

**THE IMPLEMENTATION OF SOCIAL MEDIA PLATFORMS FOR
TEACHING AND LEARNING IN BASIC NURSING STUDIES**

by

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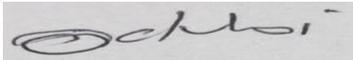
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MARCH 2021

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DECLARATION

I declare that **THE IMPLEMENTATION OF SOCIAL MEDIA PLATFORMS FOR TEACHING AND LEARNING IN BASIC NURSING STUDIES:** is my own work and that the sources that I have used or quoted have been indicated and acknowledged by means of complete references.



SIGNATURE

Onica Mankebe Ndwambi

MARCH 2021

DATE

DEDICATION

To my mom, Mrs Ellen Mphai Mokone, for the struggle she endured to raise me and my late dad, Mr Abel Mmolawa Mokone; his life was cut short, and he never lived to see me grow.

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There is an expression that it is remarkable what a little faith can do, and it is the faith that you have shown in my abilities which have given me the confidence to realise this project. This study is the results of many years of hard work and the effort of many hands. I wish to express my gratitude to:

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THE IMPLEMENTATION OF SOCIAL MEDIA PLATFORMS FOR TEACHING AND LEARNING IN BASIC NURSING STUDIES

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ABSTRACT

Lecturers in Nursing Colleges are faced with the basic nursing students of the 21st century, who are growing in a modernised world of technology. However, the researcher identified that the Nursing Colleges under study were lagging behind in implementing social media platforms in teaching and learning. The purpose of this study was to develop a conceptual teaching and learning model, using social media platforms that will integrate nursing theory and practice. The research setting was the three public Nursing Colleges offering a basic nursing programme, in Gauteng province, South Africa. An exploratory, sequential, mixed-method design was used in conducting this research over three phases. The population was lecturers teaching basic and post-basic nursing courses from 2018 – 2020, and first- and second-year student nurses enrolled for the basic nursing programme from 2018 – 2020.

A non-probability purposeful sampling technique was used in phase 1, the qualitative phase. The sample consisted of 14 lecturers teaching basic and post-basic nursing courses, and 20 first- and second-year student nurses enrolled at three Public Nursing Colleges. Data were collected qualitatively through focus group interviews and were analysed by using descriptive analysis. The findings of phase 1 revealed that the participants supported the use of social media, with consideration of access to resources, availability of training workshops, interaction between lecturers and students, multiple teaching strategies and rules, regulations and policies to govern the system. Non-probability convenience sampling was used in phase 2, which was quantitative. The sample consisted of 56 lecturers teaching basic and post-basic

nursing courses, and 696 first- and second-year student nurses. Data were collected quantitatively by means of self-developed questionnaires. The results revealed that most of the students (68.1%; n = 474) and lecturers (71.4%; n = 40) were open to new teaching strategies. The respondents preferred social media platforms such as WhatsApp, YouTube, Facebook and Skype, which could be easily accessed by all students and lecturers.

Based on the findings in phase 3, the researcher developed a Conceptual teaching and learning model using social media platforms, which will integrate nursing theory and practice. Recommendations were made to promote training workshops on the use of multiple teaching strategies, the development of policies, rules, and regulations to guide basic student nurses' and lecturers' interactions when using social media platforms in teaching and learning. The developed Conceptual teaching and learning model is being tested in one of the public Nursing Colleges.

Keywords

Basic nursing students, lecturers, social media platforms, teaching and learning and viability.

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LIST OF ABBREVIATIONS

ADR:	Audio Digital Recorder
BNS:	Biological and Natural Science
CLaTO:	Chat, Learn and Teach Online
COVID-19:	Corona Virus Disease 2019
DCP:	Digital Competency Profiler
GNS:	General Nursing Science
GTCU:	General Technology Competency and Use
HEQSF:	Higher Education Qualification Sub-model
ICT:	Information and Communication Technology
LMS:	Learning Management System
MOODLE:	Modular Object Oriented Dynamic Learning Environment
NQF:	National Qualification Model
OECD:	Organisation for Economic Cooperation and Developments
PLATO:	Programmed Logic for Automated Teaching Operations
POPI:	Protection of people information act
SANC:	South African Nursing Council
SAQA:	South African Qualification Authority
SAS:	Sentiment Analysis System
UNESCO:	United Nations Educational Scientific and Cultural Organization

CHAPTER 1

OVERVIEW OF THE STUDY

1.1 INTRODUCTION

Many authors consider social media a powerful driver of change in teaching and learning practices in terms of openness, interactivity and sociability. However, few such researchers have created and distributed relevant content through publications to academics (Manca & Ranieri 2016:216). Social media is defined as a group of internet-based applications or interactive platforms that build on the ideological and technological foundations of Web 2.0 technologies. These include Facebook, YouTube, Twitter, blogs, Instagram and WhatsApp, all promoting the creation and exchange of user-generated content (Alabdulkareem 2015:215; Manca & Ranieri 2016:216; Sharma, Joshi & Sharma 2016:342).

Dunn (2015:1) explored whether social media platforms could enhance students' learning experiences in higher education. The findings revealed that 68% of students claimed to have enhanced their learning experience through the use of social media platforms in teaching and learning, 22% indicated that the use of social media would not have added value to their course content, while 10% were unsure of the effects of social media in teaching. Facebook was the most used platform (86%), 41% used Twitter accounts, and 24% used Google (Dunn 2015:1). Those who were convinced that social media usage in teaching and learning could enhance their learning mentioned that it could increase their motivation and engagement in course content; increase collaboration with peers and lecturers; and provide them with 21st-century skills, which could increase their employability and level of job satisfaction (Dunn 2015:2).

In a study on social media's use in enhancing students' learning experiences, Griesemer (2017:2) shared the same sentiments with Dunn (2015), claiming that social media platforms' use in teaching and learning changed the classroom behaviour of both students and lecturers. Lecturers changed from being knowledge presenters

to facilitators and mentors, while students grew from passive to active participants (Griesemer 2017:4).

By including social media platforms in teaching and learning, student nurses could have easy access to their study material, and digital devices are easy to carry. The student nurses could also have access to their study material at any given time without any challenges related to time constraints. The role of emerging social media platforms that are technology-driven will even offer new opportunities to enhance teaching and learning experiences (Alabdulkareem 2015:214) since student nurses will have an opportunity to be actively engaged in learning. Currently, this type of teaching approach (the use of different social media platforms) is unavailable in the Nursing Colleges under study. The researcher has observed that these Nursing Colleges seem to be lagging behind in implementing social media platforms in teaching and learning due to inadequate technological resources. The researcher has further identified that student nurses are not exposed to the use of social media in teaching and learning at the Nursing Colleges under study due to inadequate internet connections at the campuses.

Research exploring the use and impact of social media in teaching and learning revealed that students could learn in informal learning situations, using what is available at a given time to build a meaningful learning experience in the formal education context (Alabdulkareem 2015:216). In another study conducted by Yan Chan and Leung (2016:771), regarding the use of social media for blended learning in tertiary education, it was revealed that educational institutions advocate for the implementation of blended learning to enhance learning and teaching activities. Blended learning is an education programme using both online and in-person learning experiences when teaching students (Great School Partnership 2014:1). Furthermore, in a study regarding the use of social media and its impact on tertiary students' academic performance, it was determined that students should be encouraged to focus on the positive effects of social media use to enhance learning (Owusu-Acheaw & Larson 2015:95).

Chawinga (2017:3), who explored taking social media to a university classroom, shared the same sentiments as Owusu-Acheaw and Larson (2015:99); the study also

revealed that the use of social media in teaching and learning provided students with an opportunity to interact with fellow students and lecturers seven days a week. Furthermore, Chawinga (2017:4) considered the implementation of social media platforms in teaching and learning as beneficial because it positively influences students' academic performance.

Due to the unavailability of effective technological resources at the Public Nursing Colleges under study, student nurses and lecturers cannot use social media in teaching and learning. This practice does not match with the 21st-century era. Hence, this study explored lecturers' and student nurses' perceptions regarding the feasibility of implementing social media platforms in teaching and learning. Based on discussions with research participants, the researcher developed a conceptual model for teaching and learning using social media platforms in the higher education context. This conceptual teaching and learning model reflects different social media platforms and will enhance the integration of theory and clinical practice in basic nursing studies.

Lecturers and student nurses will benefit from the developed conceptual model, potentially leading to improved academic performance among student nurses. All Public Nursing Colleges that offer a basic nursing programme in the Gauteng province could adopt the developed model.

1.2 BACKGROUND TO THE RESEARCH PROBLEM

The study's background is situated in current issues related to the use of digital e-learning systems in the form of Information and Communication Technology (ICT). ICT is the technology that supports activities such as information gathering, processing, storing and presenting data. It includes any communication device or application, including radios, computers, televisions, network hardware and software, satellite systems such as video conferencing, and distance learning (Mohamed 2015:1). Social media platforms are online, computer-based, mediated technological platforms, where users can jointly investigate network contents, share their experiences, and build a relationship for different purposes (Abu, Mohamed & Parvis 2016:298).

This study focused on how best social media platforms could be used to enhance teaching and learning. Furthermore, this study provided the student nurses with an opportunity to engage and share information with their fellow students' and lecturers' community in a broader perspective, where both clinical and theoretical views were shared collaboratively. The researcher assumed that social media platforms' implementation in teaching might assist the Nursing Colleges under study to remain up to date with current issues in relation to the growing digital world in the 21st century.

The use of social media in teaching and learning might provide student nurses with an increased level of collaborative engagement with other authentic social media users (Booth 2014:322). Conversely, lecturers will have various teaching strategies to choose from, according to their teaching contents and capabilities. They will not be limited by the Nursing Colleges' infrastructure in the targeted Public Nursing Colleges under study, where social media is not used in student nurses' teaching and learning.

The researcher reviewed several studies focusing on the importance of the use of social media. In a study on the impact that social media use has on academic performance, it was determined that social media platforms' implementation in teaching improved students' academic performance (Alwagait, Shahzad & Alim 2014:7). The researcher supported these views, and further considered that the student nurses at the targeted Public Nursing Colleges for this study might similarly benefit from social media's implementation in teaching and learning. Moreover, student nurses at other Public Nursing Colleges in Gauteng province, which offer a basic nursing programme, could also stand to benefit.

According to Alwagait et al (2014:2), university students' use of social media allows them an opportunity to build their own student communities, collaborate and develop the art of learning on their own. Hence, the researcher believed that a well-developed conceptual teaching and learning model might benefit all student nurses enrolled at the Public Nursing Colleges in Gauteng province, offering a basic nursing programme. The model could increase their academic performance and aid in the production of independent, quality and effective nurse practitioners.

Fasea and Adegbilero-Iwari (2016:214) conducted a study on science students' use of social media in public universities in South Nigeria. Their findings revealed that students understand the use of social network applications and used Facebook, Google and Twitter to keep up to date with information. A proposed problem-solving model for the use of social media in education suggests that modern technologies should be integrated with instructional design models to promote and facilitate learning for students of all ages in the 21st century. These technologies could provide students with an opportunity to create knowledge, engage in meaningful learning and gain critical thinking skills (Sinprakob & Songkram 2015:2027).

It has been noted that 21st-century students engage better in virtual classrooms that involve animation, interactive software like e-books, smartphones, tablets, computers and video conferencing (Kor, Akosy & Erbay 2014:855-856). The virtual classroom is a setting where traditional education activities are performed as online activities using technology or digital software equipment (Kor et al 2014:855).

Currently, in South Africa, the Department of Basic Education has initiated the use of smart boards in classrooms and provides tablets to grade 12 students in some provinces (MacMillan 2013:1). Macmillan Education's report, entitled "Striving for the highest educational excellence", indicated that South Africa was exploring ways of providing e-learning solutions at a lower cost. A comprehensive educational portal for schools was also installed to provide complete library resources. This initiative compelled higher education institutions to comply and continue to use technology in delivering teaching and learning practices that match their 21st-century students (MacMillan 2013:1).

There are four Public Nursing Colleges in Gauteng province, South Africa. Three of these Nursing Colleges offer a basic nursing programme and some post-basic programmes, while the fourth offers a bridging course and all post-basic nursing programmes. The Department of Gauteng Provincial Health funds these Nursing Colleges, and they get their management mandate from the department, including the number of intakes per year per programme. Moreover, the three Nursing Colleges that offer basic nursing courses collaborate on a shared platform from time to time to share their good practices and challenges as a way of supporting and improving their

services. Based on this platform, the researcher identified the common problem of a lack of social media use, which might be related to the unavailability of the internet in classrooms during teaching and learning.

Currently, in the Nursing Colleges that formed the research context, traditional face-to-face classroom lecturing is still the primary teaching strategy. However, the researcher noted that Power Point presentations are implemented as one of the teaching strategies, which is a move in the right direction of using technology in teaching and learning. In subjects like Biological and Natural Science (BNS), lecturers in one of these Public Nursing Colleges use other strategies like dramatisation and watching animations on videos.

BNS and General Nursing Science (GNS) are compulsory modules embedded in Nursing Colleges' curricula. They are one of the requirements for the student nurses to complete their diploma in General Nursing Science, as stipulated by the South African Nursing Council (SANC) Regulation (R.171). The programme is offered over a period of three years. The students are required to attend face-to-face teaching sessions as per a block programme (South African Nursing Council 2014:3). The BNS module requires student nurses to synthesise the concepts of physiology at a biochemical, cellular, and functional level. Thus, the student nurses understand physiology and subsequently develop a pathophysiological understanding, thereby applying the acquired knowledge in their clinical practice. The researcher opined that offering a diploma in General Nursing Science and other courses, using social media platforms, might benefit students' teaching and learning.

During career exhibitions at secondary schools, the researcher noted 21st-century students were exposed to digital e-learning systems. However, when they attend the Nursing Colleges under study, they are faced with the old practices of carrying many heavy books on a daily basis. This practice led to student nurses coming to class without some of their study materials. The researcher's concern was that this type of practice might impact negatively on their academic performance and could lead to an increase in students' attrition rate.

1.3 PROBLEM STATEMENT

To improve curricula and learning opportunities in light of social media technology (Booth 2014:325), there was a need to explore the impact that ICT can have in nursing education. Lecturers are faced with basic nursing students in the 21st century, who are growing up in a modernised world of technology, immersed in the digital arena.

South African lecturers are expected to produce a nurse practitioner who will be able to promote and maintain a high standard and quality of nursing care (National Strategic Plan 2013/2017:17). The researcher identified a common lack of social media use, which might be attributed to the unavailability of the internet in classrooms during teaching and learning.

Currently, in the targeted Public Nursing Colleges, social media is not used in teaching and learning in order to integrate nursing theory and practice. Furthermore the researcher intends to support modern-day students and remain relevant in the fourth industrial revolution (4IR). The researcher envisaged incorporating social media platforms in teaching basic nursing students, since there are new technological developments underway in these institutions under study. The researcher intended to develop a conceptual teaching and learning model, using social media platforms that will integrate nursing theory and practice.

The participants' perceptions of the use of social media platforms in teaching and learning might be used as a determinant of its ultimate feasibility in teaching and learning.

1.4 PURPOSE AND OBJECTIVES OF THE STUDY

1.4.1 Purpose

The purpose of this study was to develop a conceptual teaching and learning model, using social media platforms that will integrate nursing theory and practice.

1.4.2 Research objectives

The objectives of this study were:

- To explore student nurses' and lecturers' perceptions regarding the possibility of implementing social media in teaching and learning, to integrate theory and practice;
- To describe the feasibility of the successful implementation of social media in teaching and learning at Public Nursing Colleges;
- To identify and describe recommendations regarding the use of social media as an additional supportive tool for teaching and learning, both in theory and practice;
- To develop a conceptual teaching and learning model, using social media platforms, to integrate nursing theory and practice.

1.5 RESEARCH QUESTIONS

- What are student nurses' and lecturers' perceptions regarding the possibility of implementing social media in teaching and learning, that will integrate theory and practice?
- What is the feasibility of the successful implementation of social media in teaching and learning at Public Nursing Colleges?
- What are the recommendations regarding the use of social media as an additional supportive tool for teaching and learning, both in theory and practice?
- How will a conceptual teaching and learning model, using social media platforms to integrate nursing theory and practice, be developed?

1.6 SIGNIFICANCE OF THE STUDY

The developed conceptual teaching and learning model reflects different social media platforms embedded in digitalised technological resources. Furthermore, it enhances the integration of theory and clinical practice in basic nursing studies. The successful implementation of social media platforms can benefit lecturers and student nurses, and result in improved comprehension during teaching and learning processes. This

can lead to good academic performance among student nurses. Moreover, the model can assist nursing college administrators in saving costs on tuition fees since students receive funding from the government. There might also be an improvement in the quality of nursing care being delivered, potentially benefitting the public, improving customer satisfaction, and reducing litigations.

This developed conceptual teaching and learning model might be adopted by all Public Nursing Colleges in Gauteng province that offer a basic nursing programme. This teaching strategy can match the mindset of a 21st-century student nurse because it will be scientifically proven.

1.7 DEFINITION OF KEY CONCEPTS

1.7.1 Conceptual model

A conceptual model is defined as the end result of bringing together a number of related concepts to explain or predict a given event (Sitwala 2014:189).

1.7.2 Digitalisation

Digitalisation refers to development and the technology-dependent world (McMillan & Gogia 2017:3).

1.7.3 Learning

Learning is a lifelong, dynamic process by which an individual acquires new knowledge or skills, alter their thoughts, feelings, attitudes and actions (Braungart & Braungart 2011:52).

1.7.4 Lecturer

A lecturer is any person who conveys critical information that is an important part of the curriculum at all levels of education (Kaur 2011:9).

1.7.5 Nursing practice

Nursing practice is defined as a repeated exercise in or performance of activities or skills related to nursing care delivery to acquire or maintain proficiency (Smith 2016:4).

1.7.6 Social media

Social media is defined as a group of internet-based applications or interactive platforms that build on the ideological and technological foundations of Web 2.0 technologies (Alabdulkareem 2015:215).

