics of the current generation of students and their needs as well as consider the role of the educator in this context and their perceptions of technology as described in some of the recent literature.

2.2. Theoretical perspectives

This study is informed by two key theoretical perspectives: transformative learning theory and self-directed learning. Transformative learning theory forms part of the foundational theories of adult learning (Illeris, 2018) and resonates with educators across the world,

including those in the health profession field (Van Schalkwyk *et al.*, 2019). Mezirow (1997:5), who is seen as the forbearer of this theory, describes it as “the process of effecting change in a frame of reference”. According to Mezirow (1997) this frame of reference refers to adults’ experiences, be it concepts, values, feelings or associations. They allow one to make sense of how one understands one’s own learning experiences, thus understanding how adult learning of new skills and their perspective thereof happens (Illeris, 2018). Transformative learning theory focuses on the process of cognitively making meaning of what is learned (Mezirow, 1997; Illeris, 2018). This theory depends on learners’ (in the case of this study the educators) past experiences and building on the existing knowledge they have (Mezirow, 1997; Illeris, 2018). When learning new skills and/or knowledge as an adult the focus is not simply on adding information but more so on making sense of the experience and this may lead to changes in perspective, beliefs or attitudes (Illeris, 2018), which links with the explorative aim of the study. In the study done by Van Schalkwyk *et al.* (2019), it was concluded that transformative learning theory offers guidance to educators to make sense of necessary changes thereby increasing transformation opportunities.

A second theoretical position relating to adult learning is that of self-directed learning. Self-directed learning ~~is as a type of learning that~~ could ensure that ~~compulsory~~ continuous professional development and competence is upheld (Curran *et al.*, 2019) and refers to a process where a person takes responsibility for their own learning not only in the present but also for future professional development (Qamata-Mtshali & Bruce, 2018). This approach to learning focuses on the individuals determining their own learning needs, strategies to make learning possible, and evaluating the learning that took place (Qamata-Mtshali & Bruce, 2018; Curran *et al.*, 2019). This approach, according to Qamata-Mtshali & Bruce (2018), is imperative to instil competencies and attributes needed to practice in modern healthcare environments. Curran *et al.* (2019) indicated that there is a definite increase in the use of and dependence on technology when people learn. Therefore, taking into account how adults (here the educators) as well as the current generation of students learn are vital to understanding the perceptions of educators.

2.3. Technology in teaching

Technology is here to stay and while it links the world with communities and their healthcare systems, it also specifies what is needed from health professionals on a wider scale (Bastable *et al.*, 2019; Raman, 2015). Technology and the knowledge thereof helps to make

healthcare and health information much more accessible to all worldwide (Bonnell *et al.*, 2018; Bastable *et al.*, 2019; Raman, 2015).

As mentioned in chapter 1, technology is a broad term and has various descriptions. It can take on various forms and have different meanings for different people in different situations. However for the purpose of the study, the term technology refers to digital technology. Skiba *et al.* (2008) offer a framework of descriptors that includes aspects of technology, such as education technology, information management, and clinical practice technology. They argue that these three overlap during the teaching process in the context of health professions education. Education technology refers to all the options technology provides to enable educating students, from the different programmes to the use of the equipment and the internet. Information management and clinical practice technology refer to how one uses technology for clinical preparation and training students for managing information in the clinical field (Skiba *et al.*, 2008). Therefore, it is evident that technology has an important place in education, can enhance teaching opportunities, and make teaching easier in many cases (Bonnell *et al.*, 2018). Consequently, the key features that can be derived for these three aspects are that the influence of technology is a tool for learning, as well as a tool in the hand of the healthcare professional to improve health care delivery (Bonnell *et al.*, 2018; Bastable *et al.*, 2019; Raman, 2015).

Studies have suggested that technology has changed the way in which the current generation of students learn and therefore the way they are educated also requires review in order to keep up with student learning needs and expectations (Bastable *et al.*, 2019; Bonnell *et al.*, 2018; Williams, 2018; Evans, 2018). Bonnell *et al.* (2018) state that the opportunity to live, learn and work in this technology-rich time open doors and provide opportunities previous generations of health professionals did not have. Technology provides many educational options. It can take learning to students in their homes, workplaces or wherever they want. Technology also provides students opportunities to deal with complex and massive loads of information in their own time and manner they prefer (Bonnell *et al.*, 2018).

In the health education field the technology used for teaching purposes ranges from mobile technology to digital platforms to using flipped classrooms, interactive whiteboards, clickers and various other media forms of presentations (Oermann, 2015; Bradshaw & Hultquist, 2016). Mobile technology places textbooks, drug guides, references and so much more in

the hands of the educators and students and allows them to use it in any situation and at any time convenient for them. Stimulating class participation could involve using clickers and interactive whiteboards. Thus, technology in teaching often does not only involve just one method or resource. However, the aim of using such technology should always be to promote learning.

In the current classroom setting, technology is utilised more often and, according to Bradshaw and Hultquist (2016), it is expected to evolve even more in the future. However, it is important to remember that although technology plays an important role in teaching it should always be seen as an assistant measure and therefore it will not replace the educator completely (Bradshaw & Hultquist, 2016).

Oermann *et al.* (2017) are of the opinion that the more nurse educators embrace and use technology the more they will recognise and value technology's strengths and the positive effect it has on student learning. Bonnel *et al.* (2018) also state that one cannot prepare nursing students for the future unless educators incorporate current technology into their teaching.

2.4. Using technology for learning: The students

It could be argued that the majority of students in higher education institutions today are citizens of the "digital or information age" (Bastable *et al.*, 2019). They were born into a world of technology and the internet. They do not know a world without technology and their learning styles are embedded in the use of technology (Bastable *et al.*, 2019; Bonnel *et al.*, 2018)

Depending on when they were born, these students are described as Millennials (also called Generation Y) or Generation Z (also called the Gen Zs) (Williams, 2018; Oermann *et al.*, 2017). It is important to remember that these categorisations are merely a descriptor for a group and not true for every individual. Nevertheless, for the purposes of this study, the aim is to provide some insight into over-arching expectations amongst students.

2.4.1. The Millennials

The Millennial generation, born between 1977 and 1995 (Hopkins *et al.*, 2018), are currently the biggest portion of the student population in tertiary education institutions (Hopkins *et al.*, 2018) with ages ranging from between 24 and 42 years old. They are described as the

techno-literate and technology fluent generation and, in many cases, also the techno-dependant generation, as they prefer to learn and communicate via technology, especially social media (Nicholas, 2008). They are characterised as the hopeful, confident, goal- and achievement-orientated generation (Hopkins *et al.*, 2018), are realists and frequently make use of social networks (Oermann *et al.*, 2017). Millennials seem to be motivated by the fast track to success and require clear structured assignments and clear deadlines (Oermann *et al.*, 2017). Furthermore, they prefer digital literacy and like to schedule everything, placing enormous pressure on themselves to succeed (Novak, n.d.; Hopkins *et al.*, 2018, Oermann *et al.*, 2017). In addition, they thrive on problem-solving and collaborating in groups with technology as their assistant (Ferszt *et al.*, 2017). They have been accused of having entitled, assertive and empowering attitudes when it comes to decision-making (Nicholas, 2008) and wanting things to happen immediately and at a fast pace (Novak, n.d.; Hopkins *et al.*, 2018, Oermann *et al.*, 2017; Nicholas, 2008). A study done by Cantrell and Farer (2019) found that Millennials do not feel mentally engaged with lecture content. Furthermore, they feel that educators are not willing to respond to their needs and are not convinced that information they receive via lectures is accurate and current. In addition, they typically apply surface learning with the aim just to pass a course rather than fully connecting with the content on a cognitive level (Cantrell & Farer, 2019). Millennials have been described as seeking respect, support and interaction from their educators (Cantrell & Farer, 2019).

2.4.2. The Gen Zs

The Gen Zs (born in the late 1990s) are currently the largest generation, making up to 72, 8 million of the population globally (Williams, 2018). The majority of them have only started to enter the undergraduate programmes in the last couple of years and therefore the tertiary education field will need to start adapting to accommodate the specific requirements of this generation (Novak, n.d.; Hopkins *et al.*, 2018, Oermann *et al.*, 2017). Gen Zs want instant gratification when it comes to technology and become frustrated very easily when this need is not met (Shatto & Erwin, 2016), wanting immediate feedback on what they do and say. The Gen Zs consider viewing the world from a socio-culturist perspective as very important, and they are seen as cautious but persistent, resourceful and realistic. (Williams, 2018). They are the ethnically diverse, globally aware and environmentally conscious generation (Oermann *et al.*, 2017). To them collaboration is important and they are technology dependent; they thrive on technology and are self-directed learners (Oermann *et al.*, 2017; Shatto & Erwin, 2016). The Gen Zs are constantly adapting to technological changes, and they require their educators to do so also (Williams, 2018). Williams (2018) indicates that

Gen Zs want to solve real-world problems. They dislike formal traditional classroom lectures (Oermann *et al.*, 2017) as they can only concentrate for eight seconds before they require some form of stimulation (Williams, 2018). Therefore, these students typically want to be actively part of, and engaged in, their learning process as they are multitaskers and want learning to be fun (Oermann *et al.*, 2017).

2.4.3. Approaches to learning for these 'generations'

According to Williams (2018), both these generations learn by observing and practice. They have a strong work ethic and strive to have job stability (Oermann *et al.*, 2017; Shatto & Erwin, 2016; Williams, 2018; Hopkins *et al.*, 2018). Collaboration, with the help of technology and via social networks, is the preferred method of learning for both these generations. They are also used to having various choices and access to unlimited information and prefer sharing this information in groups rather than keeping it to themselves (Hopkins *et al.*, 2018; Williams, 2018; Bastable *et al.*, 2019). They communicate less by conversation and more via social media (Williams, 2018). Their learning preferences include collaboration, simulation, workshops, and group activities and sharing information, all of which include technology in some way (Hopkins *et al.*, 2018; Williams, 2018). They want to solve real-world issues and learn by observing and practising rather than just receiving lectures (Williams, 2018). Millennials and Gen Zs want fast information, quick answers, and constant feedback. Furthermore, they want to learn when it is convenient for them and prefer technologically advanced and personalised educational sessions and need visual stimulation to secure learning (Hopkins *et al.*, 2018; Williams, 2018).

From the literature, it is clear that these generations assume technology as part of their learning process in order to succeed and they require that anyone providing their education - facilitating their learning - to adapt to their need for technology (Williams, 2018; Bastable *et al.*, 2019; Bonnel *et al.*, 2018). They require their educators to be fully equipped with the newest and necessary skills, adapt to their needs for technology, and to incorporate the newest technological resources in order to prepare them effectively and increase their results (Evans, 2018).

2.5. Using technology for teaching: The educators

Technology has led to a major shift in how teaching takes place (Bonnel *et al.*, 2018). This shift included moving teaching onto online platforms and web-based activities (Bonnel *et al.*, 2018). As mentioned above, this shift needs to permeate teaching practices (Williamson &

Muckle, 2017; Hopkins *et al.*, 2018; Shatto & Erwin, 2016; Williams, 2018). Educators find themselves constantly competing with the modernisations of technology, for example newer and faster cell phones, tablets or laptops, the newest software programmes, or the most up to date classroom technology options like clickers and interactive whiteboards or computerised mannequins available to students (Nowak *et al.*, 2016; Shatto & Erwin, 2016; Raman, 2015; Bonnel *et al.*, 2018).

Adding to these issues is the fact that people are sometimes hesitant to change their teaching practices because of the additional work that it can entail (Raman, 2015). It could be argued that lecturing, for example, is easy if you just use and re-use your set of notes and PowerPoint presentations every year. Making changes, whether it is technological or anything else, takes time and effort (Nowak *et al.*, 2016).

Previous studies have explored the use of technology in teaching, but more so with a focus on students' perspective and how to incorporate technology in the higher education curriculum. A study by Bozalek *et al.* (2013a) indicated that there is a definite gap between the type of technologies used by students and educators as well as what type of technology the institutions provide. The use of technology by students is increasing at a rapid speed and, as alluded to earlier, students expect educators to adapt their technological skills to keep up with the changes (Button *et al.*, 2014). According to D'Souza *et al.* (2014) educators do acknowledge that there is a need for them to embrace technology; however, some of them are still some ambivalent about the use of technology and do not necessarily see the positive aspects technology could bring to teaching. Thus, educators use the lack of access to resources or a lack of motivation as reasons not to change their current teaching methods (Gachago *et al.*, 2013). However, Ivala and Gachago (2012) as well as Bozalek *et al.* (2013b) are of the opinion that educators have to explore new innovative ways of teaching with technology if they want to reach the level of teaching with technology that students require.