1.7.7 Student nurse

A student nurse is any person who is registered at an institution for a four-year nursing programme to qualify as a nurse (General, Psychiatry and Community) and midwife (Gazette notice R.425, as amended of 22 February 1985) (SANC 2015:4).

1.7.8 Teaching

Teaching is defined as the process of attending to people's needs, experiences and feelings, and employing specific interventions to help them learn particular things (Smith 2016:2).

1.7.9 Theory

Theory is defined as a systemic explanation of observations that relate to a particular aspect of life (Babbie & Mouton 2015:648).

1.8 OPERATIONAL DEFINITIONS

1.8.1 Conceptual model

A conceptual model means the integration of different teaching strategies to enhance student nurses' teaching and learning.

1.8.2 Digitalisation

Digitalisation refers to the everyday use of social media platforms such as Facebook, Twitter, WhatsApp, PowerPoint presentations, and use of the internet.

1.8.3 Learning

Learning means a lifelong dynamic process by which the student nurse acquires knowledge and skills related to nursing and health care matters.

1.8.4 Lecturer

A lecturer is any person who conveys critical information about the nursing curriculum at a Nursing College.

1.8.5 Nursing practice

Nursing practice refers to the repeated performance of nursing procedures to acquire and maintain competencies in the delivery of nursing care.

1.8.6 Social media

In this study, a social media platform will include those social media platforms embedded in digitalisation.

1.8.7 Student nurse

A student nurse refers to students in training who are registered for BNS and GNS modules within the nursing programme. In this study, the terms 'student nurses' are used in reference to 'basic student nurses'.

1.8.8 Teaching

Teaching is the process of attending to nursing students' learning needs and employing various interventions to promote learning.

1.8.9 Theory

Theory refers to learning theories applicable to nursing education to explain the art of nursing in terms of teaching and learning using technology.

1.9 THEORETICAL MODEL

Theory is defined as a set of related propositions, which describes, explains, predicts or controls phenomena (Aliakbari, Parvin, Heidari & Haghani 2015:1). Learning theory is a coherent model of constructs and principles that explain or predict how people learn (Ertmer & Newby 2013:52). A theoretical model is a structure that can hold or support the theory of a research study (Gabriel & Swanson 2013:173). The following theories are applicable to this study: Thorndike's behavioural change and learning; Vygotsky's view on the reality of the universe (Aliakbari et al 2015:1); Piaget's view on cognitive development (McLeod 2018:2); and Mayer, Sweller and Moreno's use of robots in teaching and learning (Mayer, Sweller & Moreno 2017:3).

1.9.1 Thorndike: Behaviourism theory

Behaviourism theorists believe that learning is a change in observable behaviour and occurs during the communication of a stimulus and a response (Aliakbari et al 2015:1). In the context of this study, changes and the modification of behaviour techniques are used in clinical training and entail changes in student nurses' academic and social behaviour in the educational environment. Thorndike's learning theory of trial and error in nursing education results in skills competencies when student nurses practice procedures on mannequins (Aliakbari et al 2015:4). In the 21st-century, the digital world is able to provide mannequins that communicate and respond like real human beings. These digital mannequins will allow the student nurses to acquire clinical learning competencies before getting in contact with real human beings.

1.9.2 Piaget: Cognitive development theory

Piaget's cognitive development theory was developed in 1936. Cognitive development is a process that occurs due to biological maturity and interaction with the world.

Children construct an understanding of the world around them, then experience discrepancies between what they know and what they discover in their world (McLeod 2018:2). The application of Piaget's cognitive development in teaching and learning is relevant as it holds the view that children learn best by doing and actively exploring activities. Learning should be student-centred, and the teacher should facilitate learning (McLeod 2018:6). This theory is relevant in this study as it assists the student nurses during experiential learning in their clinical placement. The students get to practice GNS procedures on mannequins before handling real human beings to develop learning outcome competencies.

1.9.3 Vygotsky: Constructivism theory

The constructivism theorists view the reality of the universe as independent of the mind and outside the learner and learning environment (Aliakbari et al 2015:9). In this study, this learning theory is relevant because learning is student-centred and instructions are interactive during the construction of knowledge; it provides the student with an opportunity to explore learning. This theory is also relevant in this study because using social media platforms in teaching and learning is a student-centred approach.

1.9.4 Mayer, Sweller and Moreno: E-learning theory

The e-learning theory consists of cognitive science principles that describe how electronic educational technology can be used and designed to promote effective learning (Mayer et al 2017:1). In the context of this study, the multimedia and modality principles are relevant as they focus on the fact that learning is more effective when visuals are accompanied by audio narration, as compared to on-screen text. Social media platforms include audio-visual aspects as one of the components in digitalising teaching and learning. The development of the conceptual teaching and learning model reflects the different learning theories applicable in nursing and the use of digital resources; this might enhance student nurses' understanding of the content being taught and improve their academic performance.

1.10 RESEARCH SETTING

The research setting refers to the place from which data are collected (Burns & Grove 2013:709). In this study, data were collected from three Public Nursing Colleges that offer the basic nursing programme in Gauteng province, South Africa. The three Nursing Colleges are currently offering the R.425 curriculum, which is a basic nursing programme leading to diploma in General Nursing Science (Community and Psychiatric Nursing Science) and Midwifery registration. In future, these Nursing Colleges will offer R.171, which was the new basic nursing programme implemented in the year 2020, and the R.425 programme will be phased out.

1.11 RESEARCH DESIGN AND METHODOLOGY

1.11.1 Research design

A research design is a procedure for collecting, analysing, interpreting and reporting data in research studies (Creswell & Clark 2018:51). The exploratory, sequential, mixed-method design was used in this study. The phases and processes of the research design employed for this study are illustrated in Figure 1.1.

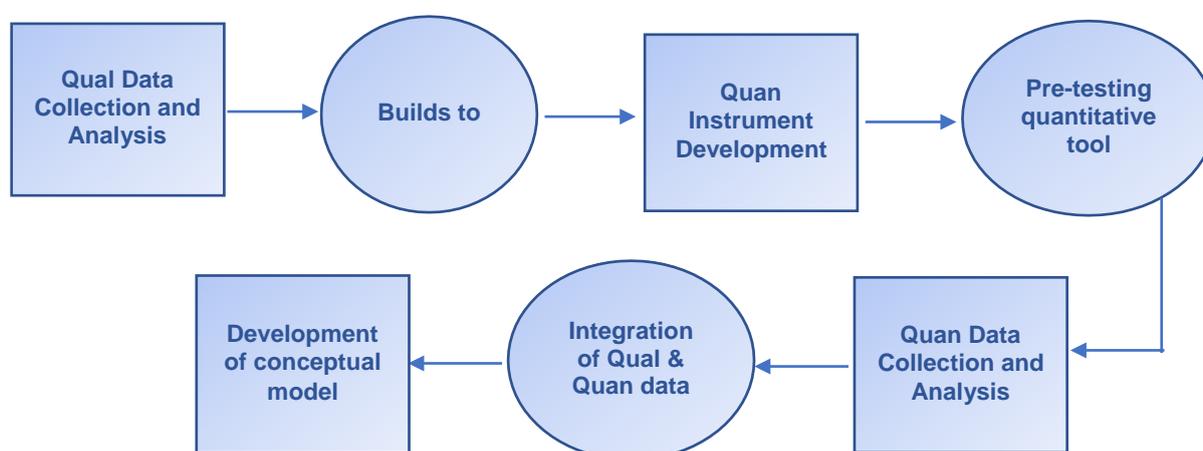


Figure 1.1: Exploratory sequential mixed-method design

The exploratory, sequential, mixed-method design is a three-phased mixed-methods design. The researcher started by collecting and analysing qualitative data, which was then followed by a developmental phase of translating the qualitative findings into a tool that was tested quantitatively. The aim of the exploratory sequential design was

to use the results of the qualitative method to inform the quantitative method (Creswell & Clark 2018:84).

The qualitative and quantitative approaches are discussed in phases in this thesis. The phases were subdivided to allow the researcher to clearly discuss the data collection processes of the two phases according to the population, which comprised student nurses and lecturers. Finally, the findings of the two approaches were integrated in phase 3, so the researcher could develop a conceptual teaching and learning model. The research design is further discussed in Chapter 4.

1.11.2 Research methodology

The mixed-method approach was ideal for this study, as both the qualitative and quantitative approaches complement one another. The two methods combined enhanced the strengths of this study's results and minimised any possible weaknesses. The discussion covered the two phases separately, and each phase addressed all the aspects of scientific research, including data collection, data analysis, interpretation of the findings, and presentation of the results.

1.11.2.1 Population

The population comprises all individuals who have certain characteristics of interest to the researcher (Polit & Beck 2014:387). Bless, Higson-Smith and Sithole (2014:394) refer to the population as a complete set of people to which the research findings are to be applied. The population for this study was all students and lecturers at the three Public Nursing Colleges in Gauteng province. The student nurses registered in their first and second year of training, and lecturers teaching basic nursing modules were the target group for this study.

1.11.2.2 Qualitative and quantitative approaches

In this study, phase 1 employed the qualitative approach, and phase 2 enlisted the quantitative approach. Both phases were further divided into phases 1.1. and 1.2 as

well as phases 2.1 and 2.2, since the population of this study included both student nurses (phases 1.1 and 1.2) and lecturers (phases 2.1 and 2.2).

Phase 1: Qualitative approach

The qualitative approach is a systematic, interactive, subjective approach used to describe life experiences and give them meaning (Burns & Grove 2013:706). The researcher used the qualitative approach to obtain participants' in-depth thoughts and opinions regarding the feasibility of implementing social media platforms for student nurses' teaching and learning. To meet the purpose of this study, the objectives presented in Section 1.4.2 were applied.

Phase 2: Quantitative approach

The quantitative approach relies extensively on numbers and statistics in the analysis and interpretation of findings generated from the sample population (Bless et al 2014:16). The research methodology includes formalised principles that form the basis for a research process, whereby the data are linked to specific variables expressed in numerical form. In this study, the standardised method was used for data collection and findings are expressed in tables, graphs or statistical measurements such as averages, variances or correlations (Befring 2015:2). All the objectives listed under Section 1.4.2 were addressed.

a) Paradigm

Phase 1: Qualitative approach

Phenomenological research explores an experience as it is lived by the study participants and interpreted by the researcher (Burns & Grove 2013:60). The researcher interviewed the participants regarding their lived experiences by asking their perceptions regarding the possibility of implementing social media platforms in teaching and learning. The findings from their responses were used to inform the quantitative phase of this study.

Phase 2: Quantitative approach

Descriptive research provides an accurate account of the characteristics of a particular individual or group and offers the researcher a way to discover new meaning and

describe what exists (Burns & Grove 2013:26). The quantitative approach described the feasibility of successfully implementing social media platforms in student nurses' teaching and learning. This approach allowed the researcher to identify respondents' perceptions in relation to the use of social media platforms. Their recommendations were included in the development of a conceptual teaching and learning model using social media platforms through digitalisation.

The descriptive research method always measures the association between two variables (Cooper & Schindler 2014:134). Student nurses' teaching and learning is the dependent variable, which the researcher was interested in measuring. The implementation of different social media platforms is the independent variable as the researcher was able to manipulate the teaching strategies to see if they affect student nurses' teaching and learning experiences. Thus, the researcher was able to measure an association between the implementation of different social media platforms and teaching and learning.

1.11.2.3 Sampling technique and sample

Sampling is the process or technique of selecting a suitable sample or representative part of a population, for the purpose of determining the characteristics of the whole population; the aim is to draw conclusions about the population from the sample (Etikan, Sulaiman & Alkassim 2016:2). A sample is a subset of the entire population, which is entirely investigated by the researcher. It is based on an estimate, and further expansion of the sample will not bring any further element to the research (Bless et al 2014:164).

Phase 1: Qualitative approach

Purposive sampling entails the selection of information-rich cases that can offer substantial information related to the purpose of the study (Burns & Grove 2013:365). The non-probability sampling technique was used in this phase, which enabled the researcher to select specific participants who provided extensive information about the use of different teaching and learning strategies. The sample size was guided by data saturation. The sample consisted of lecturers teaching basic nursing courses and first- and second-year student nurses at the three Public Nursing Colleges.

Phase 2: Quantitative approach

Non-probability convenience sampling was used for this study's quantitative phase. For convenience, sampled participants are included in the study because they happen to be in the right place at the right time (Burns & Grove 2013:363). All the student nurses in their first and second year of training and the lecturers teaching basic and post-basic nursing courses were invited to participate in the study. Since non-probability convenience sampling was used, the population size for phase 2 was 1248 respondents; 918 were student nurses, and 330 were lecturers teaching in the mentioned Nursing Colleges.

The sample size depends on the nature of the analysis to be performed, the kind and number of comparisons that will be made, and the number of variables that need to be examined (Guetterman 2015:3). For this study, all available individuals who met the inclusion criteria and who were available on the set date(s) of data collection were invited to participate in the study.

A statistician was consulted to help with the calculation of the sample. The statistician signed a confidentiality agreement (refer to Annexure K) to prevent disclosure of information about the respondents and the Nursing Colleges studied. The sample total was based on the population numbers. The total number of the target population in the one Nursing College where the initial problem was identified (refer to Annexure C1) was 169 first-year student nurses, and 181 second-year student nurses. The second Nursing College (refer to Annexure C2) had 136 first-year student nurses and 155 second-year student nurses. The third Nursing College (refer to Annexure C3) had 114 first-year student nurses, and 163 second-year student nurses. This information was retrieved from the Nursing Colleges' admission records for the 2018 academic year. The total target population within the three Nursing Colleges was 918 (C1: 350 + C2: 291 + C3: 277 = 918) (refer to Annexure C1).

The total number of lecturers in the first Nursing College where the problem was identified (refer to Annexure C1) was 80. Of these 80 lecturers, 18 were teaching basic nursing courses. For the second Nursing College (refer to Annexure C2), the total number of lecturers was 113, of which 16 were teaching basic nursing courses. The third Nursing College (refer to Annexure C3) had 137 lecturers. Of these 137, 16 were

teaching basic nursing courses. The total number of lecturers were 330 in all three Nursing Colleges (refer to Annexure C1) (C1: 80 + C2: 113 + C3: +137 = 330) according to human resource records (Human resource records 2018: 2).

1.11.2.4 Inclusion and exclusion criteria of phases 1 and 2

Inclusion and exclusion criteria serve as guidelines as to who should be included in a study. These criteria ensure that accessible target participants bear the correct characteristics that offer a complete representation of the whole population.

a) Inclusion criteria

The criteria included the first- and second-year student nurses who were registered in their current academic year for basic nursing studies, and the lecturers who were teaching nursing courses. These student nurses were enrolled for BNS and GNS as some of the modules in their curriculum at that level of their training.

b) Exclusion criteria

The student nurses and lecturers who participated in the research instruments' pre-testing were excluded to avoid data contamination. Lecturers who were on leave on the day of data collection, student nurses who were absent on the day of data collection, as well as those lecturers and student nurses who opted not to participate in the study, were also excluded.

1.11.2.5 Development and pre-testing of instruments for phases 1 and 2

The researcher developed an interview guide to collect qualitative data and a questionnaire for quantitative data collection. The discussion of the development and pre-testing of each instrument is presented in Chapter 4, which centres on the methodology of this study.

1.11.2.6 Data collection

Data collection is the basic idea of gathering information to address the questions being asked in the study project (Creswell & Clark 2018:173). Data were collected after the researcher obtained ethical clearance from the Research and Ethics Committee of the Department of Health Studies at Unisa (refer to Annexure A). Permission to conduct the study was also granted by the Gauteng Provincial Department of Health (refer to Annexure B) and the management of the targeted Nursing Colleges being studied (refer to Annexure C).

Data were collected over two phases. Phase 1 was qualitative, where the researcher used focus group interviews to obtain participants' in-depth thoughts and opinions regarding the feasibility of implementing social media platforms for student nurses' teaching and learning. Phase 2 employed the quantitative approach, which helped generalise the findings from the qualitative phase. Data were collected over three months; each Nursing College was allocated a period of one month. A detailed discussion of data collection is presented in Chapter 4.

a) Phase 1: Qualitative data collection

Before the main data collection commenced, the researcher recruited and built a rapport with the participants. Qualitative data collection provides the researcher with an opportunity to access the thoughts and feelings of the participants, promoting the researcher's understanding of participants' lived experiences (Sutton & Austin 2015:226). Data collection was guided by the participants' willingness and availability to participate in the focus group interview.

a.i) Phase 1.1: Data collection from the student nurses

Data were collected after obtaining ethical clearance from the Research and Ethics Committee of the Department of Health Studies at Unisa (refer to Annexure A) and permission to conduct the study was obtained from the Gauteng Provincial Department of Health (refer to Annexure B). Data collection commenced on 12 September 2019. The researcher visited the three Public Nursing Colleges in Gauteng

province on different dates based on the availability of targeted participants. The chairperson of the research committee in each Nursing College assisted in arranging the venue for interviews and recruiting prospective participants.

First- and second-year student nurses who met the inclusion criteria were the recruited target population. A total of four focus groups, which composed five participants per group, were targeted, thus 20 participants were selected to participate in this study. They were recruited during their fourth and last theoretical block as all students were expected to report at the Nursing Colleges.

The researcher greeted and introduced herself to the participants and welcomed them. The researcher further explained the title of the study, the purpose, and method of data collection (refer to Annexure E) to potential participants. An appointment was set with the willing participants to meet with the researcher at a designated classroom during their lunchtime for recruitment purposes. The researcher explained how the interview would unfold to get cooperation from the participants. The details of the data collected from student nurses at the three Public Nursing Colleges are provided in Chapter 4.

a.ii) Phase 1.2: Data collection from the lecturers

Participants were recruited through an announcement during meetings with lecturers (refer to Annexure E). A briefing session was held with the potential participants after recruitment, where the title of the study, purpose and method of data collection were explained by the researcher. The researcher targeted five lecturers from each Nursing College during the recruitment, and ultimately, 14 lecturers took part in the focus group interviews. The researcher visited the Nursing Colleges on different dates. The first Nursing College (refer Annexure C2) was visited on 20 September 2019, the second Nursing College (refer Annexure C3) on 4 October 2019, and the third Nursing College (refer Annexure C1) on 7 October 2019.

At the time of focus group interview sessions, the researcher introduced herself and welcomed the participants. The participants gathered in a classroom, which was not used during the interview session. No other person was allowed to access the

identified classroom in order to maintain participants' privacy and confidentiality. The participants were asked to settle down comfortably. The purpose of this study, which was to develop a conceptual teaching and learning model, using social media platforms that will integrate nursing theory and practice, was explained to the participants. The information was also presented in a brochure or flyer (refer to Annexure E) format, which was read to the participants to give them an idea of what was expected of them during the interview session.

The participants were informed that participation was voluntary, and that they may withdraw from participating at any time without any fear of being victimised. They were further informed not to participate in phase 2 of this study because this might cause duplication of the results. Afterwards, they were asked to read and sign an informed consent form (refer to Annexure D) and a consent form for audio recording (refer to Annexure H). A confidentiality (refer to Annexure I) document was read and signed by both the researcher and the participants before commencing with the interview.

The participants were assigned numbers starting from 1 to 5, which were used to address them during the interview session to maintain their anonymity. The language used during the interview session was English, since it is the language of instruction at the Nursing College.

An interview guide (refer to Annexure F) was used to conduct interviews, and an audio digital recorder (ADR) was used to record the interview sessions. Moreover, field notes were taken as a back-up should there be equipment failure. The focus group interviews were conducted either in the morning before the commencement of classes, during breaks, or after classes as it suited the lecturers. The interviews lasted between 36:23 and 58:52 minutes, until no new information was gathered.

The participants were asked to respond randomly to the questions asked by the researcher. The participants were probed to provide any other information that they thought could add value to the research topic. The same five questions were asked and answered by all participants, and their responses underwent data analysis. The information in the ADR was captured electronically for analysis and interpretation purposes. Completed consent forms and the ADR were kept under lock and key at the

researcher's home and were only accessible by the researcher for safety, security, privacy and confidentiality reasons. Details of the data collection process are discussed in Chapter 4.

a.iii) Conclusion of data collection from the student nurses and lecturers

Data were collected from a total of 34 participants from all three Nursing Colleges; 20 students and 14 lecturers. Their perceptions formed the outcome of this study. The information obtained with the ADR was captured electronically for analysis and interpretation purposes. Completed consent forms and the ADR were kept in a cabinet under lock and key at the researcher's home and were only accessible by the researcher for privacy and confidentiality reasons. The data analysis is discussed in Chapter 5.

b) Phase 2: Quantitative data collection

The purpose of using a quantitative data collection approach is to emphasise objective measurements and the statistical analysis of data collected through the questionnaires.

b.i) Phase 2.1: Data collection from the student nurses

Respondents were recruited using information flyers (refer to Annexure E). They were addressed about the study and its purpose during the students' theory block period (between September and December 2019), prior to the Corona Virus Disease 2019 (COVID-19) outbreak. The information flyers were displayed on different student notice boards as a continuous reminder in all three Nursing Colleges.

Quantitative data collection for phase 2 occurred during lockdown restriction (stage 3) in the first wave of the COVID-19 pandemic in May 2020. On 23 May 2020, the researcher applied to the Research Ethics Committee of Unisa requesting permission to continue with data collection as the lockdown restrictions were eased and intra-provincial movement and mass gatherings of less than 50 people were allowed. Permission was granted by the Research Ethics Committee of Unisa based on the

researcher's willingness to comply with lockdown restrictions as stipulated by the minister of health (Mkhize SABC News: 22 May 2020:18:00).

As the COVID-19 lockdown restrictions were relaxed in May 2020 to alert stage 3, a reminder about the study was sent to different student WhatsApp chat groups. The respondents were asked to report to a designated classroom in the morning prior to the commencement of their lessons to avoid disruptions to lessons, and in the afternoon after classes as it suited the Nursing College activities.

The researcher observed all COVID-19 guidelines to prevent cross-infection among respondents. The respondents were screened before entering the class. No mass gathering of more than 50 respondents was allowed. Chairs were placed 1.5 meters apart from one another, and face masks were worn by both the researcher and the respondents at all times to completely cover the bridge of the nose and the mouth. Hands were sanitised before, during, and after handling any documents. Consent forms (Annexure D) and questionnaires (Annexure G) were placed on the table at the entrance of the classroom. The respondents took one of each as they entered the classroom.

The researcher briefed the respondents about the purpose of the study, which was to develop a conceptual teaching and learning model using social media platforms, which will integrate nursing theory and practice. While briefing respondents, they were informed that their participation was voluntary, and they may withdraw from participating in the study at any time should they wish, without any penalties. The respondents were assured that their information would be handled privately, as only the researcher had access to the questionnaires. Confidentiality was also maintained by the researcher not disclosing the names of the Nursing Colleges that participated in the study while reporting on the findings.

Furthermore, a confidentiality agreement was read by the researcher (refer to Annexure I) to the respondents. The questionnaires were assigned numbers in order to maintain anonymity, and the researcher ensured that the findings from this study would not trace back to their institutions during the reporting of the findings to protect

respondents. No other person was allowed to access the classroom during the data collection sessions.

Completed consent forms and questionnaires were posted in designated boxes in the classroom. During this period, social distancing was observed as respondents were to queue 1.5 meters apart, as marked on the classroom floor. It took approximately 30 minutes to complete the consent forms and the questionnaires. Then the researcher closed and disposed of the sealed boxes when all the questionnaires were posted.

Data were collected from 696 student nurses in all three Public Nursing Colleges. Nursing College one (refer to Annexure C1), where the problem was initially identified, had 337 respondents, Nursing College two (refer to Annexure C2) had 106 respondents, and Nursing College three (refer to Annexure C3) had 253 respondents who participated in this study. Data were collected from 29 May to 24 July 2020. The details of the data collection process are discussed in Chapter 4.

b.ii) Phase 2.2: Data collection from the lecturers

Data were collected from 56 lecturers at the three Public Nursing Colleges. Nursing College A had 35 respondents, Nursing College B had 11 respondents, and Nursing College C had 10 respondents. Data were collected from 25 May to 24 July 2020 at lockdown alert stage 3, during the first wave of the COVID-19 pandemic on different dates as lecturers were returning to Nursing College in small groups.

Lecturers were asked to report to the specified Public Nursing Colleges' meeting halls. Data were collected in the morning and afternoon on the set date(s) during their spare periods to avoid disruption to their daily activities. The respondents were asked to take part in the study, and the objectives of the study were explained to them. Informed consent forms were distributed to those who agreed to participate in order for them to give written consent (refer to Annexure D). They were informed that their participation was voluntary, and that they may withdraw from participating at any time without any penalty. A pre-tested questionnaire was used (refer to Annexure G). The respondents were informed that it would take 30 minutes of their time to complete the questionnaire.

The respondents were reassured that their information would be handled privately, as only the researcher had access to those questionnaires. Confidentiality was also maintained by not disclosing the name of the Nursing Colleges that participated in the study while reporting on the findings. The questionnaires were assigned numbers in order to maintain anonymity, and the researcher ensured that the findings from this study would not trace back to their institutions in her reporting of the findings. No other person was allowed to access the identified meeting hall during the data collection sessions.

The completed questionnaires were placed in designated locked boxes in the auditorium to enhance respondents' privacy and confidentiality. The locked boxes were removed from the meeting hall as soon as everyone returned their completed questionnaires. Data collection was completed only once all three Public Nursing Colleges were visited for data collection purposes. Data collection took six weeks; two weeks per Nursing College. The researcher captured the information from the completed questionnaires electronically to analyse and interpret the findings, and to present the results.

The completed questionnaires and written informed consent forms were placed in boxes and the boxes were disinfected with sanitiser to comply with COVID-19 regulations. The disinfected boxes were stored at the researcher's home in a lockable cabinet to ensure confidentiality and privacy. The locked cabinet was accessed only by the researcher, and her laptop was secured with a security code that was known to the researcher alone. Additional details of the data collection process are offered in Chapter 4.

1.11.2.7 Data analysis

Data analysis is the process of editing and reducing accumulated data to a manageable size, developing summaries, and applying statistical techniques (Cooper & Schindler 2014:655). The qualitative data were analysed using qualitative methods, and quantitative data were analysed quantitatively. The findings from the qualitative approach and the results from the quantitative approach were integrated, and recommendations were made based on these findings.

Phase 1: Qualitative data analysis

Data were captured electronically. The researcher used content analysis to identify and understand basic nursing students' and lecturers' perception regarding the implementation of social media platforms in teaching and learning. The researcher listened to the recorded data from the ADR and transcribed the information verbatim. Data were transcribed and organised to ensure accuracy. Memos were written about the researcher's initial thoughts, and initial coding was performed by the researcher and the co-coder. Sentiment Analysis System (SAS) data analysis software was used by the statistician to implement a coding process. Themes and categories were developed, and major qualitative findings were summarised (Creswell & Clark 2018:210-211).

SAS is a smart data analysis and visualisation service that is used to discover patterns and meaning in collected data (SAS Institute 2013:1). The system is quick, provides statistical modelling, built-in reports, and shows patterns and detailed reactions (SAS institute 2013:1). Coding was performed and themes were developed by the SAS. The data analysis and interpretation were undertaken by the researcher with assistance from the statistician and co-coder. The data analysis is discussed in detail in Chapter 5.

Phase 2: Quantitative data analysis

Statistical analysis is the key concept of every quantitative study. The specific statistical procedure is an inevitable phenomenon to ensure correct and appropriate analysis and interpretation of any research study (Abell & Dawn 2016:2). The analysis and interpretation employed in this study were facilitated with the assistance of a qualified statistician. The responses from the open-ended questions were analysed qualitatively and validated statistically with the assistance of a statistician. The statistician was able to choose the appropriate inferential statistical test based on research questions and objectives, scale type, number of variables and distributions (Creswell & Clark 2018:211).

Numeric values were assigned to the responses. Data were scrutinised for errors, and descriptive analyses were conducted for major variables. Appropriate inferential

statistical tests were selected based on research objectives to analyse data quantitatively. Effect size and confidence intervals were calculated, and statistical results were presented in figures and graphs. Excel was used for quota settings, and Stata version 16.1 was used for descriptions, and in developing summaries, statistics, tables and graphs. All unreturned but distributed questionnaires were counted and excluded during analysis. A deductive approach was used to deduce what the participants thought of implementing social media platforms as one of the teaching and learning strategies for basic student nurses.

Categorical data were expressed as a frequency percentage of 95% confidence interval. Cross-tables' descriptive thoughts were analysed through the Fisher-exact test to measure the significance of the variables. Data were presented in graphs and tables.

The quantitative phase's data analysis is discussed in detail in Chapter 6.

1.11.2.8 Phase 1: Rigour

Rigour is a structured and controlled way of planning, developing, analysing and evaluating research and requires specialised care in adapting the presentation of the results (Jorge 2018:45).

a) Phase 1: Trustworthiness

Trustworthiness refers to the degree of confidence researchers have in their data, interpretation, and methods used to ensure the quality of a study (Polit & Beck 2018:201). The four aspects of trustworthiness – credibility, transferability, dependability and confirmability – were applied in this study to prevent potential bias, strengthen the findings, and increase the findings' generalisability. Trustworthiness is discussed in Chapter 4.

b) Phase 2: Validity and reliability

According to Yilmaz (2013:312), authenticity reflects multiple ways of establishing the truth of any scientific study. The researcher intended to minimise contamination in this study by implementing validity and reliability measures to maintain and regulate control.

b.i) Validity

According to Yilmaz (2013:312), validity determines whether the research truly measured what it intended to measure or measures the truthfulness of the research results. Measures of validity, including face, internal, external, construct, criterion and content validity, were implemented in this study.

b.ii) Reliability

Reliability is the extent to which the results are consistent over time and reflect an accurate representation of the total population under study. It also presents whether the results of the study can be reproduced under a similar methodology, thereby implying that the research instrument may be considered reliable (Yilmaz 2013:312). The reliability of the instrument used in this study will be confirmed if the study were to be repeated over time with a different population, and yield the same results. The reliability of the research instrument was ensured by pre-testing the instrument, and a statistician's services were used to check internal consistency for Cronbach's alpha. Validity and reliability are further discussed in Chapter 4 of this study.

1.11.3 Triangulation

Both qualitative and quantitative approaches are integrated to ensure that the results of the qualitative study can help inform the quantitative method, and to promote the generalisability of the qualitative findings (Creswell & Clark 2018:84).

The purpose of triangulation is to collect mixed data in sequence to ensure complementarity. Triangulation allows the researcher to support the research results

by using different methods and ameliorating internal and external validity (Bentahar & Cameron 2015:6). The sequential strategy of triangulation was adapted from Creswell (Creswell & Clark 2018:94).

This study used a mixed-method, exploratory, sequential design. It is a three-phased approach where the researcher started with the collection and analysis of qualitative data, followed by a developmental phase of translating the qualitative findings into a tool that was tested quantitatively. The aim of the exploratory sequential design is for the results of the qualitative method to help inform the quantitative method (Creswell & Clark 2018:84).

The researcher discussed the qualitative approach (phase 1) with all its processes, followed by the quantitative approach (phase 2). Finally, the findings of the two phases were integrated (phase 3) to develop a conceptual teaching and learning model. The design is further discussed in Chapter 4.

1.12 PHASE 3: DATA INTEGRATION

During data integration, the findings and interpretation of phases 1 and 2 were discussed. This assisted in the researcher's development of a conceptual teaching and learning model, and recommendations were made in relation to the study objectives.

The integration of the analysed data from the exploratory sequential design consists of the following steps (Creswell & Clark 2018:240):

- Analyse the quantitative database for themes and codes to describe the personal experiences of the participants.
- Determine the quantitative feature to be developed.
- Link the themes and codes specifically to elements of the quantitative feature.
- Design a joint display that conveys the link between themes/codes and the specific elements of the quantitative feature.
- Pilot test and modify the quantitative feature.

1.13 ETHICAL CONSIDERATIONS

1.13.1 Researcher-specific ethical considerations

- Ethical approval for the study was obtained from the Research and Ethics Committee of the Department of Health Studies at the University of South Africa (Unisa) (refer to Annexure A).
- Permission for the research was granted by the Department of Gauteng Provincial Health (refer to Annexure B).
- Permission was granted by the management of the three targeted Public Nursing Colleges in Gauteng province (refer to Annexures C1, C2 and C3).
- The researcher signed the Unisa confidentiality agreement to comply with the guidelines on handling research information, including participants (refer to Annexure I).

1.13.2 Participant-specific ethical considerations

- Informed consent, confidentiality, privacy, autonomy, justice, beneficence and non-maleficence were considered. These principles are discussed in detail in Chapter 4.

1.14 SCOPE AND LIMITATION OF THE STUDY

This study was limited to only three Public Nursing Colleges, and not all the students and the lecturers at those Nursing Colleges participated in this study. Therefore, the findings of this study can only be generalised to those Nursing Colleges studied.

1.15 OUTLINE OF THE STUDY

Table 1.1: Structure of the dissertation

CHAPTER	CHAPTER NAMES	DESCRIPTION OF THE CHAPTERS
1	<i>Overview of the study</i>	This chapter introduces the reader to the research background, purpose, study significance, research design and method, and ethical considerations.
2	<i>Literature review</i>	This chapter focuses on available literature on students' perceptions of the effects that the use of social media in teaching and learning have at tertiary level of education.
3	<i>Theoretical model</i>	The learning theories applicable in nursing education and technology are discussed.
4	<i>Research design and methodology</i>	The research design and methods of the two phases are discussed separately. This includes the setting, population, sampling technique, inclusion and exclusion criteria, data collection, pre-testing of the research instrument, and ethical considerations.
5	<i>Phase 1: Qualitative data analysis, presentation and interpretation</i>	The qualitative research data are analysed, presented, and findings are interpreted.
6	<i>Phase 2: Quantitative data analysis, presentation and interpretation</i>	The quantitative research data are analysed and interpreted, and the results are presented.
7	<i>Phase 3: Integration of the findings and development of a model</i>	The findings from the qualitative phase and the results from the quantitative phase are integrated. The conceptual teaching and learning model is developed from the qualitative findings and quantitative results.
8	<i>Discussion, recommendations, limitations and conclusion</i>	The findings of the two phases are discussed and consolidated. Recommendations are made, and limitations are discussed.

1.16 CONCLUSION

Chapter 1 offered the background, objectives, purpose, research questions, theoretical model, and the methodology to be used in the study. The next chapter is the literature review, which will illuminate the phenomenon explored in this study, and identify new technology in teaching and learning that informed this study.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The previous chapter addressed the background, objectives and methodological design of this study. This chapter presents the literature review. A literature review is a written appraisal of what is already known on a topic (Cooper & Schindler 2014:596). The purpose of the literature review is to interpret what is already known and point out any contraindications and gaps in existing knowledge. The scope of the literature review of this study was journals and online web articles on the use of social media platforms in teaching and learning.

This chapter discusses the following aspects:

- history of digital e-learning;
- purpose of the use of social media platforms in teaching and learning;
- types and uses of social media;
- overview of studies on the use of social media platforms in teaching and learning;
- perspectives of social media platforms in teaching and learning;
- competencies required to function in a technologically advanced environment;
- benefits and challenges of social media platforms' use in higher education;
- impact of the use of social media platforms in higher education institutions;
- different strategies used in the teaching and learning of student nurses and students' academic performance;
- the use of e-learning and digitalisation in higher education institutions; and
- bridging the gap between the traditional ways of teaching and learning and teaching and learning in the 21st century.