In the past 20 years, studies have continued to record hesitancy amongst educators towards using technology for teaching purposes. Despite the availability of research emphasising the enabling factors for incorporating technology into teaching, educators are still cautious to embrace technology and continue to rely on teaching methods they are accustomed to and comfortable with (Talcott *et al.*, 2013; Edumadze *et al.*, 2014; Nowak *et al.*, 2016; Shelton, 2014).

Factors that influence the uptake of technology among educators across a number of disciplines are described in various studies (Talcott *et al.*, 2013; Edumadze *et al.*, 2014; Nowak *et al.*, 2016; Shelton, 2014; Raman, 2015). Educators are described as being generally apprehensive (Shelton, 2014; Raman, 2015) and factors like lack of knowledge and confidence relating to the use of computers (Talcott *et al.*, 2013), limited access to resources like computers and the internet (Raman, 2015), and the perception that computers will not fulfil students' learning needs (Edumadze *et al.*, 2014) all contribute to this fear. High costs, availability, attitude, lack of skills, knowledge (Edumadze *et al.*, 2014; Nowak *et al.*, 2016) and time as well as lack of seeing the benefits of using technology (Raman, 2015) are all barriers to educators' use of technology (Nowak *et al.*, 2016). Furthermore, Raman (2015) indicated that a lack of motivation, lack of faculty development programmes, resistance to change, and the lack of role models and guidance are seen as barriers to incorporating technology in their teaching.

There are also studies that focus on overcoming the barriers educators experience when incorporating technology in their teaching (Risling, 2017; Cannell, 2013). Some of their fears can be alleviated by asking for help and embracing students' knowledge of technology, learning from students and recognising that a student-centred approach is important (Cannell, 2013). There are educators willing to embrace technology as they have seen the positive effects it has on teaching (Risling, 2017; Cannell, 2013). Highlighting the value of technology in teaching and equipping educators with up-to-date knowledge and skills regarding technology can help educators to overcome the mentioned barriers (Risling, 2017; Cannell, 2013). Therefore, factors that will make a difference in how educators feel and experience technology include being exposed to more options of technology (Oermann, 2015; Bonnel *et al.*, 2018), opportunities to engage with the technology (Risling, 2017; Cannell, 2013), and creating an awareness of how it has the potential to foster learning-centred approaches (Risling, 2017; Cannell, 2013).

As this study will focus more specifically on nurse educators' perceptions regarding the use of technology, it is important to incorporate literature from the nursing education field as well. It has been suggested that nursing education has led the way when it comes to the use of technology and transformation especially in South Africa (Mulaudzi *et al.*, 2012; Matlakala, 2016; Blaauw *et al.*, 2014). Yet, it remains a challenge. The move of nursing education training to higher education institutions can be seen as a triumph for South African nursing

(Mulaudzi *et al.*, 2012). However, when it comes to the transformation of the nurse educators' skills, the profession appears to lag behind, particularly in the context of technological expertise (Mulaudzi *et al.*, 2012).

2.6. Nursing education in South Africa

Currently in South Africa, there are many changes happening in nursing and nursing qualifications; therefore, the nursing education field should aim to be part of the transformation process and improve nursing educators' use of technology (SANC, 2014). Transforming the nursing educators' views and practices can pave the way for equipping nursing students with the necessary skills to adapt in the ever-changing healthcare field (Mulaudzi *et al.*, 2012). Furthermore, it has been argued that nurse educators should also be required to keep their skills updated by attending compulsory staff development programmes (Mulaudzi *et al.*, 2012). These changes to training could pave the way for educators to be able to adapt to the constant technological changes.

As previously stated, nurse educators are required by the SANC to have a postgraduate diploma in Nursing Education to work in the nurse education field (SANC, n.d.). The postgraduate diploma can be completed at higher education institutions like Stellenbosch University and the University of Witwatersrand (Stellenbosch University, 2018; University of Witwatersrand, 2018). The postgraduate diploma in Nursing Education consists of a series of modules and practical procedures that need to be completed in one academic year. Aspects such as curriculum development, research methodology and didactics are covered in the programme (Stellenbosch University, 2018). However, very little of the content focuses on technology and the importance of incorporating technology in teaching. This is somewhat problematic seeing that educators are supposed to be able to educate in the digital age but do not receive the needed training thereof in the postgraduate course.

2.7. Conclusion

Students in the 21st century require their educators to be on a level where they can adapt rapidly and meet their learning needs. The opinion that although technology does not solve all teaching problems, it must be seen as a useful tool to engage these generations in future learning and help prepare them with the skills they will need for the future.

Therefore, researching nurse educators' perceptions of technology could have value for those responsible for coordinating such programmes and add to developing a set of

principles to support the use of technology in teaching. It could be of great importance firstly to help nurse educators to reach a level of competence and understanding regarding technology, before they will be able to train and assist students with their level of technology use.

Chapter 3

Methodology

3.1. Introduction

The aim of this research was to explore nursing educators' perceptions regarding the use of technology in teaching at a nurse education institution. The results of the study would be used to make recommendations to mediate or address any possible constraints identified, as well as develop a set of principles to support the use of technology in teaching across other nursing education sectors.

This chapter firstly outlines my role as researcher, specifically as an insider-researcher during the study. Thereafter the methodology and research design that guided this study are outlined. The research approach, population and sample, as well as the process of data collection, and analysis are also discussed.

During the qualitative research process, I applied a thematic analysis process described by Braun and Clarke (2012) to interpret the data and present findings. Assumptions and limitations for the study are clearly set out as well as the ethical considerations. Furthermore, I explained how credibility, dependability, conformability, and transferability throughout the process were maintained (Frambach *et al.*, 2013, Bengtsson, 2016) to ensure that the study is trustworthy.

3.2. Role of researcher

3.2.1. The researcher

I am a registered Professional Nurse and have been practicing as a nurse educator at a government nurse education institution in the Western Cape since 2014. A nurse educator, according to the South African Nursing Council (SANC, 2014), is someone who is registered with the SANC as a professional nurse with additional qualifications in Nursing Education. I have been registered with the SANC in this capacity since 2010 and have been additionally registered as an Advanced Psychiatric Nursing Practitioner since 2011. This allows me to work and function in the general nursing, psychiatric nursing and nursing education fields as lecturer, clinical educator, education manager, researcher and specialist. As nursing educator, one needs to comply with the competencies set out by the SANC (2014) of which there are seven domains. Although all the domains are important for nurse educators, the domain referring to scholarship of teaching and learning is essential when it comes to me acting as researcher in this study. The SANC (2014) states that the core

competency of this domain is to facilitate learning. The specific competencies speaking to the outcomes of this study is, firstly, that nurse educators should use information technology skilfully to support the teaching-learning process. Secondly, nurse educators need to be able to not only demonstrate oral and written communication skills but, importantly, to demonstrate electronic communication in all learning contexts. Therefore, exploring the nurse educators' perceptions of technology is in line with the SANC's requirements for nurse educators.

3.2.2. Researcher's role as insider-researcher

It is important to note that I conducted this research study at my institution of employment and among my colleagues, therefore fulfilling the role of an insider-researcher. None of the participants report to me nor do I report to them, placing us on an equal level. Williams (2009:214) refers to the insider-researcher obtaining what could be called "guilty knowledge" and that this knowledge could lead to potential embarrassment for the participants. Furthermore, knowing the participants can lead to loss of objectivity and unconsciously making incorrect assumptions (Unluer, 2012; Holloway & Galvin, 2017). There is a possibility that I may not have received important information or sensitive information from participants, as we know each other well professionally. Furthermore, there is a possibility that I may disclose sensitive information in my research, as I am aware of the issues in the institution, which may lead unconsciously to breaking confidentiality. My closeness to the topic may lead to me not considering all the aspects of the data as important, where outsiders may consider it as important (Saidin & Yaacob, 2016). Holloway and Galvin (2017) state that being so entwined in the research, I experience challenges relating to assumed understanding, and remaining objective when analysing data as well as dealing with participants' expectations.

However, the advantages to being an insider-researcher include that I have a better understanding of the politics and culture of the participants and that the social interaction will not be influenced negatively. I also have some level of intimacy with the participants, which will help towards establishing if the truth is told (Unluer, 2012). Thus, I become a co-creator of the new knowledge that will be generated as a result of the study. I also have a good understanding of how things actually work in the institution and how to approach the participants. Locke (2019) indicated that acting as a researcher in one's area of work can lead to revealing issues or challenges that otherwise would have remained unresolved or unmentioned and furthermore create opportunities for projects to be completed.

3.2.3. Importance of reflexivity

It was, therefore, important that I continued to reflect on my role in the study throughout its duration. This helped me to remain objective and to analyse the process as it continued. Reflexivity allowed me to locate myself in the research project and analyse my role in it (Holloway & Galvin, 2017:9). Furthermore, it allowed for monitoring the relationship between the participants, the research and myself. This was all necessary to keep myself aware of how the findings will affect the main aim and outcomes of this study (Holloway & Galvin, 2017:9).

The aim of reflexivity is to critically look at one's role as researcher and critically analyse oneself throughout the process. Furthermore, reflexivity ensures the study's rigour and trustworthiness (Watling & LaDonna, 2019). It was important for me to follow this process as I fulfil the role as MPhil student, but also the role of co-worker and I needed to remain aware of the influence these roles had on the manner in which participants reacted. Furthermore, my own assumptions and stance on the topic can also influence how I interpreted the data; reflecting throughout the process helped me to stay objective.

3.3. Research approach

3.3.1. Qualitative research

The aim of the study was to understand perceptions of a specific group of people regarding a specific topic and therefore a qualitative research method was selected. Qualitative research focuses on the ways in which people interact and make sense of experiences and the world in which they function; it can be seen as a form of social inquiry (Holloway & Galvin, 2017). Holloway and Galvin (2017:3) summarise the concept of qualitative research as attempting "to understand, describe and interpret social phenomena as perceived by individuals, groups, and cultures". Therefore, the aim of this study fitted perfectly with the qualitative research realm. My intention was to investigate a specific phenomenon under a specific group of individuals. Furthermore, qualitative research is also useful when change is needed (Holloway & Galvin, 2017) and this links with the outcomes of this study to help staff adapt to change regarding technology in teaching.

Clarke and Braun (2013) state that qualitative research refers to the using of words as a form of data and to use these words to seek understanding and meaning in the diverse, complex but interpretative field of qualitative research. They are also of the opinion that qualitative research gives researchers an opportunity to act as the voice for specific groups

of people or on a specific issue and, in the end, help resolve or conclude the issues (Clarke & Braun, 2013). Therefore, I aimed to use the results of this study to inform the institution of the nurse educators' needs regarding technology use in teaching.

3.3.2. Phenomenological approach

The study adopted a phenomenological approach to explore the reasoning behind nurse educators' perceptions of technology in teaching. This approach was aimed at conducting an in-depth inquiry into a specific phenomenon (the use of technology in teaching) from the view of those (nurse educators) who experienced this phenomenon. The researcher attempts to understand the lived experiences of the participants and to make meaning of their experiences (Burns & Grove, 2010; Holloway & Galvin, 2017:227-228; Connelly & Peltzer, 2016). This approach involves the investigation of smaller groups of individuals' in-depth experiences on specific topics to gain very rich data and deeper insight (Burns & Grove, 2010; Holloway & Galvin, 2017:229; Connelly & Peltzer, 2016). Hence, the study only focussed on the nurse educators at a government nurse education institution in the Western Cape, which kept the study group small. Although a phenomenological approach can be complex and difficult (Holloway & Galvin, 2017) it can be very successful in exploring human experiences as Connelly and Peltzer (2016) confirms. It was important that I was able to place my own ideas, perceptions, and attitudes aside in order to gain insight into the phenomenon while ensuring trustworthiness, which will be discussed later in this chapter.

3.3.3. Thematic analysis

The data captured in this study was analysed by using a thematic analysis process adapted from Braun and Clarke (2012). Thematic analysis is recognised as a useful method in qualitative research in various fields, including psychology and nursing (Clarke & Braun, 2018). This method is used to analytically identify and organise data into themes to offer some insight into a specific phenomenon and this process allowed me to make sense of shared meanings and/or overall experiences at the institution. Furthermore, it allowed me to make use of various ways of looking at the data while focusing on one aspect of a phenomenon, making it a very flexible process (Braun & Clarke, 2012).