Existing knowledge from literature on the research phenomenon, as discussed in this chapter, will assist the reader in engaging in the mindset of a student nurse in the 21st century.

2.2 HISTORY OF DIGITAL E-LEARNING

E-learning is a computer-based educational system that allows students flexibility in learning, previously delivered in the form of CD-ROMs (Wani 2013:182). Digital e-learning is a technology-based system that includes the use of a wide spectrum of practices in blended and virtual learning (Scott & Kreiss 2014:7). The first use of the term 'digitalisation' appeared in 1971 in the North American Review, when Robert Wachal was discussing the social implications of the digitalisation of society in the context of computer-assisted humanities research. Since then, digitalisation has become more pronounced in literature. Technology has advanced to the extent that the geographical gap is bridged by the use of tools that help one feel located inside the classroom. Technology promotes the sharing of material in varying formats such as videos, slideshows, word documents, learning management systems (LMSs), communication via chat groups, video conferencing, emails and meeting forums (Scott & Kreiss 2014:11).

Reflecting on the timeline of e-learning, as reported by Scott and Kreiss (2014:14), it started in the 1840s when Isaac Pitman taught his students shorthand via correspondence. He intended to improve their writing speed, which was popular among secretaries, journalists, and any other persons who did a lot of writing. Moreover, in 1924, the first testing machine was invented, which allowed students to perform self-tests. Thereafter, in 1954, Professor BF Skinner from Harvard University invented a teaching machine which also performed administrative duties. The first computer-based training programme, named Programmed Logic for Automated Teaching Operations (PLATO), commenced in 1960 at the University of Illinois in Britain, and online interactive learning started in the 1970s. The purpose of using social media platforms as part of digital e-learning is discussed next.

2.3 USING SOCIAL MEDIA PLATFORMS AS PART OF DIGITAL E-LEARNING IN TEACHING AND LEARNING

Social media platforms should be used in teaching and learning environments to enhance students' learning experiences and complement traditional approaches to learning. Such platforms also engage students actively, help students retain

knowledge, motivate students' interest in the subject matter, and illustrate the relevance of the learnt concepts in nursing programmes. Digital e-learning encompasses various social media platforms, and their types and uses are discussed next.

2.4 DIFFERENT TYPES AND USES OF SOCIAL MEDIA PLATFORMS

Social media refers to online technology tools that allow people to communicate via the internet to share information and resources (Pande, Wadhai & Thakare 2016:276). The following examples of social media platforms are useful in teaching and students' learning (Pande et al 2016:277-278):

2.4.1 Blog

'Blog' is a contraction of web-based logs or weblogs. These are online journals where an author publishes a series of chronological, updatable entries or posts on topics, typically of personal interest to the author, and often expressed subjectively (Garcia, Mozier, Wilkins & Haddoud 2019:64). Edublog is a blog created for educational purposes and can serve as a form of communication and collaboration with others (Pande et al 2016:277). In this study, Edublog was used as a learning journal to gather relevant information and ideas related to the teaching and learning of student nurses. Blogging provides a context to engage in higher thinking, share information regarding classroom management techniques and policies, access ideas, edit content, and gain support among lecturers and students within the Public Nursing Colleges studied.

2.4.2 Facebook

In a study on integrating social networking in higher education, it was mentioned that the use of Facebook in higher education blurs the boundaries between students and instructors. Facebook is perceived as a shared space outside the institution's controlled online system (Veglis 2014:320). Students take the initiative to contribute to the learning content, even though the use of Facebook might be distracting at times. Creating a Facebook page could enable students to access the faculty information, post and view projects already completed by fellow students. A Facebook page could

serve as a two-way communication tool between the Nursing College administrative personnel, management, lecturers and students, as well as stakeholders. The branding of the Facebook page should be aligned with the vision and mission of the Department of Health, which emphasises the quality of services being provided. Students looking for inspiration can also escalate their interests in studying; students will gain access to posted videos, graphic illustrations and diagrams related to their study content to stimulate creative thinking, enhance their knowledge and understanding.

2.4.3 Twitter

Twitter is defined as a social networking and micro-blogging service that enables its users to update tweets for their followers. Globally, Twitter has been reported to be the preferred social media platform to allow information sharing among students in institutions of higher learning (Veglis 2014:319). According to the researcher, a Twitter handle could allow lecturers to post their lesson plans online, which will help others align their teaching with good practices and improve the standard and quality of teaching and learning in the Nursing Colleges studied. Twitter posts serve as a record of past classroom proceedings and assist those students who were absent to align and prepare for future classroom lessons. This will, in turn, enhance active participation during teaching and learning.

Zachos, Paraskevopoulou-Kollia and Anagnostopoulos (2018:194), in their study of social media use in higher education, found that social media networks may be used in both formal and informal learning contexts.

2.4.3 Myspace

Myspace was founded in 2003 as an online social networking site that allows users to create webpages to interact with others. This application allows users to share videos, pictures, emails, blogs, instant messages, games and music. Nursing Colleges can use an account like this to create the sense of a virtual school community. It is a good way to reach a large network of teachers, students, parents and administrators. According to Allgaier (2018:3), Myspace is mostly used to empower artists, from

musicians and designers to writers and photographers, to help them connect with audiences, collaborators and partners to achieve their goals.

2.4.4 LinkedIn

LinkedIn is a social networking website designed for business professionals. It allows users to share work-related information with other users and keep an online list of professional organisations in one's industry. It is also a great way to stay up to date with the latest developments in one's chosen profession (Zachos et al 2018:194). Literature revealed that LinkedIn benefitted its users in gaining exposure to hiring managers and recruiters. It was reported that 93% of recruiters use LinkedIn to research and recruit candidates, while its users demonstrate their knowledge, credibility and leadership expertise and use LinkedIn as a research tool (Rycraft 2018:2).

2.4.5 Instagram

Instagram is a popular photo-sharing application that allows connection with brands, celebrities, thought leaders and friends; it is like a simplified version of Facebook with an emphasis on mobile use and visual sharing (Zachos et al 2018:194). According to Douglas, Scholz, Myers, Rae, Elmansouri, Hall and Border (2019:1117), who reviewed the role of Instagram in education (focusing on anatomy education), a variety of successful teaching styles, including clinical images, descriptive videos, multiple-choice questions and cartoons could be promoted through the use of Instagram.

2.4.6 Google

Google is an internet search engine. It uses a proprietary algorithm designed to retrieve and order search results to provide the most relevant and dependable sources of data (Zachos et al 2018:194). Rapanta, Botturi, Goodyear, Guardia and Koole (2020:937), in their study on online university teaching during and after COVID-19, found that it was time to reconsider curriculum design. They established three broad headings to achieve a redesign of the curriculum, namely learning design, teacher presence, and assessment to facilitate education beyond the COVID-19 pandemic.

2.5 OVERVIEW OF STUDIES ON DIGITAL E-LEARNING

Currently, the internet and technology allow users to network and socialise using digital technology. This has, in turn, changed communication among people of all ages, irrespective of their destination, personality, and cultural traits. People are able to connect with one another through the use of their personal smartphones, laptops and tablets (Alwi, Mahir & Ismail 2014:265). Communication also forms the foundation of teaching to enable learning to occur; hence, different ways of communication are vital, as explored in this study. The researcher has noted that effective ways of communication might have an influence on the teaching and learning of student nurses.

In their study on infusing social media in teaching and learning at a tertiary institution, Alwi et al (2014:269) recommended that technology be used effectively to disseminate information and knowledge. They also claimed it is high time for lecturers and students to fully use digital social media applications in their work environment. Abdulkareem (2015:224) explored the use and impact of social media on teaching and learning among Saudi students and determined that both the lecturers and students were willing to use social media in teaching and learning, and the lecturers considered that its implementation might enhance their experience in teaching, although it might come with high costs.

Palmer (2015:3) reported that technology integration refers to 21st-century teaching and learning as a whole. It is a new approach to teaching and learning that prepares young minds for life in modern society. This implies that the lecturers need to be technology-wise and up to date with new developments in the digital world. Lecturers should understand how learning takes place, how to improve teaching strategies, and consider students' desire to continue learning.

Twenty-first-century learning entails ensuring the currency of subject content under constant review (Palmer 2015:4). For the purpose of this study, this attribute encourages the use of learning dispositions and techniques such as motivation, attention, problem-solving and critical thinking to help students excel in all their learning subjects. Teaching through technology will enhance both the process and

outcomes of learning, since students will be treated as individuals and their diverse abilities, passions and learning styles will be considered. The other attribute of 21st-century learning is classroom environments that reflect a lively discussion and debate-friendly setting (Palmer 2015:5). In this study, fostering social and interpersonal skills through collaborative learning activities, and creating an environment that both stimulates and rewards creativity, curiosity, and the art of learning will be adopted as a norm. This will improve student nurses' academic performance and behavioural conduct so that their skills and attitudes can be recognised.

In another study about teaching and learning in the 21st century, Alismail and McGuire (2015:151) reported that the science of learning is based on two models, namely the transmission or the constructivist model. In the transmission model, teaching and learning involve the transmission of factual knowledge by lecturers to students through the use of textbooks. The transmission model is the basic teaching and learning model that still exists to date because educational systems are difficult to change. Moreover, this model requires less disciplinary and pedagogical expertise from the lecturers. The constructivist model requires students to be actively involved in gaining skills and knowledge during teaching and learning (Alismail & McGuire 2015:153). The downside of the transmission model is that it exposes the students to a learning environment where they have an opportunity to acquire information, but typically do not have much practice applying the knowledge to new contexts, using it to solve problems, or develop creativity. This means it is not an ideal model for teaching and learning in the 21st century.

The students learn how to engage in teamwork as a process and an outcome, students develop the ability to transfer knowledge, and they learn how to make full use of technology to support learning, while being creative (Alismail & McGuire 2015:154).

Palmer (2015:2) reported on technology integration and identified certain characteristics that are necessary for teaching and learning in the 21st century. These characteristics included the availability of learner-centred classrooms, personalised instructions, the ability to keep up to date with new technology through the use of different available social media platforms, and lecturers' and students' ability to 'go digital' and create their own websites to reinforce collaboration with others. These

characteristics are in line with the constructivist model, in the sense that it provides the students with an opportunity to be creative in their learning processes. It allows the students to become the producers of information for their learning content.

The researcher studied Action Plan 2019 in terms of the realisation of schooling in 2030 in South Africa, as reported by the minister of basic education (Motshekga 2015:17). Thus, in this study, the researcher looked into matters relating to the infrastructure and financial costs involved in the possibility of implementing digital e-learning systems in Public Nursing Colleges in Gauteng province, South Africa.

2.6 PERSPECTIVES OF DIGITAL E-LEARNING SYSTEM IN TEACHING AND LEARNING

In the sections that follow, the researcher discusses the international, African, and South African perspectives of digital e-learning.

2.6.1 International countries

According to Bond, Marin, Dolch, Bedenlier and Zawaki-Richter (2018:9), the Ministry of Education in Germany sees digitalisation as enabling knowledge transfer and innovation in science. It expects its citizens to be able to use digitalisation in education and socialisation. Lecturers were found to be using digitalisation tools for their classes to check class enrolment, plan seminar topics, and upload materials. These tools were not necessarily used to promote student-centred technology-enhanced learning within the course, or as a learning management system. The same study revealed that students used digitalisation for their academic learning. The students were found to be the biggest consumers and users of the internet and digital tools; 99.4% of students had computers and access to the internet at their homes and spent 114 minutes on average weekdays using technology. Only 14 minutes were spent using technology at school, which was far below the standard set by the Organisation for Economic Cooperation and Developments (OECD) (Bond et al 2018:4). More than 99% of the students had internet access at their homes and were well-equipped with digital devices; one student owned five to six digital devices on average (Bond et al 2018:5).

Another study in Asia, focusing on teaching and learning with technology, reported that the implementation of technology-based teaching started in the 1970s in Malaysia. The Ministry of Education in Malaysia's vision and mission was to promote the use of ICT in education in order to achieve set objectives. These objectives were "to surround educational institutions with dynamic and innovative learning environment for students to become more motivated and creative; to enable students to gain wider range of knowledge and be able to access internet for developing a global outlook; to nurture students with capabilities of processing information more effectively and efficiently and to develop students with attitudes and capability of lifelong learning" (Ghavifekr & Rosdy 2015:178).

Technology-based teaching and learning is more effective than traditional classrooms, since the use of ICT tools and equipment prepares and provides an active learning environment that is more interesting and effective for both lecturers and students. It also improves classroom management as students become more focused and well behaved because lessons designed using ICT are often engaging and interesting (Ghavifekr & Rosdy 2015:179).

Also, the Norwegian Ministry of Education and Research (2017:6), in their plan for a digitalisation strategy for basic education, identified their primary goal as the provision of high-quality education and research. Quality research and education will be evidenced by adequate access to education, the value of education, creativity and adaptation of good practices, an effective, efficient, diverse and robust higher education sector and research system (Norwegians Ministry of Education and Research 2017:5).

2.6.2 Africa

Mwamahusi and Tossy (2017:148) performed a comparative evaluation of e-learning adoption in higher education institutions in Tanzania. They reported that the government abolished all taxes related to technology, reduced licence fees and royalties payable on telecommunication operations as a way to implement e-learning policies. Other universities started the basic process of ICT infrastructure expansion to include local area network implementation, internet and computer laboratories. In

Tanzania, several e-learning providers have little experience with e-learning adoption, and 72% of lecturers have neither thought of e-learning nor used e-learning to deliver their content; only 28% of lecturers taught e-learning courses before the survey was conducted (Mwamahusi & Tossy 2017:149).

Universities in developing countries' – including Uganda, Kenya, South Africa and Zimbabwe – reintegration of e-learning in HEIs. Their findings revealed that e-learning has the potential to enhance the quality of teaching and learning, although the developing countries have not yet optimised their use and benefits thereof (Kituyi & Tusubira 2013:20). Kituyi and Tusubira (2013:21) also claimed that most students were interested in e-learning, they had access to the internet and emails, and they could use them very well. The authors recommended that a well-established E-Learning Centre (ELC) would empower lecturers with the necessary ICT skills to develop, customise and deliver quality content through skills training and capacity building. The authors affirmed that e-learning is not meant to take away the traditional teaching method, but should complement each other (Kituyi & Tusubira 2013:22).

In a study of LMSs' success, Mtebe (2015:58) indicated that, even though the adoption of LMSs in sub-Saharan Africa countries (which included Kenya, Uganda, Sudan, Zimbabwe and Mozambique) has increased, its utilisation is lower compared to developed countries. This will impede the benefits of sub-Saharan African countries overcoming the challenges facing higher education. Mtebe further reported that, on average, digital use is less than 20% and the LMS is mostly used as a communication tool for classroom forums, chats and emails. There is underutilisation of audios, videos and animations as learning material tools, and the LMS is mostly used to share information related to the course material since the cost of data is high, and the delivery pace is low (Mtebe 2015:57).

The aspects recommended to improve the utilisation of adopted LMSs are “to implement strategies to make LMS user friendly, lecturers to upload quality learning material that will trigger the interest of the students to use LMS, to enhance support service that will provide reliable, timeously and effective service, to increase awareness of LMS and the value it plays in improving teaching and learning, to review

relevant policies regarding implementation of digital e-learning system as policies play an important role in shaping people's attitudes" (Mtebe 2015:60).

As reflected, African countries still experience challenges in implementing e-teaching and learning successfully, mostly due to poor infrastructure and the unavailability of resources (Islam, Beer & Slack 2015:102). Islam et al (2015:107) conducted a study on technology and e-learning in Africa. Their findings identified resolutions to bridge the gap between technology and e-learning, which included the provision of digital materials to supplement traditional lectures via laptops and projectors, replacing books with electronic devices, enabling collaboration through connected classrooms, and delivering teacher and adult training in the evening and during weekends.

The researcher's interpretation was that, if South African university students are computer literate and have an interest in e-learning, the same approach of using an LMS could also be ideal for the implementation of social media platforms in Nursing Colleges in Gauteng province.

2.6.3 South Africa

In a report on the national development plan for basic education in South Africa, e-education is seen as one of the key areas of innovation to change the way teaching and learning unfold in schools. Through the use of ICT, there could be greater improvement and diversity in learning. The minister of basic education in South Africa further advocated that there should be greater access to ICT in schools, as it is widely used in society. However, the envisaged challenge is temporary inequities as it is not possible to equip all schools simultaneously with computer-based equipment (Motshekga 2015:20). This report's contents are aligned with the researcher's desire to assess the feasibility of implementing social media platforms in Nursing Colleges since these institutions will be admitting and registering students from basic education contexts.

The advantages of using the internet in teaching and learning include improved engagement and knowledge retention among students, greater collaboration among students, students learn useful life skills needed for future use, and the teaching skills

of lecturers are improved (Motshekga 2015:25). Although there are several benefits in e-teaching and learning, challenges of adaptability, technical issues, computer literacy, time management, and self-motivation will, at times, prevail while digitalising teaching and learning (Motshekga 2015:27).

Bagarukayo and Kalema (2015:171) evaluated e-learning in South African universities and reported several similar challenges as those experienced in the rest of the sub-Saharan African continent. Some of these were infrastructure constraints, demographic division, staffing issues, learner issues, pedagogical issues, lack of time, and resource shortage in ICT skills and user penetration. The authors (Bagarukayo & Kalema 2015:178) recommended the following aspects to curb the challenges associated with digital e-learning: “training and support in ICT, content creation skills and accessibility, improvement in infrastructure, development and implementation of policies. Cost and technological aspects to be discussed for successful implementation of social media platforms in teaching and learning.”

The recommendations were made to resolve the identified challenges, and the researcher considered that these recommendations would likely also be of value to the implementation of social media platforms in teaching and learning in the Nursing Colleges under study. The researcher also looked at the competencies required by both the students and the lecturers to make social media platforms more effective and efficient. The next section discusses the possible competencies required to function in a technologically advanced environment.