The six-phase approach to thematic analysis, by Braun and Clarke (2012), entailed firstly for me to familiarise myself with the data, secondly to generate codes, thirdly to search for themes, fourthly to review potential themes, thereafter to define and name themes, and lastly to produce a report (Braun & Clarke, 2012). Each step will be discussed in detail in the data

analysis section later in this chapter. This approach made coding the data easier and quicker, which allowed me to identify the themes much more easily.

Although thematic analysis is a fairly straightforward form of analysing qualitative data, there are some pitfalls of which I had to be aware. The first pitfall is failing to analyse the data at all or conducting a poor or weak analysis thereof. A second pitfall is using the data collection questions as themes. Other pitfalls include not matching the theory and analytic claims with each other as well as failing to clarify the theoretical assumptions and their undertakings (Braun & Clarke, 2012).

3.4. Population and sampling

The nurse education institution where this research was undertaken is the only government Nursing Education Institution (NEI) in the Western Cape (SANC, 2018). The institution is currently in a process of being registered as a Higher Education Institution (HEI) in its own right and has submitted curricula for the new nursing qualification programmes as stipulated by the SANC for approval. The new nursing qualifications include a three-year diploma course to register with the SANC as a registered general nurse, a four-year bachelor's degree course to register with the SANC as a registered professional nurse and midwife as well as various postgraduate advanced diplomas in order to register as nurse specialists (South Africa, 2019).

The NEI consists of four campuses across the Western Cape, namely the Metro West Campus in Athlone, Metro East Campus in Bellville, Boland Overberg Campus in Worcester and the Southern Cape Karoo Campus in George. These four campuses are responsible for the training of undergraduate as well as various postgraduate students wishing to obtain a nursing qualification.

The current undergraduate programmes presented at the institution are the BTech degree, which is offered in collaboration with the Cape Peninsula University of Technology (CPUT), and the Regulation 425 Legacy Qualification Diploma in Nursing. Both of these qualifications lead to the registration at SANC as a Professional nurse in general nursing, community nursing, psychiatric nursing, and midwifery. The Regulation 425 qualification is being phased out and the 2020 group of students will be the last to obtain this qualification in South Africa. The institution is awaiting accreditation for the new nursing qualifications from the SANC and aims to start training in 2021. Therefore, another reason why this study is timely

is because it can be expected that with the new qualifications, incorporating technology into their teaching will become even more important.

Currently the NEI has 35 permanent government-employed nurse educators at the Metro West and Metro East campuses. The study was conducted at two of the four campuses of the nurse education institution that are situated in the Cape Metropole area of the Western Cape. These two campuses are responsible for the training of nursing students across their four years of study as well as for the various one-year postgraduate courses. The permanent government-employed nurse educators (n=35) responsible for teaching at these campuses were identified as the population for the study and each participant had to have been permanently employed for longer than three years in their respective departments to ensure they have been fully involved in the development of the programmes. Purposive sampling, as informed by the work of Anderson (2010), took place as the participants were specifically selected based on their involvement with these programmes. All nursing educators, employed for more than three years were invited (discussed later in this chapter) and those who accepted, were interviewed. According to Burns and Grove (2011), the qualitative researcher may consciously select participants for the study to ensure in-depth information is obtained from the most information-rich participants. Robinson (2014) is of the opinion that purposive sampling will deliver data that are distinctive, diverse and that give a significant perspective on a phenomenon.

3.5. Data collection and management

Potential participants (n=35) were invited to take part in the study via an email invitation (Addendum A). The email introduced the participant to the study topic as well as provided detailed descriptions on the study background and methods. I aimed to conduct between eight to ten interviews, however, only five participants responded to the first invitation. Thereafter a second email was sent to potential participants and another two accepted. I followed up the second email with phone calls to potential participants and one more participant accepted, making a total of eight participants.

I scheduled meetings with all the participants who accepted the invitation. Individual semi-structured interviews were conducted by me at the participants' campus of choice and in a venue that was quiet and private. The interviews were conducted in English, as this is the official language of teaching and communication at the NEI. All classes at the NEI are only offered in English and therefore it could reasonably be expected that the participants would

be able to participate meaningfully in English. The interviews were audio recorded on two separate electronic devices to ensure there would be a backup should one device fail.

Before I commenced with the interview questions, demographic information regarding the participants was collected (Addendum B). I made use of pre-set open-ended questions in the semi-structured interviews, which allowed the participants to share any information they perceived as important rather than just answering what is asked. The intent was that it would also allow for pursuing additional relevant ideas should any be raised (Burns & Grove, 2010). The pre-set questions (Box 1) were developed based on the literature discussed in chapter two as well as on my experience at the NEI and my interest in the research topic.

- 1. Do you make use of technology as part of your teaching, please elaborate on:
How, Why, What, When, Where?*
- 2. Did you ever receive any formal training regarding the use of technology?
 - a. If did, which types*
 - b. Or if not, why*
 - c. Which will you want to receive?**
- 3. How would you describe your level of confidence and competence regarding the use of technology?*
- 4. What is your understanding of technology for teaching purposes?*
- 5. Do you experience any challenges in using technology:
 - a. Personally in teaching*
 - b. In your place of work**
- 6. Do you have any recommendations or ideas on the use of technology for teaching purposes?*
- 7. Is there anything else you wish to add relating to the topic?*

Box 1: Pre-set interview questions

I conducted the interviews cognisant of my role as insider researcher and the potential influence that this could have on the study. Prior to conducting each interview, I explained the purpose and process of the study to the participant and obtained written informed consent from them (Addendum C). The interviews took between 10 and 15 minutes each and refreshments were offered to the participants at the start of the interview as a token of appreciation for participating.

After each interview, the recording was transferred electronically from the devices to a private computer and kept safe in a secure folder. Each participant's interview was labelled with a unique number to ensure anonymity and maintain confidentiality. The interview recordings were uploaded to a USB device for an independent person to transcribe the interviews. The audio recordings were transcribed to an MS Word document and password-protected to ensure confidentiality. Thereafter it was also stored in the secure folder until the analysis process. All documentation and recordings pertaining to the study were stored on a password-protected computer to ensure the integrity of the study.

3.6. Data analysis

The analysis followed Braun and Clarke's six phases of thematic analysis (Braun & Clarke, 2012). Figure 1 illustrates the process:

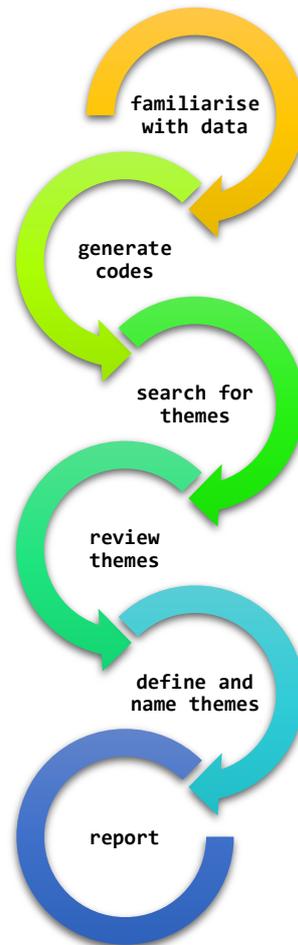


Figure 1: Phases of thematic analysis (Adapted from Braun and Clarke, 2012)

3.6.1. Braun and Clarke's six phases of thematic analysis

3.6.1.1. Phase 1: Familiarising myself with the data

Firstly, an independent person transcribed the verbal data into written form before phase one started. I started by listening to the recordings and checking that the transcripts were correctly transcribed. Thereafter I familiarised myself with the data by reading the complete data set once. Then I fully immersed myself in the data by reading and re-reading it several times, as suggested by Braun and Clarke (2012). By re-reading the data, I could start to search for meanings and patterns in the data. Braun and Clarke (2012) stated that although the reading and re-reading can be very time consuming the immersion in data is very important, as I had to become more familiar with the complexity of the data. During this phase, I also started to mark certain phrases or words as potential codes.

3.6.1.2. Phase 2: Generating initial codes

After I had familiarised myself with the data and identified initial ideas about what seemed interesting or stood out, the generation of initial codes took place. I grouped the similar ideas

together to form codes. A code can range from a single word, phrase(s) or full sentences (Saldaña, 2015) and represents a summary of an idea in the data. According to Saldaña (2015), coding is an iterative process and a repeated act that requires quite a few rounds of coding and re-coding to come to the final set of codes.

The following diagram in figure 2 gives an overview of the code-generating process adapted from Saldaña (2015:4-15).

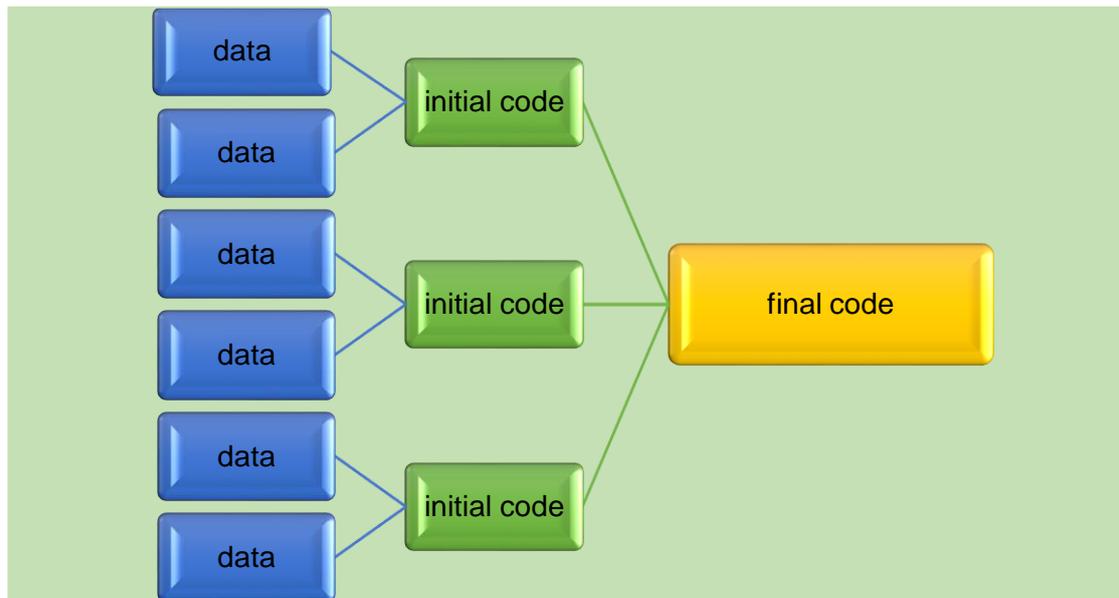


Figure 2: Code-generating process (Adapted from Saldaña, 2015)

I grouped all the responses for each question together to get a complete view of the responses for each question. Thereafter, initial codes were assigned to the relevant data. The codes were further analysed and similar codes were condensed into a more descriptive code. Following several rounds of coding, a final code was created for the complete data set.

The final codes were grouped together according to relevance and I eventually generated three groups of codes that spoke to relating issues. The three groups were condensed further into shorter descriptive codes (Addendum D).

3.6.1.3. Phase 3: Searching for themes

In this phase, I searched for themes by combining codes into possible themes and gathering more data relevant to the themes (Braun & Clarke, 2012). This can only be done when all coding is complete and I had a list of different codes. I grouped codes together according to

relevance to form an overarching theme. According to Braun and Clarke (2012) there are various ways that can help identify themes of which visualisation is one. It is suggested that one can make use of colour-coded tables to get an idea of emerging themes visually. At the end of this phase, I had a collection of codes, themes and subthemes. I assigned a theme name to each of the groups, thus ending the process by having three main themes, each with three to four subthemes (Addendum D). Thereafter I started to identify the significance of each theme.

The following diagram in figure 3 gives an overview of the theme-generating process as adapted from Saldaña (2015:9).