2.7 COMPETENCIES REQUIRED TO FUNCTION IN A TECHNOLOGICALLY ADVANCED ENVIRONMENT

Digital competency is defined as knowledge, skills and attitudes supporting the purposeful and effective use of technology (Blayone, Mykhailenko, Kavtaradze, Kokhan, Vanoostveen & Barber 2018:3). The basic nursing programme is a training programme that involves two components of studies. Enrolled student nurses are first exposed to a theoretical component in the classroom at their nursing institution. The theoretical component is then followed by experiential learning, whereby the student nurses are placed in a clinical facility to gain clinical learning experience. Hence, the

next section focuses on the required competencies to function effectively and efficiently in a technologically advanced environment, both in clinical areas and in the nursing education institution.

2.7.1 Clinical practice

2.7.1.1 Case study teaching method

The case study teaching method is becoming an increasingly common teaching strategy in science education, and it is highly adaptable (Bonney 2015:21). In a study conducted by Bonney (2015:23), on case study teaching methods and students' academic performance, the case study teaching method was defined as a teaching strategy whereby content is presented in the form of a narrative accompanied by questions. It involves problem-based learning and promotes group discussions and the development of analytical skills (Bonney 2015:28). This strategy facilitates the development of higher levels of Blooms' taxonomy of cognitive learning, which involves moving beyond the recall of knowledge to applying, analysing and evaluating information (Bonney 2015:25).

The researcher deemed this teaching method as a relevant teaching strategy in basic nursing programmes, if quality and throughput rates are to be improved through teaching and learning, with specific relevance to student nurses.

2.7.1.2 Demonstration and simulation

Demonstrations and simulations provide a common experience for all students as individuals or as groups, creating a basis for discussion to reinforce learning after teaching has occurred. It provides students with an opportunity to sharpen their observational skills (Akbar 2016:3). The researcher's interpretation of demonstration and simulation in this study's context is that when procedures are recorded, the students can access and watch them anywhere at any time. The lecturers must be competent enough to record high quality, flawless, self-demonstrated and simulated nursing procedures.

2.7.2 Nursing education

Khan and Iqbal (2015:1185) studied the Pakistani strategic plan for e-learning implementation in higher education sectors. Their findings revealed that, in order to become leaders in higher education, higher education institutions must commit to the effective implementation of digitalisation to meet current and future educational needs. In their report, an e-learning guide/module was developed to assist lecturers and students in implementing digitalisation in education. Moreover, to establish the efficient, effective, accessible use of social media platforms in teaching and learning, there must be adequate human and material resources, which include computers in the classroom and simulation laboratories for students to use. Electronic and virtual classrooms, mobile devices and digital textbooks are also required (Khan & Iqbal 2015:1188). The administrative service for students' application and registration; student affairs services that offer students advice, counselling and tutoring; and social networking among students and lecturers could all enhance relevance, richness, efficiencies and innovation in using e-teaching and learning (Khan & Iqbal 2015:1186).

Blayone et al (2018:22) studied the digital readiness of higher education in Georgia and Ukraine. Their findings revealed five key features of General Technology Competency and Use (GTCU) and Digital Competency Profiler (DCP) models to be of value to online learning. The key features are the ability to use the soft and hardware features of a computer, the ability to conduct online data collection, the ability to operate different technological devices, and the ability to translate DCP into other languages. This GTCU model helped the researcher raise questions during the data collection phase based on the viability of implementing social media platforms in the Nursing Colleges under study. Ultimately, lecturers needed different teaching strategies to match the mindset of a 21st-century student nurse, as discussed in sections 2.7.2.1 to 2.7.2.3.

2.7.2.1 Lecture method

Lecturers play a pivotal role in teaching, while the use of digital technologies changes the nature of lectures. Lecturers' presentations can be recorded with ease by using audio-visual recorders. Lectures can be recorded prior to or during class, and content

editing is easy. Free video hosting sites like YouTube and Vimeo make these videos available to the public (Akbar 2016:2). In Akbar's study that explored how digital technology shapes teaching practice in higher education, it was reported that students watch recorded lectures at their convenience and are able to control the pace of the lecture. These lectures are given as supplementary study material and can be watched repeatedly. Some challenges were reported, which included the quality of the content since any person with the correct resources but incorrect knowledge may post on these sites; hence, lecturers need to be cautioned on third-party videos to ensure the quality of the content their students receive (Akbar 2016:4).

2.7.2.2 Visualisation and animation

These are teaching techniques that represent abstract concepts in an interactive way. Lecturers incorporate them into their lecture presentations to reach students who better connect with visual elements. These strategies are reusable, shareable, can be animated, and allow the lecturer more time to spend with students. The negative impact thereof is the fact that it takes more time to prepare and lecturers need technical support in preparing and using them. These strategies may increase the pace of the class, making it difficult for less-prepared students to cope with the demand (Akbar 2016:3).

The researcher acknowledges that digitalisation cannot be considered a substitute for lectures, but it can complement various teaching areas.

2.7.2.3 Use of social media platforms during teaching and learning in classrooms

Lecturers typically attend class fully loaded with course content to be delivered to students, while being mindful of the limited time constraints allocated to them daily, weekly, monthly, or per semester. This practice results in lecturers monopolising the lecture and denying the students an opportunity to participate in the classroom and provide feedback at the expense of content coverage (Chawinga 2017:4). In a study conducted by Chawinga (2017:5), in Malawi University, the use of social media (Twitter and blogs) in classrooms was seen as a catalyst for the much-needed student-

centred approach. Students had an opportunity to share and discuss their course material, posted their course reflections, interacted among themselves and with their lecturers seven days a week.

2.8 BENEFITS AND CHALLENGES OF SOCIAL MEDIA PLATFORMS IN HIGHER EDUCATION

Many institutions are incorporating ICT into their management, administration and educational programmes to serve their students more cost-effectively and prepare them for the world into which they will graduate (UNESCO 2015:1). This implies that it is critical to adapt pedagogical approaches and learning materials to this world, while ensuring high quality and relevant educational opportunities (UNESCO 2015:5). Thus, the researcher noted that the use of social media platforms in teaching and learning might either boost or derail the quality of teaching and learning in higher education. Hence, both the benefits and the challenges in using social media platforms are reviewed in this study.

Arkorful and Abaidoo (2014:401-404), in their study on the role of e-learning and the advantages and disadvantages of its adoption in higher education, listed several benefits and disadvantages to the use of social media platforms in teaching and learning. Vahid Changiz, Behrooz Jannat and Hosseini (2018:3) similarly explored the challenges of social media platforms from a higher education perspective, and the same sentiments were shared. These are discussed in the sections that follow.

2.8.1 Benefits to the use of social media platforms in teaching and learning

According to Vahid et al (2018:3), the use of social media platforms allows lecturers to focus on the needs of students as individuals, allows students to pace their own learning progress, allows flexibility in terms of time management, allows accessibility of a vast amount of academic-related information, and enhances educational relationships among students. Digitalisation reduces travelling costs, provides better time management skills, and compensates for the scarcity of academic staff, including lecturers, facilitators and laboratory technicians.

In another study on the innovative use of social media for teaching English as a second language, Rwodzi, De Jager and Mpofu (2020:5) determined that an English teacher used social media platforms to communicate with learners on matters related to school work, to research, and share the information online using WhatsApp, Facebook, Instagram and Twitter. It also involved the innovative use of new existing cartoons, games and puzzles to understand and practice the use of the different language aspects using social media platforms.

2.8.2 Challenges in the use of social media platforms in teaching and learning

According to Vahid et al (2018:4), social media platforms result in students undergoing contemplation, remoteness, and experiencing a lack of interest. This negative impact could be curbed by effective time management skills. Digitalisation reduces the effectiveness of clarifying and explaining difficult concepts to students, and lecturers should thus avail themselves and be accessible. Digitalisation also provides a platform that leads to poor communication skills, promotes cheating during assessment, promotes piracy and plagiarism, exacerbated by inadequate information-selection skills. The use of social media platforms impedes socialisation in an institution as the need to go to the campus declines. Other faculties, such as health studies, cannot fully 'go digital' as practical skills are expected and required.

Islam et al (2015:102-103) studied the challenges faced by academics in higher education and reported a lack of computing technology, poor leadership, management styles, learning styles, culture, pedagogical e-learning, and time management. It was evident that a multifactorial approach is required in ensuring the viability of e-teaching and e-learning.

Based on the study conducted by Akcayir (2017:382), on why faculties use or do not use social networking sites for education, it was revealed that 37.50% of the participants were concerned about their privacy, 36.29% were of the view that social media platforms are not suitable for the academic setting, 15.73% were concerned that social media platforms might consume their valuable time, and 7.66% did not have the resources to use digital technology. Therefore, the traditional lecture method cannot be removed completely from the 21st-century teaching and learning context.

In South Africa, challenges were identified in terms of the fragmentation of the curriculum, increased disparities among students as they come from diverse socio-economic and geographical backgrounds. ICT failure was also mentioned and associated with a lack of digitally oriented strategic visions, university capabilities, commitment and buy-in by different stakeholders to implement new technologies effectively, efficiently and economically (Ngcamu 2020:9). However, despite the challenges discussed, literature has sought to explain the role of social media platforms and, in particular, its strong impact on teaching and learning (Arkorful & Abaidoo 2014:403). The next section of this study explains the impact of social media platforms in higher education institutions.

2.9 DIGITAL E-LEARNING AS PART OF SOCIAL MEDIA PLATFORMS IN HIGHER EDUCATION INSTITUTIONS

Digitalisation refers to a process that has both symbolic and material dimensions. It is a process of converting analogue signals or information, like text, images, voices and sounds of any form, into a digital format that can be understood by computer systems or electronic devices (Scott & Kreiss 2014:3). Higher education refers to education beyond secondary level of education provided by the Nursing College or university. It refers to all learning programmes that lead to qualifications that meet the requirements of the Higher Education Qualification Sub-model (HEQSF) of the National Qualification Model (NQF), as contemplated in the South African Qualification Authority (SAQA) Act, 1995 (Act No,58 of 1995).

The need for effective communication and collaboration in higher education is undeniable between students, lecturers and other stakeholders. The researcher noted that it is important for the lecturers to be able to communicate using multiple channels such as emails, teleconferencing, video conferencing, Skype, WhatsApp, Twitter, Facebook and blogs, if the quality of education and students' throughput rates are to be improved. The researcher believes that the introduction of digital equipment in the education sector should be adopted as quickly as possible to match the active competitive digital environment.

A study was conducted in Texas on technology's role in improving the quality of teaching in higher education (Thindwa 2015:58). One popular LMS, known as Modular Object Oriented Dynamic Learning Environment (MOODLE), was found to improve students' satisfaction. MOODLE offers several options for group participation, apart from being an effective interactive tool for students and lecturers. It is an e-learning system that permits teachers to provide and share documents, graded assignments, quizzes, conduct discussion forums with students in an easy to learn fashion, and present high-quality online courses (Thindwa 2015:57).

Mhlanga and Moloi (2020:1), in their study about COVID-19 and the digital transformation of education in South Africa, determined that during the first wave of COVID-19, a variety of 4IR tools were used by various South African institutions, from primary to secondary and tertiary education, where educational activities switched to remote learning. They revealed that South Africa has the potential to drive its education into the 4IR.

The following section addresses the different ways that could be employed to bridge the gap between the old way of teaching and learning, and teaching and learning in the 21st century.

2.10 BRIDGING THE GAP BETWEEN TRADITIONAL WAYS OF TEACHING AND LEARNING, AND TEACHING AND LEARNING IN THE 21ST CENTURY

Islam et al (2015:109) explored the e-learning challenges faced by academics in higher education, and several ways to bridge the gap between traditional teaching and learning, and teaching and learning in the 21st century, were identified. Lecturers need to know how students learn, develop a good grip on technology use, design and deliver course material accordingly, and mentor students appropriately to pass on knowledge and skills.

Islam et al (2015:109 cited Macharia & Pelsler 2012:113) were also of the opinion that university and government policies, software vendors, marketing statements. and

descriptions of e-learning are shaping academics' expectations. They claimed these expectations should be met by the institution's management.

Currently, in the Nursing Colleges under study in Gauteng province, the Department of Health provides tablets to students, loads e-books onto those tablets, and is engaged in the ongoing process of maintaining and upgrading the technological infrastructure to create a reliable e-learning environment. However, challenges such as internet data bundle costs, poor bandwidth, and insufficient computers were reported. Still, the South African Department of Basic Education commenced with the provision of tablets to grade 12 learners, and that practice has continued to the tertiary level of education. There is also free Wi-Fi in Gauteng province to curb some of these challenges (Motshekga 2015:29).

The researcher is of the opinion that if the challenges associated with implementing social media platforms in teaching and learning are to be overcome, it is necessary to create technological infrastructure and standards by learning from the experiences of developed countries concerning e-learning. The government should create a suitable culture and familiarise lecturers and students with e-learning by developing and using digitalisation in the teaching environment.

2.11 CONCLUSION

This chapter introduced the literature review related to the topic of this study, which is the implementation of social media platforms in nursing programmes. The chapter discussed the history and the purpose of social media platforms in teaching and learning, the types and use of social media in teaching and learning, offered an overview of studies and perspectives on social media platforms, and the competencies required to function in a technologically advanced environment. Moreover, the benefits and challenges of social media platforms in higher education and the impact thereof, as well as how to bridge the gap between old ways of teaching and learning and how things are done in the 21st century, were explored.

Several studies were read to align the objectives of this study to the knowledge already available. The commonalities identified included an interest among the digital

narratives in e-learning and the challenges pertaining to infrastructure, finance, and ICT skills deficits. Recommendations were also made to curb the identified challenges, yet those challenges still need to be addressed in South Africa if e-learning is to be effective and efficient. The next chapter will discuss the theoretical model of this study.

CHAPTER 3

THEORETICAL MODEL

3.1 INTRODUCTION

The previous chapter addressed the literature review of this study. This chapter discusses the role of a theoretical model and different theories that are relevant to the context of this study.

A theoretical model is a structure that can hold or support the theory of a research study (Gabriel & Swanson 2018:173). Theory is defined as a set of related propositions that describe, explain, predict or control phenomena (Aliakbari et al 2015:1). Learning theory is a coherent model of constructs and principles that desirably explain or predict how people learn (Ertmer & Newby 2013:52). In this study, the purpose of the theoretical model was to demonstrate an understanding of theories and concepts that are relevant to the teaching and learning of student nurses in the 21st century. The theoretical model's scope included written books on the psychology of learning, journals, and online web articles on the use of social media platforms in teaching and learning.

This chapter addresses the following aspects:

- Origin of learning theories
- Purpose of using theories in this study
- Different theorists relevant to this study
- Bridging the age gap between the lecturers and the student nurses

Information on the theories covered in this study will promote readers' understanding of how learning takes place for different people. It will also reflect the mindset of a student nurse in the 21st century.

3.2 ORIGIN OF LEARNING THEORIES

According to Tennyson (2010:1), in the historical reflection on learning theories, educational psychologists developed a connection between the science of psychology and the practical application of learning theory in an educational setting. It all started in 1910 with John Dewey, who linked learning theory and educational practice. Later, in 1913, Edward Thorndike investigated the principles of learning that could be directly applied to the teaching practice (Tennyson 2010:1). Psychological theories continued to develop during post-World War II in the 1950s. It started with the development of the Instructional System Design, which was then followed by the testing of variables of the design to achieve learning outcomes (Tennyson 2010:2).

Psychologists who have contributed to the body of learning theories include Skinner (1954), who pioneered the “Science of learning and the art of teaching”. In the 1960s, the focus shifted from instructional design systems to behavioural influence and a stimulus-response-reinforcement-model was developed to ensure that desired learning outcomes were achieved (Tennyson 2010:2). In the 1960s, Robert Gagne theorised “The acquisition of knowledge as facilitated by the hierarchical sequencing of content from elemental subordinate information to more complex skills”. David Ausubel (1963) proposed cognitive-based paradigms, and in 1964, Jerome Brunner proposed that ideas should be reintroduced in increasingly complex ways as the learner matures. In 1970, Joseph Scandura proposed the structural learning theory (Tennyson 2010:4).

Since then, the body of psychology of learning has grown rapidly. The researcher focused on Thorndike’s behavioural change and learning, Vygotsky’s constructivism theory, Piaget’s stance on cognitive development, and Mayer, Sweller and Moreno’s use of robots in teaching and learning. The next section discusses the purpose of a theoretical model in this study.

3.3 PURPOSE OF USING THEORIES IN THIS STUDY

The study focused on the teaching and learning of student nurses in the 21st century. The problem statement is based on lecturers’ and student nurses’ perceptions of the

viability of implementing social media platforms in teaching and learning. The purpose of the theoretical model is to limit the scope of the relevant data by focusing on specific variables and defining the specific viewpoint (Gabriel & Swanson 2018:175). Thus, the researcher focused on learning theories applicable to educating and training nurses, and the impact that the use of ICT has in the 21st century. Thus, the next section of this chapter presents the different theorists relevant to this study.

3.4 THEORISTS RELEVANT TO THIS STUDY

This section explores and integrates the views of the following theorists in relation to the teaching and learning of basic student nurses.

Thorndike's work on behaviourism theory enabled the researcher to develop new meaning in terms of teaching and learning in the 21st century. The use of this theory also allowed the researcher to determine the feasibility of the successful implementation of social media platforms in teaching and learning. Piaget's cognitive development theory guided the researcher in developing a conceptual teaching and learning model using social media platforms through digitalisation, which integrated nursing theory and practice. Vygotsky's constructivism theory enabled the researcher to identify and describe recommendations regarding the use of social media as an additional supportive tool for learning and teaching, both in theory and practice. Mayer, Sweller and Moreno's e-learning theory informed the researcher's exploration of student nurses' and lecturers' perceptions of implementing social media platforms in teaching and learning.

The students' and the lecturers' behaviour around and within the digital world might influence their cognitive level during teaching and learning, hence these theorists' work was integrated throughout this study.