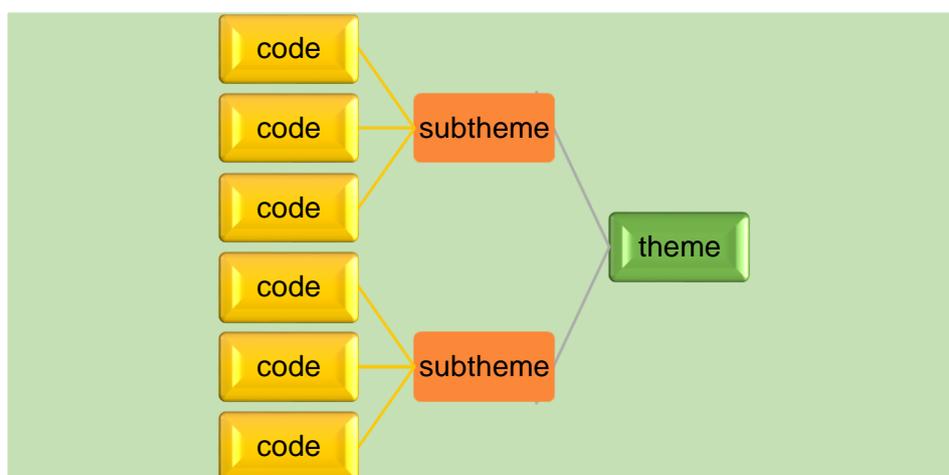


Figure 3: Theme-generating process (Adapted from Saldaña, 2015)

3.6.1.4. Phase 4: Reviewing themes

During this phase, I evaluated the themes to ensure that the themes speak to the codes as well as the complete data set (Braun & Clarke, 2012). According to Braun and Clarke (2012), themes may be re-evaluated, grouped together or broken down into new themes. I reviewed and refined the themes to ensure the complete data set has been analysed. Braun and Clarke (2012) advise researchers to re-read the entire data set during this phase in order to ensure the themes speaks to the data and to code any additional data that could have been missed during the initial coding process. After I completed this process, no additional data were identified. Although coding is an ongoing process (Braun & Clarke, 2012), I had at the end of this phase a set of different themes and an understanding of how the themes link together and what they describe about the data.

3.6.1.5. Phase 5: Defining and naming themes

This phase includes the naming and describing of each theme by continuously analysing and refining it (Braun & Clarke, 2012). I obtained the core understanding of each theme and identified to which aspects of the data the theme speaks. Refining allowed me to identify if the theme contains any subthemes as subthemes can provide structure to large or complex themes (Braun & Clarke, 2012). Each theme was analysed and had a detailed written description. By the end of the phase, I was able to define clearly what the themes were as well as name the themes with a summarising but effective name that would allow the reader to understand what the theme is about immediately (Braun & Clarke, 2012).

Three final key themes emerged from the analysis process and each theme had subthemes that described similar concepts of the data. The first theme refers to the teaching context and includes subthemes referring to access, resources and infrastructure, and approaches. The second theme refers to the teaching experience and includes the subthemes of feelings and perspectives, issues surrounding confidence and competence, the question of generational issues, and the importance of technology for teaching and learning. The third and last theme refers to aspirations and includes subthemes like being agents of change, support and infrastructure, and keeping up with change.

3.6.1.6. Phase 6: Produce a report

Phase 6 entails the final analysis and writing of the report. By now I had a complete set of themes with descriptions and embarked on writing the final report. According to Braun and Clarke (2012) should the report provide a brief, comprehensible and thought-provoking account of the story the data tell, in a convincing manner. The report should not only be a description of the data analysed and findings but also connect the findings with the research question (Braun & Clarke, 2012).

3.7. Quality assurance

To ensure that the research is trustworthy, I made sure that the study complied with the criteria for credibility, dependability, transferability, and conformability throughout the process.

Credibility refers to confidence in the data's truth and the interrelation thereof (Polit & Beck, 2012). Only findings collected by myself was interpreted and I validated the descriptions given by participants. Credibility speaks to the research findings and how convincing it is to

others (Frambach *et al.*, 2013). To ensure credibility I made sure to remain unbiased and neutral during the interviews and data analysis process. I also ensured that the resources used to frame the study were published and were only academically credible sources. Furthermore, credibility of a study cannot be insured without dependability (Polit & Beck, 2012).

Dependability of the research speaks to the consistency of the data (Frambach *et al.*, 2013). To ensure dependability, I needed to be flexible, open to the process and analyse data until saturation took place (Frambach *et al.*, 2013). Although saturation took place after five interviews, I continued conducting interviews to ensure I had enough data to reach accurate conclusions.

Transferability refers to the magnitude to which the findings can be utilised in different scenarios (Frambach *et al.*, 2013). To ensure transferability I ensured that all aspects including context, sampling, and literature were described in depth.

Confirmability refers to how findings are applicable to the participants and their situations, free from biases based on my own views (Frambach *et al.*, 2013). I ensured confirmability by searching for data that contradict the findings and I, furthermore, reflected on the process throughout the study (Frambach *et al.*, 2013).

3.8. Ethical procedure

The research protocol was submitted to the Stellenbosch University Health Research Ethics Committee for ethical clearance (Addendum E) and approved. An application to the Provincial Government Ethics committee via the National research database was made, because the participants and I are employees of the government institution (Addendum F). Permission was granted. Permission was also requested from the Director of the NEI to interview the employees at their place of employment and approval was granted via email (Addendum G).

The interviews were conducted after ethical approval was granted by the mentioned committees. Each participant was given an information leaflet (Addendum C) explaining the purpose of the study at the beginning of the interview as well as the process of the interview and the purpose of making an audio recording. The participants was also asked to sign an informed consent form and told that this is a voluntary process; participants were informed

that they could withdraw whenever they wished. Participants were informed that the audio recording will be available should they request it and that these recordings will only be used for the purpose of the study and will remain confidential. To de-identify the responses the participants were labelled with an interview number.

3.9. Limitations

Various aspects influence teaching, of which technology is only one aspect. Therefore, I could only offer a perspective on a specific topic in a specific time. Recommendations therefore could not be reflective of the broader aspects influencing teaching.

The study focuses on a small population at two sites within one institution and only on a single aspect that influences teaching. Furthermore, the current state of change at the institution could also have had an effect on the participants' responses and should be taken into consideration since expecting change can also change one's behaviour and attitude. The fact that this research took place at only one nursing institution, this research can thus speak to only this institution's educators' experience. For example, including management's perceptions regarding technology at the institution could have given this study another dimension of understanding. However, I do believe that the recommendations can help to bring about change for future development of the institution and enlighten management about the nurse educators' needs.

Furthermore, my inexperience as interviewer as well as my close professional relationship with the participants could have played a role in the responses I received from the participants. For example, the interviews were shorter than expected, possibly due to us knowing what each other meant about certain aspects or situations. It is always difficult to be an insider-researcher and remain objective. During this study, I have realised that reflecting as you continue is very important in order to remind yourself continuously to remain objective and to keep your own feelings, perspectives and opinions out of the study. I do believe that it will become easier to be an insider-researcher as my experience in research continues to develop.

3.10. Conclusion

To conclude, this chapter focussed on the methods used to carry out this study as well as what was needed ethically to embark on the research journey. Furthermore, this chapter described the role of the researcher and specifically the role of an insider-researcher,

highlighting those aspects that should be considered when one does research in one's workplace. The importance of reflexivity was highlighted and a description provided of how quality assurance was managed for the study. The chapter gave an overview of the qualitative phenomenological research approach followed as well as the methods of data collection and analysis. Lastly the chapter emphasized the ethical considerations for this study and stipulated the limitations of the study.

Chapter 4

Findings of the study

4.1. Introduction

This chapter presents the findings of this research project that aimed to explore the perceptions of nursing educators regarding the use of technology in teaching. The findings of this study will be discussed under the themes identified through the thematic data analysis process (as described in chapter 3). The analysis process focussed on the outcomes set for the study, which included firstly determining the nursing educators' perceptions regarding the use of technology in teaching. Secondly, I determined whether there were any specific enablers and/or constraints with regards to the use of technology in teaching. Thirdly, the results were used to develop a set of principles to support the use of technology in teaching at a public nurse education institution. The development of the principles will form part of the discussion in chapter 5.

Three final key themes were identified during the analysis process and each theme had subthemes that described similar concepts of the data. The first theme refers to the teaching context and includes subthemes referring to access, resources and infrastructure, and approaches. The second theme refers to the teaching experience and includes the subthemes of feelings and perspectives, issues around confidence and competence, generational issues, and the importance of technology for teaching and learning. The third and last theme refers to aspirations and includes subthemes like support and infrastructure, being agents of change, and keeping up with change.

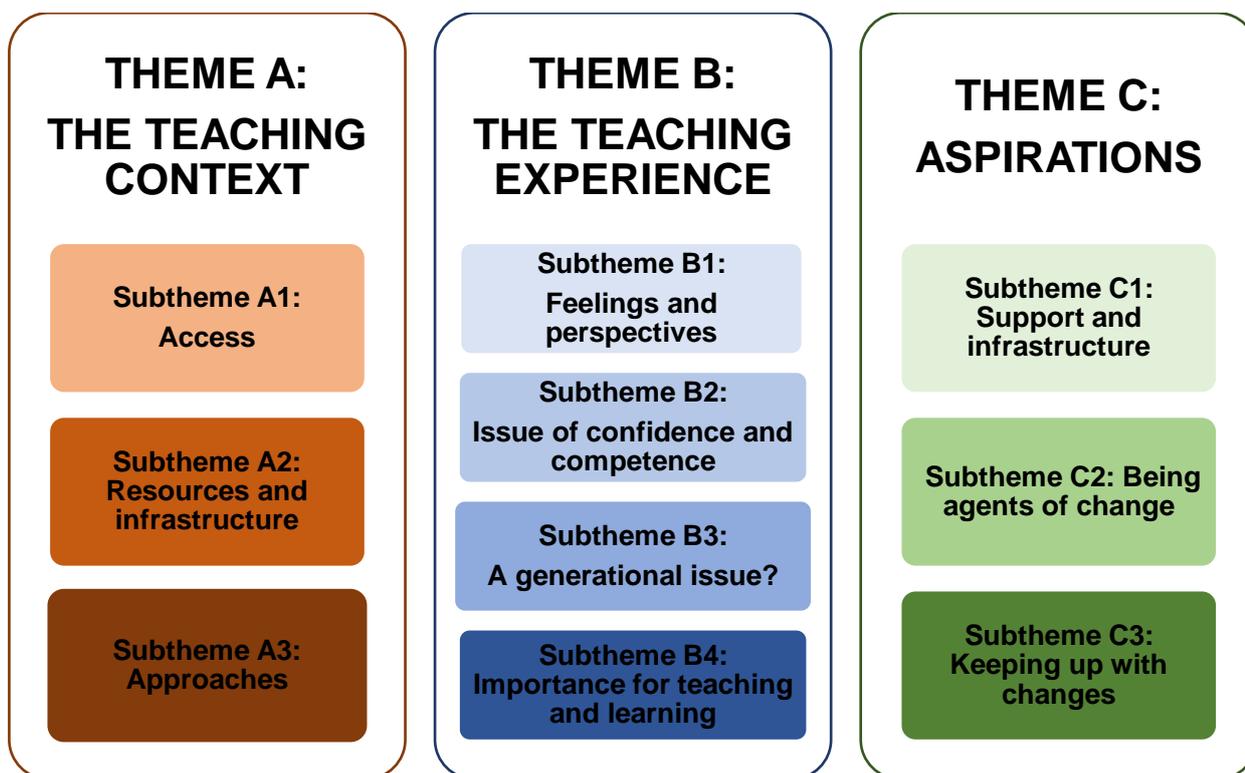


Figure 4: Key themes and subthemes

4.2. Findings

In order to understand the data in the context in which it is presented, it is important firstly to have a better understanding of who the participants were and to understand whose voices are being heard in this study. This will also provide a better understanding of the different perspectives of different people; however, it is important to take note that this is not intended to be representative of all nurse educators in the Western Cape.

4.2.1. The participants

Eight participants took part in the study: four participants from the Metro East Campus (Bellville) and four from the Metro West Campus (Athlone). Their ages ranged from 36 to 61 years old, with six participants over the age of 50 and on a senior lecturing level. The eight participants are all registered professional nurses as well as registered nurse educators at the nurse education institution (permanently employed) and have been in the nursing education field for more than five years. One of the participants was an educator as well as a senior member of management and brought a different set of perceptions to the data.

This suggests that these participants come with experience and the potential to provide valuable input to the study. In addition, all of the participants were fluent in the institution's

language of education, namely English, therefore not influencing their participation in the interviews and allowing for comfortable communication.

All of the participants have a postgraduate diploma in nursing education, as per the South African Nursing Council's (2005) requirements. Two participants had doctoral degrees and six had master's degrees. Thus, the participants' experience in furthering their own tertiary education as well as their experiences working in the nursing education field had the potential to bring a deeper level of knowledge and understanding to the study. Their teaching experience, specifically teaching in the nursing education field, varied from between four to 33 years.