3.4.1 Thorndike's behavioural change and learning

Born in 1898, Edward Thorndike was a famous psychologist for his work on learning theory that led to the development of operant conditioning within behaviourism (McLeod 2018:1). Thorndike introduced the concept of reinforcement, and he was the

first to apply psychological principles to the area of learning in the 1950s. His research led to many theories and laws of learning, including operant conditioning. Thorndike drove psychology for 50 years and influenced many psychologists over that period until today (McLeod 2018:1).

Behaviourism theorists believe that learning entails a change in observable behaviour and occurs during communication of a stimulus and a response (Aliakbari et al 2015:1). In the context of this study, changes and modifications in behaviour techniques are used for clinical training, to change student nurses' academic and social behaviour in the educational environment. Thorndike's learning theory of trial and error in nursing education promotes skills competencies when student nurses practice procedures on mannequins (Aliakbari et al 2015:4). In the 21st century, the digital world can provide mannequins that communicate and respond like real human beings. These digital mannequins will enable the student nurses to acquire clinical learning competencies before coming in contact with real human beings.

Today, the digital world is almost taking over the old ways of using paper for communication, and the youth are growing up in an environment that is controlled by the digital world. Different social media platforms enable the youth of today to access different types of information. Based on this situation in technological development and the way people are using social media platforms daily, the researcher envisaged the possibility of using technology in teaching and learning, to enable the students, lecturers, management and administrative personnel in a Nursing College to access information at anytime and anywhere in the world.

The work of Thorndike proved that learning takes place when people behave in a certain way. People today – young and old – are glued to their digital gadgets. The researcher used this theory to explore student nurses' and lecturers' perceptions on the viability of implementing social media platforms in teaching and learning in the Nursing Colleges. The findings of this study will be analysed and discussed to evaluate if they are aligned with this theory or determine if a different view was established.

3.4.2 Piaget's view on cognitive development

Piaget was a Swiss-born psychologist (1896 – 1980) who developed the theory of cognitive development (Cherry 2018:1). Piaget's cognitive development theory assisted the researcher in the development of a teaching and learning model applicable to student nurses in the 21st century. Piaget believed that students should take an active role in learning, and that students learn from observations within their environment and become researchers of their knowledge. He further argued that students continually build on existing knowledge and are able to adapt previous knowledge to accommodate new knowledge (Cherry 2018:1). The application of Piaget's cognitive development theory in teaching and learning is relevant as it holds the view that children learn best by doing and actively exploring activities. Learning should thus be student-centred, and the teacher should facilitate learning (McLeod 2018:6). In this study's context, the theory could assist student nurses during experiential learning in clinical placement. The students will get to practice GNS procedures on mannequins before coming in contact with real human beings to develop learning outcome competencies.

This theory is relevant to this study since health and the aetiology of diseases are forever changing. Active participation from the student nurses will enable them to keep abreast of new developments in the health sector. Piaget and Thorndike share the same sentiments that students should develop learning competencies through repetitive observation and practice. In the following section, Vygotsky's constructivism theory is explored.

3.4.3 Vygotsky's view on constructivism theory

Vygotsky was born on 5 November 1896. Between 1925 – 1934 he gathered young scientists in different departments to start medical training. At the time of his death, he was head of a department in the Ukrainian Psychoneurological Academy. He died 11 June 1934 (Vygotsky 1978:15), and in this study, his work on constructivism theory is discussed.

The constructivism theorists view the reality of the universe as independent of the mind and outside the learner and learning environment (Aliakbari et al 2015:9). The theory claims learning is student-centred and instructions are interactive in the construction of knowledge. Therefore, students have an opportunity to explore learning. This theory is relevant in this study as the use of social media platforms in teaching and learning is a student nurse-centred approach.

In a study on the impact of the constructivism theory, constructivists argued that all higher mental functions are social in origin and are embedded in the context of sociocultural settings (Jones & Brader-Araje 2002:5). These findings are relevant since socialisation occurs in nursing through peer tutoring and role modelling, promoting knowledge and learning to be processed. This implies that student nurses do not come to the learning context as empty vessels but come with preconceived ideas about nursing care and caring for the sick. Thus, lecturers construct teaching from what is already known by the students.

According to Liu and Mathews (2005:389), Vygotsky's theory was criticised for dismissing the role of passive perception, memorisation, and all the mechanical learning methods in traditional didactic lecturing. Even though teachings are learner-centred and in small groups, social constructivism does not guarantee teaching effectiveness (Liu & Mathews 2005:389).

Vygotsky believed that a supported learning environment provides better learning outcomes than non-supported learning situations. He also claimed that students play an active role in learning, and that role shifting must occur to allow collaboration between students and teachers (Vygotsky 1978:81). His view is already in line with strategic planning for a positive teaching environment (Motsoaledi 2017:19). Similarly, the South African Department of Health believes that teaching should be student-focused; students must be independent and search for academic information. Students must be active participants in their learning process and not passive recipients of knowledge (Vygotsky 1978:88).

In this study, the view of Vygotsky's theory on the reality of the universe, learning and development, was aligned to the lecturers' and student nurses' perceptions. The

implementation of social media platforms as a supportive tool in teaching and learning was explored in relation to this theory. The researcher ultimately used this theory to make recommendations for the future of teaching and learning in the 21st century.

3.4.4 Mayer, Sweller and Moreno: E-learning theory

The e-learning theory consists of cognitive science principles that describe how electronic educational technology can be used and designed to promote effective learning (Mayer & Moreno 2015:1). In this study, the multimedia and modality principles were relevant as they focus on the fact that learning is more effective when visuals are accompanied by audio narration compared to on-screen text alone.

The ideas of Mayer, Sweller and Moreno were aligned to the explored perceptions of the student nurses and lecturers regarding the possibility of implementing social media platforms in teaching and learning in Gauteng province Public Nursing Colleges.

Mayer, Sweller and Moreno conducted a study at the University of California on educational technologies and identified five principles (Mayer & Moreno 2015:1) that formed the basis of this study. Their findings revealed that students were able to generate between 67% - 75% new information towards problem-solving after being exposed to multimedia teaching and learning practices (Mayer & Moreno 2015:2).

3.4.4.1 The principle of multiple representation

This principle confirms that it is better to present a concept through the explanation in words and pictures than words alone (Mayer & Moreno 2015:2). The principle is relevant for student nurses, since students learn better when they are presented with textbooks that have a diagrammatic illustration and animated videos. The lecturer must explain the illustration in their own words to enhance student nurses' understanding of the concept. The student nurses must use the diagrams to comprehend the concept, and the animation can be watched repeatedly.

This principle is relevant for both clinical and theoretical components in the nursing profession. In the clinical component, for example, a lecturer may explain a nursing

procedure like urine testing and have a recorded video of a nurse performing the procedure with narration. In the theoretical component, the lecturer may have a diagram with the anatomy of the urinary system and animation on urine formation and micturition. This might help the student nurses to solve urinary pathophysiology that could occur in cases of homeostatic failure.

3.4.4.2 The principle of contiguity

This principle expects lecturers to present their teaching concepts using multimedia principles, and the narrations and animations should occur concurrently. Students understand better when corresponding words and pictures are presented simultaneously (Mayer & Moreno 2015:3). The use of social media platforms in teaching and learning in Public Nursing Colleges might be aligned to this principle should its feasibility be confirmed. Hence, the researcher wanted to explore student nurses' and lecturers' perceptions of the viability of implementing social media platforms in teaching and learning.

3.4.4.3 The principle of split-attention

This principle expects lecturers to present words as auditory narration rather than visual on-screen text (Mayer & Moreno 2015:3). Words must be heard and not just seen on the screen. This principle is similar to multimedia principles in the sense that different strategies of teaching must be used to complement one another to enhance understanding.

3.4.4.4 The principle of individual difference

This principle is more relevant for low-knowledge than high-knowledge students and for high-spatial rather than low-spatial students (Mayer & Moreno 2015:4). Since human beings are unique, the effect of this principle is the ability to accommodate different types of students. Each student nurse might benefit from and comprehend the presented concepts from all three principles of multimedia presentation, contiguity and split-attention. This principle is relevant in this study since the composition of the student nurses in the Public Nursing Colleges under study were vastly different;

students varied in ages from 19 years old up to 50 years and above. Thus, each student should be exposed to different teaching strategies of their choice. This might result in an improvement in their academic performance as their level of comprehension could be escalated.

3.4.4.5 The principle of coherence

This principle expects lecturers to use fewer explanations rather than extraneous words and pictures when using multimedia in their teaching. This principle affirms that students learn better from a coherent summary highlighting the relevance of words and pictures rather than from longer versions of a summary (Mayer & Moreno 2015:5). In the context of this study, this principle reflects that shorter multimedia presentations might prime the students to select relevant information and organise it to stimulate critical thinking.

These principles might be tested further in future studies should the viability of the implementation of social media platforms in teaching and learning be confirmed.

3.5 BRIDGING THE GAP

The researcher focused on bridging the gap between traditional ways of teaching and learning, and innovative teaching methods in the 21st century. The digital world is the way of the future in order for Public Nursing Colleges to compete globally. Should this study be successful and the Public Nursing Colleges go entirely digital, the challenges of geographical constraints that impede communication and information sharing would be resolved. Both the Nursing College Management, lecturers and students will be able to stay abreast of current developments in the area of teaching and learning, as well as research.

The traditionalists are equally important as the modern students and lecturers in this era. The researcher would recommend in-service training for the traditionalists with regard to educational technology matters. During teaching and learning, the students should be grouped in such a way that those who are technologically literate are among those with knowledge deficits in e-learning.

3.6 CONCLUSION

The researcher intended to develop a teaching and learning model that will reflect these principles in the use of social media platforms during the education and training of student nurses. These principles of multimedia presentation, continuity, split-attention, individual difference and coherence were integrated into the model that was developed. The next chapter presents the methodological design of this study, which was mixed methods.

CHAPTER 4

RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION

Chapter 3 focused on the theoretical model related to student nurses' teaching and learning in both theoretical and clinical areas. The focus was on the use of social media platforms in teaching and learning in the 21st century. This chapter describes the research design and methodology of the study. It includes the setting, population, sampling and sample, the development and pre-testing of the instrument, data collection and analysis, rigour and ethical considerations.

The research paradigm for this study was both qualitative and quantitative in nature. The intent of qualitative research is to gather information about the complex nature of a phenomenon, often with the purpose of describing and understanding the phenomenon from the participants' point of view. Descriptive statistics will answer the general trends in the collected data.

4.2 PURPOSE OF THE STUDY

The purpose of this study was to develop a conceptual teaching and learning model, using social media platforms that will integrate nursing theory and practice.

4.3 OBJECTIVES OF THE STUDY

In order to achieve the purpose of the study, the following objectives were addressed:

- To explore student nurses' and lecturers' perceptions regarding the possibility of implementing social media in teaching and learning, to integrate theory and practice;
- To describe the feasibility of the successful implementation of social media in teaching and learning at Public Nursing Colleges;

- To identify and describe recommendations regarding the use of social media as an additional supportive tool for teaching and learning, both in theory and practice;
- To develop a conceptual teaching and learning model, using social media platforms, to integrate nursing theory and practice.

4.4 RESEARCH DESIGN

The research design is the master plan for getting answers to the research questions and handling challenges that might discredit the study's findings (Polit & Beck 2014:51). The researcher chose an exploratory, sequential, mixed-method design for this study. The mixed-method approach to research is assumed to offer greater flexibility in understanding research and generating better-supported arguments from the research data (Bazeley 2015:28). Mixed-methods research is a type of research where the researcher combines both elements of qualitative and quantitative research approaches to enhance the breadth and depth of understanding and corroboration (Bazeley 2015:28). Like any other research design, mixed-methods research designs have certain advantages and disadvantages, as outlined by Creswell and Clark (2018:12):

- Mixed-method research designs provide a way to enhance the strengths that set off the weaknesses of both the qualitative and quantitative research approaches.
- It provides more evidence for studying a research problem.
- The researcher is able to use all or more than one of the tools available for data collection. In this study, focus group interviews and a self-developed questionnaire were used to collect data.
- Mixed methods assist the researcher in answering questions that cannot be answered by either qualitative or quantitative approaches alone.
- Mixed methods offer new insights that go beyond separate qualitative and quantitative results.
- This design provides a bridge across the often oppositional divide between qualitative and quantitative researchers.

- Mixed-methods research encourages the use of multiple worldviews, rather than the typical association of certain paradigms with qualitative and others with quantitative research.
- Mixed-method research is practical in the sense that the researcher is free to use all methods possible to address a research problem and questions; in this study, the research questions were listed under Section 1.5.
- Mixed-methods research enables the researcher to produce multiple written publications from a single study.
- The researcher develops broader skill sets and becomes a productive member of mixed-methods teams.

Like any other research design, this approach also has disadvantages that the researcher was able to overcome in this study. For instance, this method is not the answer to every research situation, and it requires the researcher to have certain skills, time and resources for extensive data collection and analysis. The researcher worked with a statistician and co-coder in this study, and data were collected at three different Public Nursing Colleges in Gauteng province, South Africa, to mitigate some of the identified disadvantages to the mixed-method approach.

4.4.1 The exploratory, sequential, mixed-method design

The exploratory, sequential, mixed-method design is a three-phased method that starts with the collection of qualitative data and the analysis thereof, then translating the qualitative findings into a tool that can be tested quantitatively, which implies that the tool is grounded in the perceptions of the participants (Creswell & Clark 2018:448). Thus, in this study, the researcher started with the qualitative design:

- to explore student nurses' and lecturers' perceptions regarding the possibility of implementing social media in teaching and learning, to integrate theory and practice; and
- to describe the feasibility of the successful implementation of social media in teaching and learning at Public Nursing Colleges.

4.4.2 Qualitative approach

Qualitative research is an approach that describes life experiences from the perspectives of the persons involved (Burns & Grove 2013:57). This field of inquiry crosscuts disciplines and subject matter. It involves an in-depth understanding of human behaviour and the reasons thereof. Qualitative research investigates the why and how of decision-making; hence, there is a need for smaller but focused samples rather than large random samples (Burns & Grove 2013:57). Qualitative research categorises data into patterns as the primary basis for organising and reporting results. Qualitative researchers rely on four methods for gathering information (Burns & Grove 2013:58), namely:

- Participation in the setting
- Direct observation
- In-depth interviews
- Analysis of documents and materials

In this study, direct observation and in-depth focus group interviews were used to collect data. The researcher used the qualitative approach to explore participants' in-depth thoughts and opinions regarding the feasibility of implementing social media platforms using a digital e-learning system for the teaching and learning of student nurses.

Qualitative research has assumptions that must be considered throughout the research process. The following qualitative assumptions informed this study (Brink, Van der Walt & Van Rensburg 2018:104):

- The research should be conducted in a real situation; this study was conducted in real Public Nursing Colleges.
- This approach focusses more on the process and less on the product.
- Its purpose was to develop a conceptual teaching and learning model using social media platforms that will integrate nursing theory and practice.

- The rationale for this approach was to understand participants' perceptions regarding the implementation of social media platforms in teaching and learning in these Nursing Colleges, and to develop a quantitative tool that informed the other part of this study rather than generalising its findings.
- The inductive nature of this approach meant the findings of this study informed the quantitative research approach of this study.
- The researcher was the main research instrument and was personally involved in the research process.

4.4.2.1 Phenomenology

Parahoo (2014:212) defined phenomenology as: “the study of things, events, actions, ideas, images as they appear to us and not whether they exist in reality or not”. This study followed the phenomenological, descriptive approach. The focus was on the participants' perceptions of the use of social media platforms through digitalisation as an option in teaching and learning in their Nursing Colleges. The phenomenological descriptive approach is a research method that allows researchers to get the closest to participants' perceptions (Parahoo 2014:216). The steps of phenomenological descriptive studies are listed below (Parahoo 2014:218):

- Collect phenomenological data
- Read whole descriptions
- Break descriptions into meaning units
- Transform meaning units
- Identify the essential features of phenomena
- Integrate features into structures of phenomena

In-depth, semi-structured interviews in the form of focus groups were used as the method of data collection. This method provides the flexibility required based on the evolving nature of the research problem. It is appropriate for research problems (like the one in this study) that require in-depth discussion and probing (Burns & Grove 2013:59). The participants were interviewed on their perceptions of the use of social media platforms in teaching and learning in Public Nursing Colleges.

4.4.3 Quantitative approach

The quantitative approach to research involves using data collection methods such as questionnaires, structured observation, structured interviews, and other measuring tools. The purpose is to objectively measure and examine the relationship between variables using statistical procedures (Parahoo 2014:43). In this study, self-developed questionnaires were used to collect data. The dependent variable of this study is the teaching and learning of student nurses, and the independent variable is the implementation of social media platforms during teaching and learning. This study followed a non-experimental design, which is descriptive in nature.

4.4.3.1 Descriptive study

Descriptive research provides accurate accounts of the characteristics of a particular individual or group and offers the researcher a way to discover new meaning and describe what exists (Burns & Grove 2013:26). In this study, the researcher described the respondents' demographic data, how much time they spent on social media platforms, their preferences on how information should be obtained, the benefits and challenges of using social media platforms, and how they would like to be taught. Furthermore, the researcher asked the respondents questions related to the feasibility of implementing social media platforms in their Nursing Colleges to promote student nurses' teaching and learning. The main focus was their perceptions regarding the use of social media platforms using a digital e-learning system during teaching and learning.

The objectives that applied are listed as follows:

- To explore student nurses' and lecturers' perceptions regarding the possibility of implementing social media in teaching and learning, to integrate theory and practice;
- To describe the feasibility of the successful implementation of social media in teaching and learning at Public Nursing Colleges;

- To identify and describe recommendations regarding the use of social media as an additional supportive tool for teaching and learning, both in theory and practice;
- To develop a conceptual teaching and learning model, using social media platforms, to integrate nursing theory and practice.