4.2.2. Discussion of findings

To give voice to these participants the data was analysed and the findings will now be discussed under the final key themes: the teaching context, the teaching experience, and aspirations. Illustrative quotes have been included verbatim.

THEME A: THE TEACHING CONTEXT

Theme A focuses on the teaching context and includes the subthemes of access to technology for teaching purposes, resources and infrastructure needed in the teaching context, and approaches currently used by the participants in their teaching.

Subtheme A1: Access

It became evident from the data that access to technology at the institution was a major constraint for the participants, especially when it came to embracing technology in their teaching approaches. One participant said "if we have more access, I think we can get our students a better learning experience as well" (Interview 3).

From the start of the interviews, it became clear that the unavailability of internet is a key constraint for the participants. Internet access in lecture rooms and open access in their offices make the use of technology in teaching nearly impossible for educators. The participants mentioned that the majority of the time they have to do their lecture research at home in their private time as the institution's internet access limits them and they cannot, for instance, download a YouTube video to show in class (Interview 3; Interview 6; Interview 7).

In addition, they cannot connect in the lecture room directly to the internet to search for information or show video clips. It became clear that the participants see the lack of internet as hindering them from making use of more interactive teaching techniques.

“They (the institution) must first get us internet for everybody to be available and access to things like YouTube, we don’t have access to that because it’s a Government and we are blocked or they cut us out from that ... [S]o there are many things that we cannot look up on our own computers, we have to access that from home and then we cannot use it from here so that is the first thing that we need.” (Interview 6)

“...the fact that we as lecturers do not have access to the internet in class has an influence on my teaching.” (Interview 7)

Therefore, a definite constraint that stood out was the lack of internet connectivity. It is evident that these participants saw internet access as a must for teaching.

Subtheme A2: Resources and infrastructure

When it came to the technology resources and infrastructure at the institution, various constraints were mentioned. Not all the lecture rooms have equipment installed (Interview 6; Interview 8); educators needed to book out equipment and stand in long queues to get the equipment (Interview 7); and the equipment did not always work correctly (Interview 3; Interview 5; Interview 7). All of this takes a lot of time and effort from the educators. It was also felt that there is not enough equipment for all staff and that it is a constant battle to secure equipment.

Educators are not assigned a laptop for work purposes as mentioned by a participant: “I use my own laptop, the projectors do not work sometimes” (Interview 5). Another participant also mentioned that they “do not have [their] own laptops” (Interview 2). Thus, they have to make use of their desktop computers to prepare their lectures. In many cases they found that the software on the desktop is not compatible to the software on the laptop as the programmes are not updated regularly, causing educators to become frustrated and irritated (Interview 8) and therefore reverting back to “keeping things simple” (Interview 7).

A participant in a more senior position at the institution mentioned that “basically upgrading all the current infrastructure” (Interview 4) is needed, however, “that is work in progress” (Interview 4) and therefore the participants continue to struggle. Another participant confirmed this struggle by stating that “it is quite a struggle sometimes with equipment not working” (Interview 3). It is evident that these participants are challenged, frustrated and limited due to the resources and infrastructure not being available or up to the standard of a higher education institution.

“...you go to class, the projector is not working, the bulb is not in working order, the laptop is not working, you do not have somebody, the laptop and the projector does not talk to each other, and none of the resources that you know that you can use is not working, you do not have the support system. You have to carry all the technology to class, you have to sort it out you do not have support.” (Interview 8)

“...if there is no resources available, no proper resources available and also if the resources that are available if that is not in proper working order you tend to struggle and you have to wait for somebody from a IT company and reset the stuff. And that can be a real challenge because then you will have to wait until they can fix things for you.” (Interview 1).

Therefore, it is clear that the environment in which these educators are working makes it really difficult for them to teach and everyone is trying to find a way to cope. Some participants “keep things simple” (Interview 7) and others go the extra mile by working “at home ... because [they] cannot access it [the internet]” (Interview 3).

Subtheme A3: Approaches

During the interviews, it became clear that the participants had various perspectives regarding how they approach technology as well as why and how they use it. Some of the aspects mentioned were:

“It takes effort and I think that is why a lot of people shy away from using it because they know it take effort so they go back to using overhead projectors, it is just easier.” (Interview 3).

“I have my doubts whether it is really going to achieve that educational aim.”
(Interview 7).

Thus, they find it easier to convert back to older type lecture styles of teaching (Interview 3; Interview 6), as also mentioned above and in the following quote:

“...PowerPoints, which is I think at this stage now the main thing for using the technology, for lecturing.” (Interview 2).

One of the participants even admitted that she is “using technology but on a very basic level, by using PowerPoint presentations and that is mostly what it is, what we are using, so there’s not a lot of technology involved in our teaching at the moment” (Interview 6).

However, on the positive side, participants also said that

“I think it [technology] is compulsory; it enhances the learning experience ... I think technology for me is an essential to enhance the learning experience, to get them [students] excited so that they want to learn more about the topic and actually want to go and learn on their own as well. ...can enhance our learning experience at our institution.” (Interview 3).

“...interactive technology can work specific for our millennials of now, which can academically stimulate them to be more academically advanced.” (Interview 1).

There are definitely differences amongst the participants when it comes to how and why they approach technology. Although some cannot see past the constraints regarding technology at the institution there are participants that indicated they find it a much-needed tool to enhance teaching and thus learning.

THEME B: THE TEACHING EXPERIENCE

This theme focuses on the teaching experience by firstly exploring the feelings and perceptions of the participants; secondly, issues regarding their confidence and competence when using technology; thirdly, whether generational gaps play a role in how the teaching

experience is perceived; and lastly, the experience of teaching with technology and its influence on teaching and learning.

Subtheme B1: Feelings and perspectives

Across the interviews, it became evident that the participants had a range of feelings and perspectives, both positive and negative, regarding technology use. Participants shared their feelings about things that do not work, the lack of support, and around the lack of confidence.

“...all the frustration that and the irritabilities around technologies.” (Interview 6).

“...more frustrations I think that is one of the reasons why, I think I have not really gone into it in a big way ... then also that which I do not use, I am terrified of.” (Interview 7).

Participants also observed that technology not working properly and not having adequate support “increase your stress” (Interview 8) and “you tend to struggle” (Interview 1).

Furthermore feelings of “disconnect” (Interview 7) and “challenge” (Interview 1) and even a feeling of being “excluded in a sense” (Interview 2) were mentioned. Thus, a strong range of negative feelings came to the foreground when asked about technology for teaching purposes.

However, there were also some positive feelings that came out of the interviews. The one participant mentioned that she thinks that “technology is really exciting, we can do a lot of that, it can really stimulate the students much more” (Interview 6). Another participant, when describing the value of technology in teaching, mentioned, “I think it is excellent” (Interview 3).

Although the negativity came across quite strongly in the data, and it was initially interpreted as leaning towards just being negative, it is important to give recognition to the positivity that also came through and created a strong thread.

Subtheme B2: A matter of confidence and competence

There were a range of perspectives that related to the extent to which people felt confident and competent to engage with technology and the way they saw themselves in the 'age of technology'.

"...that which I do not use, I am terrified of ... you know there is also bit of a disconnect between myself and technology." (Interview 7).

"I think the main challenge for me is just not having confidence and sometimes when you want to ask, you know, get some help from somebody else they, they too busy, feel more incompetent ... your confidence and most of the time you struggle on your own." (Interview 2).

However, not all responses were negative and one participant linked confidence and competence regarding the use of technology with the generation from which she came. This suggests that perhaps being of a younger generation makes the use of technology easier.

"...when I was doing my undergraduate in nursing and postgraduate courses, I was already computer literate. So obviously it is an advantage that I am quite comfortable in technology or using technology and I think the generation that I am, we are not scared to experience. So any technology that is added on to the institution where I am I work already, I am not scared to make use of it." (Interview 3).

Subtheme B3: A generational issue?

The issue of age was raised as either an enabler or a constraint with regard to using technology in a teaching context. The younger participant who in the previous section is quoted as "not being scared" to use technology indicated that she was "lucky".

"I guess I am lucky, I was born after computers, so I had computer science as a subject at school, so that makes me, put me a little bit of advantage compare to a lot of my colleagues." (Interview 3).

However, others positioned themselves as being from a different generation and mentioned that they experience a "disconnect between myself and technology because of, I suppose the group I belong to the baby boomers" (Interview 7).

Furthermore, the participants were also aware of the generation their students represent and that it presents an important imperative for the inclusion of technology in teaching. Students were also seen as providing their teachers with guidance in terms of their use of technology.

“...we teach what we call millennials, quite younger ... a younger generation and they are very prone to use technological equipment.” (Interview 1).

“Oh yes, we have got the new generation X and they are all into IT and the lecturing staff must keep, keep up with the times. So it is essential that we become as equipped. Currently our students are teaching us to use that kind of media, so no it is important because you have different types of learners and you can, via technology address all those learning styles at the push of a button.” (Interview 4).

Although some see the generation from which they are as a constraint it should not be used as an excuse to not embrace technology. The knowledge of the current generations in the classrooms and their technology needs are important for the participants, as this will create “excited students or motivate the students” (Interview 3).

Subtheme B4: Importance for teaching and learning

The importance of technology for teaching and learning was noted by several respondents. They argued that while it was important for them to acknowledge this, it was even more important that this be recognised at an institutional level.

“I think it is a compulsory, it enhances the learning experience, and you cannot just stand in front of the class and just talk. But if you really want to draw your students in and if you want their attention, and if you want them to get excited, for me it is very, very important to get the students excited about the topic, because the less they excited, they not going to learn.” (Interview 3).

“I think the most important thing is that institutions realise how essential this is, buy-in from top management in providing technology here at the institution, it does not really help. It cannot be just on a personal level it should be on an institutional level

where people stand up and say we're an institution that going to improve technology we see the need for it." (Interview 3).

However, it was also mentioned that educators who are not so competent will have difficulties embracing technology and this can have an impact on teaching and learning.

"...however there is a big gap in in terms of that technology and how you can actually download viruses, so the uneducated person, they cause their laptops to crash very often." (Interview 4).

In conclusion, confidence and competence appear to be interlinked and in some instances, people were labelling themselves in a particular way, which could influence their confidence. Although it was commonly acknowledged that technology was fundamental to student learning, given the fact that students are generally comfortable working in this space, there was a sense that there was a shared responsibility, by the institution as well as the students and staff, for making it happen.

THEME C: ASPIRATIONS

What was clearly noticeable from the interviews was that although many constraints, negative feelings and perceptions were mentioned, there was an aspirational element amongst the participants. There was a desire to improve and enhance their knowledge and skills around technology in teaching, as well as a sense of being the change they wanted to see.

Subtheme C1: Support and infrastructure

When it came to the support and infrastructure at the institution, it was obvious that the participants had a definite need for support from the institution. Their needs included having access to technology or having the necessary resources and infrastructure in place. Some participants just wanted to be heard by management and wanted their voices acknowledged in the decision-making around technology for teaching.

There were various negative remarks regarding infrastructure.

“...waiting to see what is going to happen in terms of infrastructure because we, at the moment were seeing it getting worse than better.” (Interview 7).

“I think if you now look up at the employer we are not going to get anything.” (Interview 2).

“...you do not have somebody ... you do not have the support system ... you have to carry all the technology to class, you have to sort it out you do not have support.” (Interview 8).

However, there are participants who have suggestions regarding getting what is needed to change some of these negative aspects.

“I would like to see the accessing instruction on technology being brought to the institution to the people that going or being offered then perhaps the time is not very useful. I think also the input into the kind of technology should be the subject of an academic group discussion.” (Interview 7).

A participant in a senior position mentioned that “we must definitely implement that kind of discussions at the academic and teaching and learning platform” (Interview 4). For these participants support and having a voice in the discussions were an important aspect in order fully to embrace technology.

Subtheme C2: Being agents of change

An important factor that came to the fore was that of the participants recognising the need to be an agent of change. They recognised that the onus of upskilling themselves was not solely the institution’s responsibility and that they needed to exert their own agency in this regard, both for their own learning and to support the learning of their colleagues.

“...we need to act as change agents to change the idea of the older lecturers that technology is not your enemy, is actually there to assist you to get them, to get that mind shift.” (Interview 4).

There was a feeling of intense excitement present in the comment from the participant in Interview 6: “I can say that I think technology is really exciting, we can do a lot of that, it can really stimulate the students much more.”

Another participant mentioned that change should start among peers; supporting each other and sharing knowledge could lead to the desired changes.

“I would love that maybe within our group of colleagues that we maybe once or twice a year that we can maybe get together and, I know that there is some of my colleagues that are much more clued-up, that they can maybe said ‘listen today we can have a fun day and show how to include video’ that this stage.” (Interview 2).

It is evident that there is a requirement from these participants to act as agents of change and, by doing so, embrace technology.

Subtheme C3: Keeping up to date

In spite of the concerns mentioned by many of the participants about their personal experience of teaching with technology, some felt that it is also important to keep up to date with the advances in technology.

“Lecturing staff must keep up with the times, so it is essential that we become as equipped, currently our students are teaching us to use that kind of media, so no it is important because you have different types of learners and you can, via technology address all those learning styles at the push of a button.” (Interview 4).

Another participant said that “we need to walk with the times because in order for us to stimulate them more academically.” (Interview 1).

To keep up to date with technological advances, participants mentioned that continuous training would be needed.

“I think any form of training even if it is something we currently do, really add perspective so technology maybe use of the use of different programmes, computer programmes, different form of media in classroom can really benefit the institution especially when, I think it is important to pull it through that is not one person going

for use of media or technology in an education that is one person try to reinvent the wheel but I am so definitely training will help.” (Interview 3).

Therefore, there is a definite need for not only new training but also continuous training and maintenance of skills. A participant mentioned that “they should actually equip us with the necessary tools you know not only the training tools but also the basic stuff to use ... I am at that at this age that I have to see it, do it, and then re-do it on my own” (Interview 2).

In addition, a participant mentioned that the institution is in the process addressing their needs. The participant states that

“...what we have done now is you giving them the options of a laptop or a desktop computer, not both, and the majority of them chose the laptops. So that is all, and we have ordered those, so that should soon change. ... In terms of the technology, we are busy procuring ... basically upgrading all the current infrastructure, but that is work in progress.” (Interview 4).

It was therefore clear that there is a need for upskilling in order to keep up with the students in the classrooms currently and that there was definite aspirations to improve. In addition, the participants felt that support and adequate infrastructure will add to their improvement of skills.

4.3. Conclusion of findings

Initially, the participants seemed interested in and showed understanding of the topic. They were willing to engage openly about their perceptions of technology. However, in the majority of the interviews, their focus shifted to the challenges they have at the institution regarding technology use. My observation from the interviews was that the participants saw the interview as an opportunity to vent about their frustrations regarding the institution’s lack of technology. The participants’ focus was not purely on their academic opinions about the use of technology in teaching.

However, as the analysis process continued, it became evident that these participants had strong aspirations to improve and that they wanted to embrace technology. They also showed understanding of the importance of teaching the current generations with the help of technology. There were good responses regarding the need for upskilling their current

knowledge as well as advancing their skills to new levels. Overall, the idea of being the agents of change stood out as an important aspect for these participants.

Chapter 5

Discussion

5.1. Introduction

My aim with this study was to explore nursing educators' perceptions regarding the use of technology in teaching at a government nurse education institution in the Western Cape with a view to making recommendations to mediate or address any possible constraints. The intention was ultimately that I would develop a set of principles to support the use of technology in teaching at the institution as well as across other nursing education sectors.

My study was directed by its objectives, which were:

- To determine the nursing educators' perceptions regarding the use of technology in teaching.
- To determine enablers and/or constraints with regards to the use of technology in teaching.
- To facilitate staff development by developing a set of principles to support the use of technology in teaching at a public nurse education institution.

In this chapter, the findings from the study are discussed and conclusions are drawn from the research outcomes. In addition, the set of key principles are identified and described. Furthermore, recommendations for future practice are made and potential areas for future research are highlighted.

5.2. Discussion

In preparation for this synthesis, I critically reflected on the findings and identified three dimensions that appeared to be present across the findings. The first dimension is a personal dimension focusing on the nursing educators as individuals with their own individualised perceptions. Secondly, the structural space dimension focuses on the environmental aspects the nurse educators need in order to function optimally in their work environment. The third dimension refers to the social aspects and entails those with whom the nurse educators engage in the work environment. As educators, we make choices every day about what we are going to teach and how we are going to teach. These decisions are

influenced by who we are (the personal dimension), the environment within which we work (the structural dimension), and by those with whom we interact (the social dimension).

Although all three dimensions are equally important and all of them play a role in the participants' perceptions of technology, it is important to recognise that they will overlap in some instances. Therefore, one would consider developing the set of principles in the areas of overlap. These dimensions can be integrated and affect each other, as illustrated in figure 5.

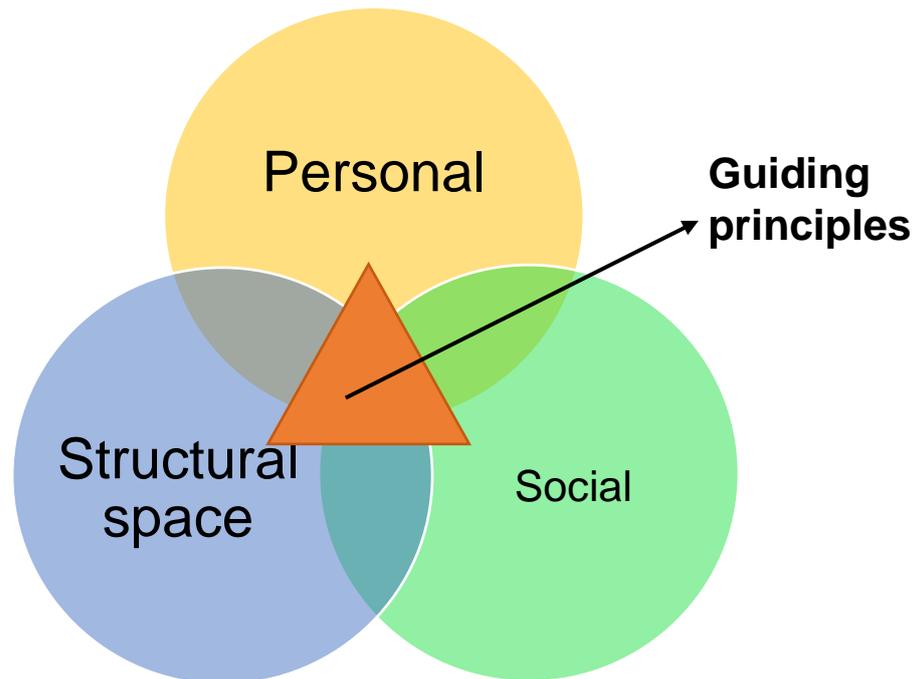


Figure 5: Dimensions of exploration

5.2.1. Dimensions of exploration

5.2.1.1. Personal dimension

On a personal level, the participants' responses highlighted how their practice was influenced by the way they saw themselves, their identity (i.e. age) and the extent to which they believed they were competent to use technology in teaching. While they felt constrained by the lack of technology and support (see also the structural dimension), the idea of being an agent of change, of enhancing their own skills, offered hope for moving with continuous development in the nursing and health education fields.

The participants in this study all work within a complex health education system that is dynamic and continuously transforming. There was an awareness of the importance of keeping in touch with these changes so as to provide sound teaching and enable student success. The participants indicated a strong need for a professional development plan, with a specific focus on their own individual need(s) regarding technology. They voiced the need for training opportunities that will focus on their specific needs as well as further opportunities to make sense of the new skills as well as practice and apply the new skills in their daily teaching.

This resonates with the study's theoretical position relating to transformative learning theory, which indicates that to make a shift in one's perceptions, beliefs and attitudes the person should firstly make sense of the experience and apply these experiences in the correct context (Mezirow, 1997; Illeris, 2018). As the participants indicated, they have this need (or aspiration) to not only learn new skills or update their existing skills but more so to act as agents of change and support and teach the other educators the skills they have acquired. There is a definite aspiration amongst the participants to reach some level of understanding first about what technology for teaching purposes means and how they could benefit from it before they will be able to embrace it fully. This is where the personal dimension and the social dimension meet. The development of some sort of community amongst educators could enable them to share experiences and hopefully motivate each other to embrace technology more freely. It is important also to note that although transformative learning theory has a social justice underpinning, it is not relevant to this study.

This also resonates with the study's theoretical position on self-directed learning. Self-directed learning is a type of learning that ensures that compulsory continuous professional development and competence is upheld (Curran *et al.*, 2019). Additionally, this refers to a process where a person takes responsibility for his/her own learning not only in the present but also for future professional development (Qamata-Mtshali & Bruce, 2018). The participants voiced their need for continuous development and enhancing their skills to uphold their competence.

However, to address this need for a professional development plan, one should also focus on the constraints, challenges and feelings or perceptions they have around the topic at hand and how to address these before developing a programme. The findings of this study concur with various studies done on educators' perceptions regarding technology,

specifically as it relates to the lack of understanding and adequate knowledge around technology (Edumadze *et al.*, 2014; Nowak *et al.*, 2016). My findings also links with other studies' findings about educators' apprehension to change and embrace technology (Shelton, 2014; Raman, 2015), the lack of faculty development programmes (Raman, 2015), and feelings of being disconnected, stressed, frustrated, excluded, struggling, and challenged when it came to technology (Talcott *et al.*, 2013; Edumadze *et al.*, 2014; Nowak *et al.*, 2016).

What the study also found was the fact that even though these educators use aspects like age or the institution not keeping up with technological advances, as reasons why they cannot embrace technology, it became evident that they still aspire to develop personally and, even more so, professionally. The participants want to improve their skills to be more attuned to their students' needs who are often from a different generation. The motivation for change did stand out in some of the findings and the problem that remains is that these educators do not see how they can get to a point of breaching the gaps as they felt that the training opportunities are not on par with the expectations of their students. It is clear that in order for these educators really to embrace the use of technology they need opportunities to express feelings and perceptions as well as an individualised continuous professional development plan focussing on their individual training needs.

5.2.1.2. Structural space dimension

While the individual agency of respondents was key to the choices they made about teaching with technology, these choices were mediated by the structural space (environment) within which they worked. The key aspect here was their perceptions regarding the availability of resources and the extent to which they felt supported by the institution. The participants had clear needs regarding what technology they required from the institution. Access to the internet as well as having the right equipment and infrastructure in place were important issues that the participants raised. The lack of resources and infrastructure, technology systems and support are all seen as constraints for the participants and this hinders their abilities to embrace technology for teaching purposes. The literature also concurs with these constraints as reasons educators refrain from fully embracing technology (Talcott *et al.*, 2013; Edumadze *et al.*, 2014; Nowak *et al.*, 2016; Shelton, 2014 and Raman, 2015).

Another important aspect that stood out was that participants had little faith in the institution keeping up with educators and students' technological needs. Therefore, participants used the institution's lack of upgrading their infrastructures as a reason to rather retreat to what was familiar than to try new approaches and validated that as a reason to keep on using outdated teaching methods. This concurs with findings from studies done by Talcott *et al.* (2013), Nowak *et al.* (2016), and Shelton (2014) that educators are still cautious to embrace technology and continue to rely on 'old-fashioned' teaching methods. These educators want to know they can depend on the institution and employer to provide training opportunities as well as making sure they have the necessary resources to develop their skills. The literature also states that knowledge and buy-in from educators as well as the institution will allow educators to be more willing to embrace technology (Cannell, 2013; Risling, 2017). This was a valid point raised in the interviews as well. Therefore, support from the employer and stressing the value of technology in teaching as well as equipping the educators with up-to-date knowledge and skills regarding technology can help educators to overcome their fears and embrace technology (Risling, 2017; Cannell, 2013).

5.2.1.3. Social dimension

In this dimension, one would look at the social structures in place at the institution and with whom the educators are interacting regularly. Consideration is also needed of what is needed in order for these educators to form a community of supporting each other. This community of support would hopefully allow educators to support and enable each other. As the findings indicated, educators rely on each other to help with difficulties regarding technology. However, it is not always possible and leads to educators distancing themselves from technology use. To form this community of support there should be a structure or programme in place to facilitate this practice and this is where the institution should have a faculty development plan (Oermann *et al.*, 2017).

A faculty development plan is needed in order to ensure staff continuously develop their own skills as well as skills to enhance the institution overall. One should look at what skills are needed as well as what shared practices there are. From the literature, it is evident that the use of technology is and always will be part of the healthcare system and thus the health education system as well (Bonnell *et al.*, 2018). The health education system will have to keep up with new developments in technology and, more importantly, the educators will need to move with the times and make sure they continuously develop their own skills with technology (Bastable *et al.*, 2019; Bonnell *et al.*, 2018; Williams, 2018; Evans, 2018).

Therefore, it could be argued that having a structured faculty development programme is much needed at this institution.