The following descriptive design assumptions informed this study (Brink et al 2018:96):

- The variable exists in this study as a single variable that is agreeable to the description.
- There is insufficient literature describing the study population.
- The study may commence without a theoretical model, but the researcher must provide a rationale.
- Existing studies may provide a rationale and theoretical model for the study at hand in the case of a known concept.
- Where criteria for external validity cannot be met owing to unknown population parameters, the findings cannot be generalised.

The researcher used self-developed questionnaires to collect data. A questionnaire is a written self-report form designed to elicit information that can be obtained from respondents' written responses (Gray et al 2017:407).

4.4.4 The conceptual model

A conceptual model is defined as a structure of concepts pulled together as a map for the study. This set of interrelated concepts symbolically represents how a group of variables relates to each other (LoBiondo-Wood & Haber 2014:576). The conceptual model for this study was adapted from Creswell and Clark (2018:66).

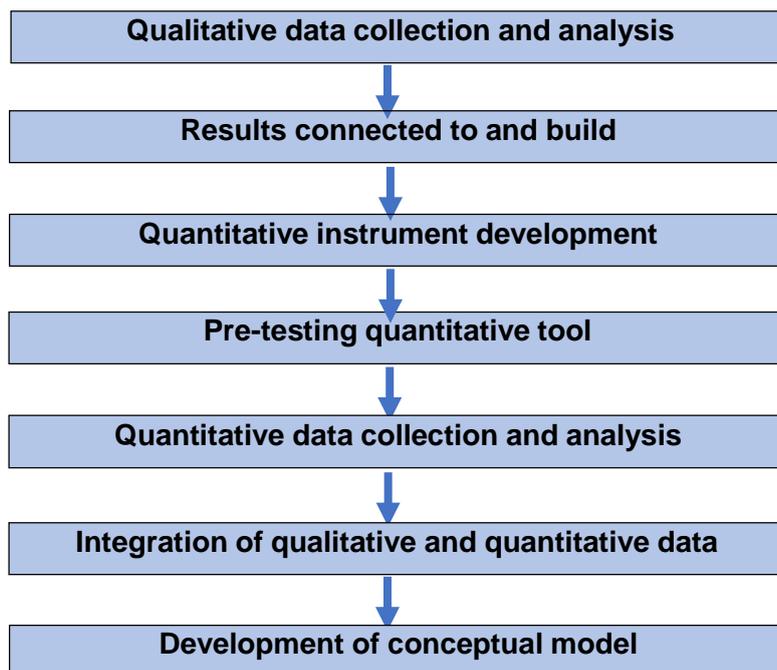


Figure 4.1: The conceptual model adapted from Creswell and Clark (2018:66)

The following sections explain the diagrammatic illustration of Figure 4.1 in relation to its relevance to this study's design.

4.4.4.1 Qualitative data collection and analysis

Qualitative data collection formed the first phase of this study. The researcher used the phenomenological approach to collect data from participants. Data collection was focused on their perceptions regarding the feasibility of implementing social media platforms in teaching and learning in their Public Nursing Colleges. Details and specifications of this section are explained further in this chapter under Section 4.5.4.

The researcher recruited the participants by announcing that she would be conducting a study in their Nursing College. The announcement to conduct the study was done in a meeting with lecturers, during students' registration, and by displaying flyers (refer to Annexure E) on different notice boards. A briefing session was held with potential participants after recruitment. During the briefing session, the purpose of the study was explained to the participants. The participants were guaranteed that confidentiality would be maintained (refer to Annexure I) and that they would remain anonymous.

The participants who agreed to take part in the study were asked to complete informed consent forms; one to acknowledge that they agreed to participate in the study (refer to Annexure D), and the other one to provide the researcher permission to record the interviews using an ADR (refer to Annexure H).

All the interviews were conducted by the researcher and recorded (refer to Annexure H), and the recordings were later transcribed verbatim. Field notes were taken as a back-up should equipment failure occur. The protocol format, as suggested by Parahoo (2014:321), was followed for each focus group interview session. The components of the protocol follow:

- The heading of the study.
- An opening statement in the form of instructions to the participants.
- The grandeur question to be asked.
- Probes to follow the key question.
- Recording of comments and reflective notes.

Each interview session lasted until data saturation occurred; it took between 25 – 58 minutes. Participants' responses were captured electronically and analysed at a later stage. From the analysis, themes were developed, and interpretations of the themes were translated into research findings which were used to inform the development of the quantitative data collection tool. The objective of the focus interview process was to address the stipulated research objectives.

4.4.4.2 Results connected to and building to the quantitative approach

The findings of the qualitative phase were used to refine the quantitative data collection tool. A self-developed questionnaire was designed to help generalise the findings of the qualitative phase. A statistician and the research supervisor checked and refined the tool to ensure it was aligned to the objectives of this study, as listed in Section 1.4.2.

4.4.4.3 Quantitative instrument development

A questionnaire was developed by the researcher based on the responses from phase 1 (qualitative phase) of this study, prior to collecting data for the quantitative phase. As stated, the self-developed questionnaire was approved by the statistician and the research supervisor. The details of the quantitative instrument's development are discussed in Section 4.5.6.3.

4.4.4.4 Pre-testing quantitative instrument

The self-developed questionnaire was pre-tested. The researcher, together with the co-coder, interpreted how the quantitative results obtained during pre-testing built on the qualitative findings and affected the study's outcome. A final data collection instrument was developed, which was used to collect quantitative data for this study.

4.4.4.5 Quantitative data collection and analysis

Data collection for this phase occurred while South Africa was under lockdown alert stage 3 during the first wave of the COVID-19 pandemic. On 11 May 2020, the researcher applied to the Research Ethics Committee of Unisa, requesting permission to continue with data collection as the lockdown restrictions were relaxed. The following reasons were provided by the researcher to motivate the necessity to be allowed to continue with this study at that time:

- This research aimed to find better teaching and learning methods in Public Nursing Colleges other than traditional classroom teaching.
- The findings of this study contribute to minimal physical contact during teaching and learning, which is necessary considering the current pandemic situation.
- Phase 1 of the study's analysis had already shown participants' interest in online teaching and learning. Phase 1 was conducted in 2019 before the outbreak of the COVID-19 pandemic.
- This necessitated the need to complete this study as the Nursing Colleges might need to refer to the study's findings.

Intra-provincial travel and gatherings of fewer than 50 people were allowed under stage 3 lockdown restrictions. Permission to continue with the research was granted based on the researcher's agreement to comply with the guidelines to prevent cross-infection from COVID-19, as stipulated by the minister of health (Mkhize SABC News: 14 May 2020: 18:00). The researcher observed all COVID-19 guidelines during data collection to prevent any harm to the respondents. A 1.5-meter social distance was maintained at all times when in contact with respondents. A face mask was worn at all times by both the researcher and the respondents to completely cover the bridge of the nose and the mouth. Hand sanitisation and washing of hands with soap and water was done before, during, and after handling documents. The detailed data collection phase is discussed in Section 4.5.6.4.

4.4.4.6 Integration of qualitative and quantitative data

The qualitative findings and the quantitative results were integrated to enhance the generalisation of this study's findings. During the first phase of this study, which was conducted in 2019 (September and October) before the COVID-19 pandemic, data were collected from the student nurses and lecturers. Data were collected regarding their perceptions of the feasibility of implementing social media platforms in the Public Nursing Colleges under study. The findings of their perceptions were then used to develop an instrument for quantitative data collection.

The face and content validity of the instrument were informed and linked to the qualitative data findings. The instrument was pre-tested during lockdown alert stage 3 of the first wave of COVID-19 pandemic as restrictions were relaxed by the minister of health in May 2020.

The quantitative data were collected and analysed, and modifications were made according to the findings. In Section A of the tool, a row was added to include the responses for those who indicated they use social media platforms for educational and social packages. In Section F, a row was added to cover the respondents who prefer both social media platforms and traditional teaching strategies. The researcher's interpretation of the results strengthened the findings of the qualitative data. The themes identified in the qualitative data analysis purposefully enriched the data

collection of the quantitative phase. The qualitative findings were therefore also enriched and supported by these findings. The integration was aligned with the theoretical model of this study to strengthen the study outcomes.

4.4.4.7 Development of conceptual model

A conceptual model for the teaching and learning of basic student nurses was ultimately developed (refer to Chapter 7, Section 7.6).

4.5 RESEARCH METHODOLOGY

The research methodology refers to a controlled investigation of what was done to solve a research problem. It involves the population of the study, sampling technique and sample size, inclusion and exclusion criteria, data collection method, data analysis, as well as strategies to enhance methodological integrity and scientific rigour (Brink et al 2018:187).

4.5.1 Research setting

According to Gray et al (2017:692), the research setting refers to a location for conducting research. In this study, data were collected from three Public Nursing Colleges offering a basic nursing programme in Gauteng province, South Africa. The three Nursing Colleges are offering the R.425 curriculum, which was a basic nursing programme leading to a diploma in General Nursing Science (Community and Psychiatric Nursing Science) and Midwifery registration. These Nursing Colleges started offering a new basic nursing programme (R.171) in the year 2020, as the R.425 programme was phased out. These Nursing Colleges were selected to enhance the possible generalisation of the research findings. For the purpose of this study, the first Nursing College is referred to as C1, located in the city of Pretoria, the second Nursing College is referred to as C2, which is in Randburg, Johannesburg, and the third Nursing College is referred to as C3, found in Soweto Johannesburg (refer to Annexure M).

4.5.2 Population

The population is the total of all the individuals who have certain characteristics of interest to the researcher (Polit & Beck 2014:387). Bless et al (2014:394) refer to the population as a complete set of people to which the research findings are to be applied. The population for this study was all the lecturers who were teaching basic and post-basic nursing courses, and the student nurses registered in the academic years 2018, 2019 and 2020 at the three Public Nursing Colleges offering a basic nursing programme in Gauteng province. The target population was the student nurses in their first and second year of training and the lecturers teaching in these Nursing Colleges.

The student population consisted of students from the three Nursing Colleges (C1: 350, C: 291 & C3:277 = 918) and the lecturers' population was sampled from the same Nursing Colleges (C1:80, C2:113 & C3:137 = 330). The total population of students and lecturers was 918 and 330, totalling 1 248. They were able to provide rich data with regard to their perceptions as far as the feasibility of implementing social media platforms in teaching and learning was concerned.

4.5.3 Phase 1: Qualitative phase

4.5.3.1 Sampling technique and sample

The sampling technique is referred to as a process in which representative units of a population are selected for a study, while a sample refers to as a subset of sampling units from a population (LoBiondo-Wood & Haber 2014:583). Purposive sampling means selecting information-rich cases that can offer a great deal of information about the phenomenon under study (Burns & Grove 2013:365). The non-probability purposive sampling technique was used in this phase. The participants were able to provide extensive information about the use of different teaching and learning strategies in their Nursing Colleges. The sample size was guided by data saturation. The sample purposefully consisted of lecturers who were teaching in nursing courses and first and second-year student nurses at the three Public Nursing Colleges.

4.5.3.2 Inclusion and exclusion criteria

Inclusion criteria look at the key features of the target population that the researcher will use to answer the research question and objectives of the study. Exclusion criteria refer to features of the potential study participants who meet the inclusion criteria but present characteristics that disqualify prospective subjects from being included in the study (Patino & Ferriera 2018:84).

- **Inclusion criteria:** The criteria included the first- and second-year student nurses who were registered in their current academic year for basic nursing studies, and the lecturers who were teaching basic and post-basic nursing courses. These student nurses had BNS and GNS as some of the modules in their curriculum at that level of their training.
- **Exclusion criteria:** The student nurses and lecturers who participated in the pre-testing phase, to avoid data contamination. Lecturers who were on leave on the day of data collection; student nurses who were absent on the day of data collection; as well as those lecturers and student nurses who opted not to participate in the study, were excluded. The third- and fourth-year student nurses, and post-basic student nurses were also excluded from the study.

4.5.3.3 Development of qualitative data collection instrument

An instrument is a device used to collect data (Polit & Beck 2018:406). An interview guide is defined as a list of open-ended questions and probes used by interviewers (Polit & Beck 2018:205). An interview guide was chosen to guide the researcher during interview sessions to ask questions that would address the objectives of this study. The advantage of using an interview guide is that the researcher remains focused on the study objectives. The disadvantage is that the researcher might narrow the views of the participants by only re-directing them to what the researcher wants to hear.

An interview guide was developed by the researcher based on reviewed literature and the objectives of this study (refer to Annexure F). The guide was used to explore the

participants' thinking, attitudes and perceptions. Those perceptions might influence the possible implementation of social media platforms in teaching and learning.

The interview guide consisted of a grand tour question, which was followed by probing questions. The grand tour question was: "what is your understanding of social media platforms?" Probing consisted of four questions where the participants' perceptions on the feasibility of implementing social media platforms in teaching and learning were explored, described, and their recommendations to improve the feasibility of its implementation were identified. The participants were expected to motivate their responses. The same interview guide was used to collect data from both the students and the lecturers.

4.5.3.4 Pre-testing of an instrument

According to Majid, Othman, Mohamed, Lim and Yusof (2017:1073), it is essential to pre-test an instrument for the researcher to test the questions and gain some practice in interviewing. The interview guide (refer to Annexure F) was the instrument that was pre-tested. The purpose of pre-testing was to check if the questions met the study's specific objectives and to identify weaknesses and correct ambiguities detected in order to enhance trustworthiness.

During pre-testing, the information flyer (Annexure E) was read to the participants as a recruitment strategy. The purpose of the study was also explained to the participants. The interview guide was pre-tested on 31 July 2019 between 12:00 – 13:00. The researcher had permission to conduct this study from the Gauteng Department of Health and the management of the Public Nursing College under study (refer to Annexure C1). Pre-testing was conducted with five student nurses and five lecturers from C1. The interviews were conducted in a designated classroom. The researcher welcomed the five student nurses and the five lecturers who volunteered to participate in pre-testing the interview guide. The participants (both student nurses and lecturers) gathered in a classroom not in use for privacy and confidentiality reasons. During pre-testing, no other person was allowed to access the identified classroom in order to avoid disturbances and maintain privacy and confidentiality. Participants were asked to settle down and make themselves comfortable. The researcher introduced herself

to the participants and explained that pre-testing is conducted to overcome possible errors that might have occurred during the development of an interview guide in preparation for data collection.

A confidentiality agreement (refer to Annexure I) was read and signed by both the researcher and the participants before commencing with the interview to ensure that there would be no disclosure of participants' names or their institution when the results of this study are published. The participants were informed that their participation in the pre-testing was voluntary and that they could withdraw from participating at any time without any fear of being penalised. They were further informed not to participate in the main study because this might duplicate the results. They were then asked to read and sign the informed consent form (refer to Annexure D) and a consent form to allow audio recording (refer to Annexure H).

The participants were assigned numbers starting from 1 to 5, which were used to address them during the interview session to maintain their anonymity. The language that was used during the interview session was English, since it is the language of instruction in the Nursing College.

The interview guide was used to conduct the interview, and the ADR was used to record the interview. Field notes were taken as a back-up in case of technical failure. The participants were asked to respond randomly to the questions asked by the researcher. The participants were probed to provide any other information that they thought could assist the researcher. All five questions were answered, and the session lasted 30 minutes as there was no more new information from the participants, thus data saturation was reached. The researcher then thanked the participants for their active participation, time and effort. The information on the ADR and field notes were captured electronically; this was later analysed and interpreted to confirm the appropriateness of the interview guide.

The researcher listened to the ADR recording from the interview session. The transcripts were written out and captured in Excel to run the data through software system analysis. Completed consent forms and the ADR were kept in a cabinet under lock and key at the researcher's home, and were only accessed by the researcher for

safety, privacy and confidentiality reasons. No amendments were required to the interview guide, and it was used to collect the primary data for this study.

4.5.4 Phase 1: Data collection

Data collection is the basic idea of gathering information to address the questions being asked in a study (Creswell & Clark 2018:173). Data collection is the process of gathering and measuring information on variables of interest, in an established systematic way that enables one to answer stated research objectives or questions (Sutton & Austin 2015:229). The researcher presents the general data collection in this section, then the data collection process for each of the three Nursing Colleges is discussed separately.

Participants were recruited by displaying an information leaflet about the study on different notice boards for both the students and lecturers in all three Nursing Colleges. Recruitment was done during students' registration and theoretical block periods, and during lecturers' staff meetings in 2019.

Data were collected after obtaining approval from the relevant authorities and institutions (refer to Section 4.8). The researcher used a qualitative approach to obtain participants' in-depth thoughts and opinions regarding the feasibility of implementing social media platforms in teaching and learning. The qualitative data collection approach provides the researcher with an opportunity to access participants' thoughts and feelings, promoting the researcher's understanding of participants' lived experiences (Sutton & Austin 2015:226). Data collection was guided by the participants' willingness and availability to participate in the study.

Data collection commenced on 12 September 2019. The researcher visited the three Public Nursing Colleges in Gauteng province on different dates based on the availability of targeted participants. The chairperson of the research committee in each nursing college assisted in arranging the venue for interviews and recruiting prospective participants. Focus group interviews were conducted with both lecturers and student nurses. Focus group interviews are interviews with a small group of individuals who are assembled to answer questions on a given topic (Polit & Beck

2018:204). In this study, each focus group interview consisted of five students or five lecturers, separately. The researcher intended to generate substantial information on the participants' perceptions of the use of social media platforms in teaching and learning.

4.5.4.1 Phase 1.1: Data collection from student nurses

First and second-year student nurses who met the inclusion criteria were the recruited population at the three targeted Public Nursing Colleges. A total of four groups of student nurses, of five participants per group, participated in the study. Only 20 participants were interviewed from the three Public Nursing Colleges as data saturation was reached. The students were recruited during their fourth and last theoretical block as all the students were expected to report at their Nursing Colleges in July 2019.