The participants in this study represented a range of ideas and perspectives. While there was agreement about the importance of teaching with technology to keep up with the ever-changing educational field and students' needs, the experience of such teaching played out differently for each of them. The study is characterised by a series of 'ifs' and 'buts'. Those who were more confident might have been prepared to try out new things, but then might be hampered by the lack of resources. Some lacked confidence, but seemed to feel that if they could receive guidance and support, from the institution or from others, they might feel strengthened to try something new. Others tried something new, but when they encountered problems or challenges, they rather retreated into what they found more comfortable. However, if they could embark on a path of professional development and enhance their skills, their experiences could be different. This aligns with Bonnel *et al.*'s (2018) opinion that although technology does not solve all teaching problems, it must be seen as a useful tool to engage the generations of students in future learning and help equip them with the skills they will need for the future. Therefore, the institution needs to focus on developing this social dimension by creating a faculty development programme to develop educators' skills.

The key features that can be derived here are that technology has an important place in education. It can enhance teaching opportunities and make teaching easier in many cases (Bonnel *et al.*, 2018). Technology is a tool for learning, as well as a tool in the hand of the healthcare professional to improve healthcare delivery (Bonnel *et al.*, 2018; Bastable *et al.*, 2019; Raman, 2015). However, the right application and approach as well as buy-in from educators are necessary to succeed.

5.3. Guiding principles drawn from the dimensions

Linking with the dimensions mentioned above, the following guiding principles were conceptualised as a guide for institutions to help or motivate educators to use technology in teaching to its optimal level.

5.3.1. Principle 1: Add value and customise

In light of the evidence pointing to the unique nature of each educator's response to using technology, the aim of this principle is to create a customised individual professional development plan for each educator. The aim of the plan should add value to the individual educator's development as well as benefit the institution. The goals set in this plan should be realistic, reachable and regularly evaluated.

5.3.2. Principle 2: Encourage continuous, lifelong learning

Institutions can encourage a practice of continuous, lifelong learning by developing a faculty development plan that focuses on educators' needs to continue learning new skills. This plan should be revised regularly to remain updated with new technology developments.

5.3.3. Principle 3: Cultivate a community of educator support

Educators need support on various levels to function optimally. Institutions could improve support by giving or creating opportunities for staff the support each other and learn from each other as well as have professional structures of support in place. The key focus to support educators should be to create a community that encourages and enables learning amongst each other.

5.3.4. Principle 4: Facilitate access

Educators need access to the internet and resources in order to teach effectively with technology. Open access to various internet sources as well as access to the internet in the classrooms, simulation laboratories and offices are needed to insure educators have any information needed at their fingertips. Access, in order to promote learning, should not be restrictive and rather be a priority. However, one should always take into account the education institution's availability or lack of sufficient funds.

5.3.5. Principle 5: Improve quality

To ensure quality of education is maintained and improved with the continuous changes regarding technology, institutions need to ensure that the quality of resources and infrastructure is adequate and speaks to the institution, educators and students' needs. The infrastructure should enable quality and not inhibit it. The technological infrastructure should add value to an institution and therefore be sustainable and maintained.

5.4. Conclusion

The findings of my study suggest that educators need structures like professional development plans and faculty development programmes. These structures will supply the support and motivation needed by educators to embrace the use of technology as well as improve their understanding of it for teaching and learning purposes. However, it is important that technological resources should be, firstly, available and, secondly, kept up to date to enable educators to embrace it fully.

The five guiding principles were created as a means to support institutions to help educators to use technology in teaching more freely. The principles include that the necessary skills must add value to their professional development; continuous lifelong learning should be encouraged; and a community of educator support must be cultivated. In addition, access to resources are needed, the quality of resources need to be improved, and adequate infrastructure must be provided in order to enable educators to embrace technology. The vision for implementation of these principles are that this may lead to educators understanding and embracing the use of technology for teaching purposes more willingly.

Chapter 6

Conclusion

6.1. Overview

Researchers agree that technology can be seen as an essential part not only of everyday life but also of the healthcare system (Bastable *et al.*, 2019; Bonnel *et al.*, 2018; Oermann *et al.*, 2017). I would agree with them. Currently, healthcare professionals cannot function effectively without using or relying on some form of technology. As a result, the use of technology, especially digital technology, has become a key feature in the training of healthcare professionals, including nurses. Therefore, academic staff are constantly challenged to adapt their practices to incorporate technology in their teaching and adequately to prepare their students to use technology once they enter the healthcare system (Risling, 2017; Bonnel *et al.*, 2018; Roney *et al.*, 2017).

This qualitative research study, which adopted a phenomenological approach, set out to understand nurse educators' perceptions regarding the use of technology in teaching at a government nurse education institution in the Western Cape. By using a phenomenological approach, it allowed me to explore the participants' specific experiences and give voice to their unique individual perspectives. Although not always an easy approach and at times very complex, as explained by Holloway and Galvin (2017), it allowed me rich insight into each participant's opinions, feelings and perceptions regarding technology and the institution and therefore allowed me to make meaning of their perceptions.

As an insider-researcher, my role was to conduct a study in my place of employment with fellow colleagues. It was important for me to remain objective throughout the process and refrain from adding my personal ideas or views to the discussions. I had to reflect continuously on what I was saying and if it was the views of the participants or my own. This process helped me to ensure I stayed objective as well as locate myself in the research project and analyse my role in it throughout. It was not an easy process at times as I had a good understanding of what these participants were saying without saying it since I am in the same position as nurse educator. However, to ensure the study stayed trustworthy I refrained from giving my opinion or adding to what the participants said, I only made use of their spoken words during the interviews.

The data generated from the eight in-depth semi-structured interviews with the nurse educators were used to develop a set of guiding principles. These guiding principles are:

1. Add value and customize
2. Encourage continuous, lifelong learning
3. Cultivate a community of educator support
4. Facilitate access
5. Improve quality

I am of the opinion that these principles could possibly assist the institution to help educators embrace technology more openly. It could also possibly improve the use of technology and faculty development. However, further research after implementation is suggested to see if this is so.

This study also allows for recommendations to the institution where the study was conducted to ensure the pressure on academic staff, regarding technological changes, are alleviated. Thus, establishing a professional development plan for educators are suggested along with starting a community of educator support. These, along with peer-training and -learning, could help educators to gain the necessary knowledge and skills to embrace technology, which could lead to positive changes amongst educators at the institution as well as possibly have relevance for similar public nursing education institutions elsewhere in the country.

Therefore, this study highlights the factors that influence the acceptance of technology in teaching. It shows how these factors (personal, social and structural) are both disconnected and interconnected, while emphasising the need for a holistic approach to strengthening the use of technology in teaching at institutions such as the one where this study was undertaken. Such a holistic approach will need to take into account individual differences in terms of skills, confidence, and motivation. Consideration also needs to be given to the potential for the community of educators to enable and support one another. Additionally, the need for institutional policies and practices that support the uptake of technology in teaching should be considered, keeping in mind that this will always be reliant on the availability of resources, including funding.

6.2. Contribution of the study

This study offers a unique perspective on nursing education from the point of view of nurse educators regarding technology in teaching at a government nurse education institute in the Western Cape. The insights gained helped to facilitate a process of developing a set of guiding principles that could support the use of technology in teaching at the education institution. These principles could be incorporated or allowed for in the development of a faculty development programme.

6.3. Recommendations based on the study

The recommendations are based on the findings from the eight interviews conducted with nurse educators. I acknowledge that they are not the only possible solutions to encourage educators to embrace technology more willingly. However, it could allow management more insight into the current state and possibly start a process of change at the institution.

This study focussed on developing a set of guiding principles to assist the institution in meeting educators' needs regarding the use of technology for teaching. The principles were discussed in chapter 5. Based on those principles the following recommendations are made:

- Management should conduct a comprehensive assessment of the needs of their nurse educators regarding technology for teaching purposes at the institution. Furthermore, assessing the needs of students could be included, as this will allow management to form an overall idea of what the institutional needs are regarding technology and what they will have to do to get these in place.
- Training options of what is available and needed regarding technology should be researched. These options should include resources like software programmes, training programmes and infrastructure, including modern technological options for example interactive whiteboards and clickers. Involving educators in this research process should be encouraged as this will allow them to voice their opinions and allow buy-in.
- The institution needs to acquire the resources and infrastructure needed and have a maintenance plan in place to keep up to date with technological changes. Such acquisition and maintenance needs to be mediated according to available funds in the interests of sustainability.
- A faculty development programme that speaks to the educators needs should be implemented. The programme should address educators' overall needs and enable development of current skills and acquisition of advanced skills.

- The processes, as stated above, need to be continually evaluated. The needs of the educators and institution also need to be regularly evaluated to ensure everyone moves with the transformation process.

6.4. Recommendations for further studies

This study has created an opportunity for educators to voice their perceptions regarding the use of technology for teaching purposes and has established an entrance point of discussion on the topic. Further discussions should be encouraged. Further studies is recommended to investigate the impact of implementing the set of guiding principles identified from this study and to establish if this could have an effect on educators' perceptions regarding technology for teaching purposes.

Furthermore, sharing the findings of the study with the nurse educators as well as the management at the institution could lead to research into the development of more training opportunities for academic staff. The results of this study, as well as the recommendations for further studies, might serve as a catalyst for further work in similar institutions elsewhere in South Africa.

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Addenda

ADDENDUM A:

EMAIL INVITATION TO TAKE PART IN STUDY

Dear Colleague

I would hereby like to invite you to take part in my research study as part of the course fulfilments to obtain the MPhil in Health Profession Education qualification through Stellenbosch University.

As educators, we are aware that our student population is constantly changing and challenging. Furthermore, technology is becoming an essential part of educating these new generations of students, however, educators are still oblivious to the use of technology in teaching. Various research studies have been done on students' perceptions regarding the use of technology in teaching, however there are still limited research that focus on the educators' perceptions towards the use of technology.

Therefore, this study aim to explore nursing educators' perceptions towards the use of technology in teaching at the public nurse education institution in the Western Cape with a vision to make recommendation, to mediate or address any possible constraints identified and furthermore use the findings to develop a set of principles to support the use of technology in teaching.

I have obtained ethical approval from Stellenbosch University and the Western Cape Department of Health as well as permission from Dr TB Mabuda and Dr TM Bock. Proof can be provided if needed.

Please see attached information and consent form – I will provide printed copy on day of participation.

Participation will take place in the form of a confidential individual interview of about 30 – 45 minutes at a time and place convenient for you.

I would truly appreciate it if you will consider participating in this study and inform me via email which date and time suits you. I do believe this study can be of great benefit to us as educators as well as the institution towards its work up to becoming a Higher Education Institution.

Kind regards

Lizette Kirstein

BTech Psychiatry Coordinator & Lecturer: Psychiatric Nursing Science

Metro East Campus

Western Cape College of Nursing

ADDENDUM B:

DEMOGRAPHIC INFORMATION

Participant no: _____

Age: _____

Gender: _____

Race: _____

Languages: _____

How long have you been in nursing? _____

How long have you been in nursing education? _____

When did you obtain your qualifications: Undergraduate, postgraduate? _____

ADDENDUM C:

PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM

TITLE OF THE RESEARCH PROJECT:

Exploring nursing educators' perceptions towards the use of technology in teaching.

PROJECT ID: 7607

HREC REFERENCE #: S18/06/135

PRINCIPAL INVESTIGATOR: Lizette Kirstein (Student number: 13886568)

ADDRESS: Metro East Campus, Western Cape College of Nursing, Stikland Bellville,

CONTACT NUMBER: 021 9404458

Dear Colleague

I am Lizette Kirstein and currently a lecturer and co-ordinator for the BTech Psychiatric Nursing Science program at the Metro East Campus of Western Cape College of Nursing. I would like to invite you to participate in a research project that aims to explore the perceptions of nursing educators' towards the use of technology in teaching as per the requirements for the research component of the MPhil in Health Professions Education.

Please take some time to read the information presented here, which will explain the details of this project and contact me if you require further explanation or clarification of any aspect of the study. Also, your participation is **entirely voluntary** and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part.

This study has been approved by the **Health Research Ethics Committee (HREC) at Stellenbosch University** and will be conducted according to accepted and applicable National and International ethical guidelines and principles, including those of the international Declaration of Helsinki October 2008.

Herewith an explanation of the envisioned study:

Aim of study:

This research study will explore nursing educators' perceptions towards the use of technology in teaching at the public nurse education institution in the Western Cape, with a view to making recommendation to mediate or address any possible constraints identified and furthermore use the findings to develop a set of principles to support the use of technology in teaching

Objectives:

- To determine the nurse educators perceptions towards the use of technology in teaching.
- To determine enablers and / or constraints with regards to the use of technology in teaching.
- To facilitate staff development by developing a set of principles to support the use of technology in teaching at a public nurse education institution.

Research question:

What are the perceptions of nursing educators at a public education institution towards the use of technology in teaching?

Approach:

A phenomenological approach will be used to explore the reasoning behind why educators use or do not use technology in teaching.

Population and sample:

The study will take place at the two campuses of the nurse education institution in the Cape Metropole area of the Western Cape. The study will focus on the permanent government employed nurse educators (n=54) teaching in under and postgraduate qualifications. This will keep the study small-scale as per the requirements for the research component of the MPhil in Health Professions Education, but still provide in-depth experiences on a specific topic.

The nurse educators participating in the study need to be employed for longer than three years in their respective departments to ensure they have been fully involved in the programs development.

Data collection:

Individual semi-structured interviews will be conducted by the researcher at the participants’ campus of employment and in a venue of their own choice that is quiet and private. The researcher aims to conduct eight to ten interviews. The participants will be invited by email. The interviews will be audio recorded and conducted in English as this is the official language of teaching and communicating at the institution. It is anticipated the interview will take between 30 and 45 minutes and refreshments will be offered to the participant at the start of the interview. Each participant’s interview will be labelled with a unique number to ensure anonymity and maintain confidentiality.

If you are willing to participate in this study please sign the attached Declaration of Consent and email or hand in to researcher.

Yours sincerely

Lizette Kirstein
Principal Investigator

Declaration / Consent by participant

By signing below, I agree to take part in a research study entitled ‘Exploring nursing educators’ perceptions towards the use of technology in teaching’.

I declare that:

- I have read the attached information leaflet and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- I may be asked to leave the study before it has finished, if the researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.

Signed at (*place*) On (*date*) 201...

.....

Signature of participant

ADDENDUM D:

CODING AND THEME DEVELOPMENT

CODING	GROUPING OF CODES INTO SIMILAR THEMES	FINAL THEMES
<ul style="list-style-type: none"> • Feels frustrated, stressed, irritated, struggling, incompetent, and challenged • Easier to fall back into old habits – basic skills, use basic knowledge, the uneducated / access to basic technology only / self-taught skills and basic training / confidence and competence / lack of skills • Unsupported / need employer support / lack of technical support / support – management • Disconnect possibly due to age • Technology not enemy, it is important for student development and mind-shift needed • Excited and hopeful about technology and changes / do feel change is busy happening / aspire to be better equipped / need for more advanced training / relevant training opportunities • Institutional level of changes needed re infrastructure, resources, training, further development / lack of access to internet / lack of training opportunities / need up-to-date 	<p>Feelings / thoughts:</p> <ul style="list-style-type: none"> • Feels frustrated, stressed, irritated, struggling, incompetent, and challenged • Easier to fall back into old habits <p>Feelings about technology:</p> <ul style="list-style-type: none"> • Technology not enemy, it is important for student development and mind-shift needed • Excited and hopeful about technology and changes • Institutional level of changes needed re infrastructure, resources, training, further development, etc. <p>Access to technology:</p> <ul style="list-style-type: none"> • Lack of equipment and availability / working condition / adequate infrastructure / Access to basic technology only / Advanced equipment, technology, infrastructure • Lack of connectivity and access / Lack of access to internet / Access / connectivity • Need systems in place <p>Support wanted / needed:</p> <ul style="list-style-type: none"> • Lack of technological support • Need employer support • Support – management <p>Training needed regarding technology:</p>	<p>Theme A: THE TEACHING CONTEXT Subtheme A1: Access Subtheme A2: Resources and infrastructure Subtheme A3: Approaches</p> <p>THEME B: THE TEACHING EXPERIENCE Subtheme B1: A range of feelings and perspectives Subtheme B2: A matter of confidence and competence Subtheme B3: A generational issue? Subtheme B4: Important for teaching and learning</p> <p>THEME C: ASPIRATIONS Subtheme C1: Support and infrastructure Subtheme C2: Being agents of change Subtheme C3: Keeping up to date</p>

<p>knowledge / lack of equipment and availability / working condition / adequate infrastructure / lack of connectivity and access / advanced equipment, technology, infrastructure</p>	<ul style="list-style-type: none">• Confidence and competence / Self-taught skills and basic training / Lack of skills• Need for more advanced training / Need up-to-date knowledge• Lack of training opportunities / Relevant training opportunities / Need more training opportunities• Need systems in place	
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ADDENDUM E:

STELLENBOSCH UNIVERSITY HEALTH RESEARCH ETHICS COMMITTEE:

APPROVAL NOTICE


UNIVERSITEIT
STELLENBOSCH
UNIVERSITY

Health Research Ethics Committee (HREC)
Approval Notice
New Application

27/08/2018

Project ID :7607

HREC Reference #: S18/06/135

Title: Nursing educators' perceptions towards the use of technology.

Dear Ms Lizette Kirstein,

The **New Application** received on 11/07/2018 16:40 was reviewed by members of **Health Research Ethics Committee 2 (HREC2)** via **expedited** review procedures on 27/08/2018 and was approved.

Please note the following information about your approved research protocol:

Protocol Approval Period: **This project has approval for 12 months from the date of this letter.**

Please remember to use your **Project ID [7607]** on any documents or correspondence with the HREC concerning your research protocol.

Please note that the HREC has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

After Ethical Review

Please note you can submit your **progress report** through the online ethics application process, available at: **Links Application Form Direct Link** and the application should be submitted to the HREC before the year has expired. Please see **Forms and Instructions** on our HREC website (www.sun.ac.za/healthresearchethics) for guidance on how to submit a progress report.

The HREC will then consider the continuation of the project for a further year (if necessary). Annually a number of projects may be selected randomly for an external audit.

Provincial and City of Cape Town Approval

Please note that for research at a primary or secondary healthcare facility, permission must still be obtained from the relevant authorities (Western Cape Department of Health and/or City Health) to conduct the research as stated in the protocol. Please consult the Western Cape Government website for access to the online Health Research Approval Process, see: <https://www.westerncape.gov.za/general-publication/health-research-approval-process>. Research that will be conducted at any tertiary academic institution requires approval from the relevant hospital manager. Ethics approval is required **BEFORE** approval can be obtained from these health authorities.

We wish you the best as you conduct your research.

For standard HREC forms and instructions, please visit: **Forms and Instructions** on our HREC website <https://applyethics.sun.ac.za/ProjectView/Index/7607>

If you have any questions or need further assistance, please contact the HREC office at 021 938 9677.

Yours sincerely,
Francis Masiye,
HREC Coordinator,
Health Research Ethics Committee 2 (HREC2).

*National Health Research Ethics Council (NHREC) Registration Number:
REC-130408-012 (HREC1)-REC-230208-010 (HREC2)*

Page 1 of 2

Federal Wide Assurance Number: 00001372
Office of Human Research Protections (OHRP) Institutional Review Board (IRB) Number:
IRB0005240 (HREC1)-IRB0005239 (HREC2)

The Health Research Ethics Committee (HREC) complies with the SA National Health Act No. 61 of 2003 as it pertains to health research. The HREC abides by the ethical norms and principles for research, established by the World Medical Association (2013) Declaration of Helsinki: Ethical Principles for Medical Research Involving Human Subjects; the South African Department of Health (2006) Guidelines for Good Practice in the Conduct of Clinical Trials with Human Participants in South Africa (2nd edition); as well as the Department of Health (2015) Ethics in Health Research: Principles, Processes and Structures (2nd edition).

The Health Research Ethics Committee reviews research involving human subjects conducted or supported by the Department of Health and Human Services, or other federal departments or agencies that apply the Federal Policy for the Protection of Human Subjects to such research (United States Code of Federal Regulations Title 45 Part 46); and/or clinical investigations regulated by the Food and Drug Administration (FDA) of the Department of Health and Human Services.

ADDENDUM F:

PROVINCIAL GOVERNMENT ETHICS APPROVAL



Health impact assessment
Health research sub-directorate
Health.Research@westerncape.gov.za
Tel: +27 21 483 0866; fax: +27 21 483 9895
5th Floor, Norton Rose House, 8 Riebeeck Street, Cape Town, 8001
www.capegateway.gov.za

REFERENCE: WC_201808_031
ENQUIRIES: Dr Sabela Petros

Stellenbosch University
Faculty of Health Sciences
Francie Van Zijl Drive
Parow Valley
Cape Town
7505
For attention: Mrs Lizette Kirstein

Re: Exploring nursing educators' perceptions towards the use of technology in teaching.

Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research. Please contact the following person to assist you with any further enquiries in accessing the following sites:

Western Cape College of Nursing	Mr Tendani Mabuda	021 684 1202
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Kindly ensure that the following are adhered to:

1. Arrangements can be made with managers, providing that normal activities at requested facilities are not interrupted.
2. By being granted access to provincial health facilities, you are expressing consent to provide the department with an electronic copy of the final feedback (**annexure 9**) within six months of completion of your project. This can be submitted to the provincial Research Co-ordinator (Health.Research@westerncape.gov.za).
3. In the event where the research project goes beyond the *estimated completion date* which was submitted, researchers are expected to complete and submit a progress report

(Annexure 8) to the provincial Research Co-ordinator

(Health.Research@westerncape.gov.za).

4. The reference number above should be quoted in all future correspondence.

Yours sincerely

DR J EVANS

ACTING DIRECTOR: HEALTH IMPACT ASSESSMENT

DATE:

29-10-18

ADDENDUM G:

PERMISSION FROM NURSING EDUCATION INSTITUTION

Lizette Kirstein

From: Tendani B Mabuda
Sent: 14 November 2018 10:57 AM
To: Lizette Kirstein; Theresa Bock
Subject: RE: Permission

Dear Lizette

Thanks , sorry I checked the previous email on my phone , hence did not see the attachment . Approval granted , will send you a formal letter

Regards

Dr Tendani Mabuda .PhD(WITS), MCur (UNISA), BCur (UNISA), RN(LCN)
Director : Nursing Services/WCCN
Department of Health: Western Cape Government
Western Cape College of Nursing /Athlone
Tel: +27 21 684 – 1202

From: Lizette Kirstein
Sent: Wednesday, November 14, 2018 10:08 AM
To: Theresa Bock; Tendani B Mabuda
Subject: Permission
Importance: High

Dear Dr Mabuda and Dr Bock

I am currently doing my Masters in Health Profession Education at Stellenbosch University and would hereby like to formally request permission to do data collection at the Western Cape College of Nursing (Metro West and Metro East Campuses) in 2019. I aim to start the data collection process in January 2019 and will be doing so by means of individual interviews with lecturing staff. The interviews will not interrupt the normal activities of the institution.

Please find attached ethical approval letter for Stellenbosch University and Western Cape Government: Health Department.

Background information:

Technology has become an essential part not only of everyday life, but also of the health care system and as a result, the use of technology has become a key feature in the training of health care professionals. This has implications for academic staff that are constantly challenged to adapt their own practices to incorporate technology in their teaching and to adequately prepare the students to use technology once they enter the health care system.

The aim of my study is to explore nursing educators' perceptions towards the use of technology in teaching at a public nurse training institution in the Western Cape. I am hoping to make recommendation to mediate or address any possible constraints identified and furthermore use the findings to develop a set of principles to support the use of technology in teaching.

I believe this study can add insight into the current state of lecturing staff's technology usage and assist in the change process of WCCN registering as an HEI.

I would appreciate your consideration for this request.

Kind regards

Lizette Kirstein
BTech Psychiatry Coordinator & Lecturer: Psychiatric Nursing Science
Western Cape College of Nursing: Metro East Campus
Stikland, Bellville
7530
Western Cape Government

Tel: 021 940 4458 / 8950

Fax: 021 940 4543

Email: lizette.kirstein@westerncape.gov.za

Website: www.westerncape.gov.za



Be 110% Green. Read from the screen.

From: Josh-Lee Kroukamp
Sent: 02 November 2018 11:22 AM
To: Lizette Kirstein
Subject: WC_201808_031

Dear Researcher

Please see attached a copy of approval letter for your convenience.

- Western Cape College of Nursing

Regards 

Josh-lee Kroukamp
Health Research
Directorate: Health Impact Assessment
Western Cape Government : Department of Health
Address : 5th Floor, 8 Riebeeck Street, Cape Town
Tel: (021) 483 9319
Email : Josh-lee.Kroukamp@westerncape.gov.za
Website : www.westerncape.gov.za