In the first Nursing College, recruitment was done in the first week of July 2019, the second Nursing College recruitment was done in the second week, and in the third Nursing College, the recruitment was done in the fourth week of July 2019. The researcher greeted and introduced herself to the participants and welcomed them. The researcher further explained the title of the study, purpose and method of data collection (refer to Annexure E) to the participants. An appointment was set with the willing participants to meet with the researcher at a designated classroom during their lunchtime for data collection. The researcher explained how the interview would unfold to get cooperation from the participants.

Before the interview session, the researcher introduced herself and welcome the participants. The participants were gathered in a classroom not in use and no other person was allowed to access the identified classroom in order to maintain participants' privacy and confidentiality. The participants were asked to settle down comfortably. The purpose of the study was again explained to the participants, and the information in the flyer (refer to Annexure E) was read again to give them an idea of what was expected of them during the interview session.

The participants were informed that participation was voluntary, and that they may withdraw from participating at any time without any fear of being victimised. They were further informed not to participate in phase 2 of this study because that might cause duplication of the results. They were then asked to read and sign the informed consent form (refer to Annexure D) and the researcher’s request to audio record the interview (refer to Annexure H). A confidentiality agreement (refer to Annexure I) was read and signed by both the researcher and the participants before commencing with the interview to confirm no disclosure of participants’ names or the name of their institution when the results of this study are published.

The participants in each group were assigned numbers starting from 1 to 5, which were used to address them during the interview session to maintain anonymity. The language used during the interview session was English, since it is the Nursing Colleges’ language of instruction.

The interview guide (refer to Annexure F) was used to conduct interviews, and the ADR was used to record the interview sessions. Field notes were also taken to probe for more information from the participants and as a back-up in case the ADR became faulty. The participants were asked to respond randomly to the questions asked by the researcher and probing questions were posed so participants could share other information that they thought could add value to this study. Table 4.1 indicates Nursing Colleges, date, time and duration of data collection.

Table 4.1: Data collection from student nurses

Nursing colleges	Date	Time	Duration	Number of Participants
C1	12 September 2019	10:00 – 11:00	45:47	5
C1	12 September 2019	12:00 – 13:00	49:47	5
C2	20 November 2019	15:00 – 16:00	36:20	5
C3	4 October 2019	11:30 – 12:30	25:20	5

On 12 September 2019, data were collected from **C1** (refer to Annexure C1). The first focus group interview was conducted between 10:00 – 11:00 in the morning in one of the designated classrooms. The interview was conducted during the participants’ tea

break to avoid class disruption. This group comprised five participants; three of the participants were second-year students, and two were first-year students. Their interview session lasted until data saturation was reached, which occurred at 45:47 minutes.

The second focus group interview was conducted between 12:00 – 13:00 in the same Nursing College (refer to Annexure C1). The interview was conducted during their lunch break on the same date to avoid class disruption. This group was composed of five participants in their second year of training. Their interview session lasted until data saturation was reached at 49:47 minutes.

On 20 November 2019, data were collected from **C2** (refer to Annexure C2). The focus group interview was conducted between 15:00 – 16:00 in one of the designated classrooms. The interview was conducted after hours of work to avoid disruption of service delivery. This group comprised five participants who were all first-year student nurses. Their interview session lasted until data saturation was reached at 36:20 minutes.

On 4 October 2019, data were collected from **C3** (refer to Annexure C3). The focus group interview was conducted between 11:30 – 12:30 in the afternoon in one of the designated classrooms. The interview was conducted during the participants' lunch break to avoid any disruption of classes. This group had five participants, and they were all first-year student nurses. Their interview session lasted until data saturation was reached at 25:20 minutes.

Once each interview ended, the researcher thanked the participants for their participation.

a) Summary of data collection of phase 1.1

The duration of the sessions varied based on participants' knowledge and involvement during the interview sessions. The shortest interview lasted 25 minutes, and the longest was 55 minutes. At that time, no new information was gained from the participants, thus data saturation was reached.

Data were collected from a total of 20 student nurses; 10 students were from C1, five students were from C2, and another five students participated in C3 (C1: 5 +5 = 10; C2: 5; C3: 5). The information in the ADR and field notes was captured electronically for analysis and interpretation purposes. Completed informed consent forms, field notes and the ADR were kept in a cabinet under lock and key at the researcher's home and were only accessed by the researcher for safety, privacy and confidentiality reasons.

4.5.4.2 Phase 1.2: Data collection from the lecturers

Participants were recruited through an announcement during lecturers' meetings (refer to Annexure E). A briefing session was held with the potential participants after recruitment, where the title of the study, purpose and method of data collection were explained by the researcher. The researcher targeted all lecturers who met the inclusion criteria from each Public Nursing College under study. The researcher visited the Nursing Colleges on different dates to collect data. The first Nursing College (refer to Annexure C2) was visited on 20 September 2019, the second Nursing College (refer to Annexure C3) on 4 October 2019, and the third Nursing College (refer to Annexure C1) on 7 October 2019.

During the interview session, the researcher introduced herself and welcome the participants. The participants were gathered in an empty classroom for the interview session. No other person was allowed to access the identified classroom in order to maintain participants' privacy and confidentiality. The participants were asked to settle down comfortably. The purpose of the study was again explained to the participants by the researcher. Moreover, the information flyer (refer to Annexure E) was read to the participants to give them an idea of what was expected of them during the interview session.

The participants were informed that participation was voluntary, and that they may withdraw from participating at any time should they wish, without any fear of being victimised. They were further informed not to participate in phase 2 of this study because that might cause duplication of the results. They were then asked to read and sign an informed consent form (refer to Annexure D) and to further sign consent for

the audio recording of the interview (refer to Annexure H). A confidentiality agreement (refer to Annexure I) was read and signed by both the researcher and the participants before commencing with the interview. This was done to ensure no disclosure of the names of the participants and their institution when the results of this study are published.

The participants were assigned numbers starting from 1 to 5, which were used to address them during the interview session to maintain their anonymity. Interviews were conducted in English, since it is the language used during teaching and learning in their Nursing College.

The interview guide (refer to Annexure F) was used to conduct interviews, and the ADR was used to record the interview sessions. Field notes were also taken to probe more information from the participants and as a back-up if the ADR became faulty. The participants were asked to respond randomly to the researcher's questions, and probing questions were raised so participants could provide any other information that they thought could add value to the research topic. Data collection is summarised in table 4.2 below.

Table 4.2: Data collection from lecturers

Nursing colleges	Date	Time	Duration	Number of Participants
C1	7 October 2019	14:00 – 15:00	58:00	5
C2	20 September 2019	07:30 – 08:30	36:23	5
C3	4 October 2019	10:00 – 11:00	38:31	4

On 7 October 2019, data were collected from **C1** (refer to Annexure C1). The focus group interview was conducted between 14:00 – 15:00 in a designated classroom. The interview was conducted after work hours to avoid disruptions of duties. This was arranged with the assistance of the chairperson of the research committee. This group consisted of five participants, and their interview session lasted until data saturation was reached at 58:00 minutes.

On 20 September 2019, data were collected from **C2** (refer to Annexure C2). The focus group interview was conducted between 07:30 – 08:30 in the morning, before the lecturers could start with their daily activities to avoid disruptions to their duties. This was arranged with the assistance of the chairperson of the research committee. This group had five participants, and their interview session lasted until data saturation was reached at 36:23 minutes.

On 4 October 2019, data were collected from **C3** (refer to Annexure C3). The focus group interview was conducted between 10:00 – 11:00 in the morning during the lecturers' tea break to avoid disruptions to their duties. This was arranged with the assistance of the chairperson of the research committee. This group consisted of four participants, since one lecturer could not join the interview session due to unforeseen circumstances. Their interview session lasted until data saturation was reached at 38:31 minutes.

After each interview, the researcher thanked the participants for their time and contribution to the study.

a) Summary of data collection of phase 1.2 from three Nursing Colleges

The duration of focus group sessions varied based on the participants' knowledge and engagement during interview sessions. The shortest interview was 36 minutes, and the longest was 58 minutes, at which time no new information was shared by the participants. Data saturation was thus reached. Data were collected from a total of 14 lecturers. At the first Nursing College, five lecturers participated; the second Nursing College had five lecturers' participating; and another four lecturers were interviewed at the third Nursing College (C1: 5, C2: 5 & C3: 4). The information in the ADR and field notes was captured electronically for analysis and interpretation purposes. Completed consent forms, field notes and the ADR were kept under lock and key at the researcher's home and were only accessed by the researcher for privacy, safety, security and confidentiality reasons.

Overall, data were collected from a total of 34 participants from all three Nursing Colleges; 14 lecturers and 20 student nurses. Their perceptions formed the outcome

of this study. Their data analysis is discussed in the next chapter, which focuses on the qualitative phase of this study.

4.5.5 Rigour

Rigour in qualitative research relates to the extent of openness, relevance, epistemological and methodological congruency, as well as the thoroughness in data collection and data analysis (Brink et al 2018:110). Parahoo (2014:413) defined rigour as the decisions and actions taken by the researcher to ensure the quality of the study.

The researcher ensured this study's transparency by recording the interview sessions after obtaining written permission from the participants. Trustworthiness was also ensured throughout the study, which is defined as the rigour of research in a qualitative research study (LoBiondo-Wood & Haber 2014:134). The four aspects of trustworthiness, as described by Shenton (2018:1) based on Lincoln and Guba's constructs, were applied in this study to strengthen the findings and ensure rigour. These constructs are described next.

4.5.5.1 Credibility

Credibility is defined as the quality of being trusted and believed in (Shenton 2018:1). Credibility relates to the researcher's confidence in the truthfulness of the results of a scientific study, the context in which the study was undertaken, the issue of internal consistency, as well as the extent to which findings can be applied to different groups. For the purpose of this study, the researcher conducted all the focus group interviews, which allowed her to spend ample time with the participants. The design for this study is exploratory, sequential, and mixed method, which allowed the researcher to collect two sets of data using different data collection instruments, namely an interview guide and questionnaire.

4.5.5.2 Transferability

Transferability is the process of applying the results of research in one situation to other similar situations (Shenton 2018:1). Transferability reflects the extent to which

the researcher may generalise the findings to the total population. The researcher selected participants from three different Public Nursing Colleges, and approval was obtained from the Gauteng Provincial Health (refer to Annexure B) for the study to be conducted. The context in which this study was conducted increased the generalisability of this study's findings to the three Nursing Colleges. The research could be repeated by other researchers who might be interested in a different setting.

4.5.5.3 Dependability

Dependability refers to the consistency of the findings if the same study was to be repeated with the same population in a different context and would yield the same results (Shenton 2018:1). The fact that the research was conducted in three different Nursing Colleges ensured consistency of the findings. A research co-coder (refer to Annexure J) was also involved in the analysis of the findings of this study to ensure consistency.

4.5.5.4 Confirmability

Confirmability is defined as the level of confidence the researcher has that the research findings are based solely on the participants' narratives (Shenton 2018:2). Confirmability refers to the acknowledgement that the findings and the significance of a study are specific to the situation being studied, as opposed to the biases of the researcher (Shenton 2018:1). For the purpose of this study, the researcher minimised possible bias by asking a neutral person (the statistician and co-coder), who was appointed by the study's supervisor, to assist with the coding and the development of the themes that were identified during data analysis.

4.5.6 Phase 2: Quantitative phase

4.5.6.1 Sampling technique and sample

Non-probability convenience sampling was used for this phase as it is suitable for exploratory studies, it is cost and time effective. With convenience sampling, participants are included in the study because they happen to be in the right place at the right time (Burns & Grove 2013:363). All the student nurses in their first and second

years of training and the lecturers teaching basic and post-basic nursing courses were invited to participate in the study. Since non-probability convenience sampling was used, the population size for phase 2 was 1 248 respondents, of which 918 were student nurses, and 330 were lecturers teaching in the selected Nursing Colleges.

The sample size depends on the nature of the analysis to be performed, the kind and number of comparisons that will be made, and the number of variables that need to be examined (Guetterman 2015:3). For this study, all available respondents who were in the first and second year of their study in the academic years 2018, 2019 and 2020, who met the inclusion criteria and were available on the set date(s) of data collection, were invited to participate in the study.

A statistician was consulted to help with the calculation of the sample, based on the population number. This information was retrieved from the Nursing Colleges' admission records for the academic year 2018 (Human resource records 2018:2). The discussion to follow reflects the population of student nurses and lecturers of the three Public Nursing Colleges. These numbers were used in the calculation of the sample. Table 4.3 below indicated the population of this study.

Table 4.3: Population of the study

Phase 2.1	First Year Student Nurses	Second Year Student Nurses	Sub - Total
C1	169	181	350
C2	136	155	291
C3	114	163	277
Total	419	499	918
Phase 2.2	Lecturers		Sub - Total
C1	-	80	80
C2	-	113	113
C3	-	137	137
Total			330
Grand - Total			1 248

The total number of student nurses in the Nursing College where the initial problem was identified (refer to Annexure C1) was 169 first-year student nurses and 181 second-year student nurses. The second Nursing College (refer to Annexure C2) had 136 first-year student nurses and 155 second-year student nurses. The third Nursing College (refer to Annexure C3) had 114 first-year student nurses and 163 second-year student nurses. Thus, a total number of first year student nurses was 419 and the second year student nurses were 499, the grand total of student nurses was 918. (Human resource records 2018:2).

The total number of lecturers in the Nursing College where the problem was identified (refer to Annexure C1) was 80, the second Nursing College (refer to Annexure C2) 113 lecturers were identified. In the third Nursing College (refer to Annexure C3), the total number of lectures was 137. The total number of lecturers across the three Nursing Colleges was 330 according to human resource records (Human resource records 2018:2). In total, 1 248 respondents participated in this study.

After determining the number of the population of student nurses and lecturers, the researcher was assisted by a statistician in calculating the sample size as follows:

The sample size calculator for this research (Daniel 1999:141–142) used the following formula for the sample size n:

- $n = N \cdot X / (X + N - 1)$, where,
- $X = Z_{\alpha/2}^2 \cdot p \cdot (1-p) / MOE^2$,

$Z_{\alpha/2}$ is the critical value of the Normal distribution at $\alpha/2$ (e.g. for a confidence level of 95%, α is 0.05 and the critical value is 1.96), MOE is the margin of error, p is the sample proportion, and N is the population size. Note that a Finite Population Correction (FPC) has been applied to the sample size formula.

The above sample size calculator reflects the recommended number of samples required to estimate the true proportion mean with the required margin of error and confidence level.

Assumption – It is assumed that about $p = 50\%$ is initiated, for a 95% confidence interval, $\alpha = 0.05$, critical value 1.96, and the margin of error is taken to be 2.0% (student nurses), with a student population of 918. The relation above was calculated as follows:

$$X = 1.96^2 * (0.50) * (1-0.5) / (0.02)^2 = 2401$$

$$N = 918 * 2401 / (2401 + 918 - 1)$$

$$N = 664.$$

To minimize the challenge of dropout, it was assumed there would be a dropout rate of 5%.

The new sample size, adjusting for possible dropout was:

$$n = 100 * 664 / 95$$

$$= 698.94737 \text{ which is approximately } 699.$$

As for the lecturers, the assumption was the same, except that the margin of error for lecturers was placed at 12.5% (lectures) because of the level of movement associated with the lecturers.

$$X = 1.96^2 * (0.50) * (1-0.5) / (0.125)^2$$

$$= 61.4656$$

$$n = 61 * 330 / (61 + 330 - 1) = 51.615385$$

Making a similar assumption of 5% non-response, the new sample size for the lecturers was:

$$n = 100 * 52 / 95 = 54.6.$$

The final sample size for the lecturers in this case was 56.

The sample sizes were proportionally allocated to the colleges.

4.5.6.2 Inclusion and exclusion criteria

Inclusion criteria are characteristics that the prospective respondents must have if they are to be included in the study. Exclusion criteria are those characteristics that disqualify prospective respondents from inclusion in the study (Patino & Ferriera 2018:84).

- Inclusion criteria for this phase was all the lecturers teaching nursing courses, and first and second-year student nurses (the years 2018, 2019 and 2020) enrolled in the three Public Nursing Colleges.
- Exclusion criteria were the student nurses and lecturers who participated in the instrument's pre-testing to avoid data contamination. Lecturers who were on leave on the day of data collection; student nurses who were absent on the day of data collection; as well as those lecturers and student nurses who opted not to participate in the study were also excluded. The third years, fourth years and post-basic students were excluded from this study.

4.5.6.3 Development of a quantitative data collection instrument

An instrument is a measurement tool designed to obtain data on a topic of interest from research respondents (Polit & Beck 2014:382). A self-developed questionnaire (refer to Annexure G) was used to collect data in this phase from students and lecturers. The questionnaire for students was different from the one for the lecturers; only the demographic section of the data collection tool was the same. However, another similar online questionnaire was created to accommodate the students and lecturers in C2 since the Nursing College's management did not allow visitors in their Nursing College.

The questionnaire was focused on measuring the respondents' responses on a measurement scale from 1 – 4, aligned to the principles of a Likert scale (Polit & Beck 2014:384). The questionnaire was written in English since it is the medium of instruction in the Public Nursing Colleges. The questionnaire was assessed and evaluated by a qualified statistician to ensure its strength for the study's validity and

reliability. The questionnaire consisted of both open-ended and closed-ended questions and was based on reviewed literature and research objectives for this study (refer to Annexure G).

The questionnaire was divided into 8 sections, which comprised 80 questions for G1 and 81 for G2:

- Section A focused on demographic data and was composed of nine closed-ended questions for G1 and 10 for G2.
- Section B addressed the time spent on social media platforms, which comprised two closed-ended questions.
- Section C addressed respondents' preferences on how they would like to obtain information and comprised 11 closed-ended questions.
- Section D addressed the benefits of using social media platforms in teaching and learning, and consisted of 20 closed-ended questions.
- Section E addressed the use of social media platforms and consisted of 16 closed-ended questions.
- Section F was about the respondents' preferred methods of teaching, with 1 closed-ended questions.
- Section G addressed the respondents' perceptions of the possible use of social media platforms in teaching and learning, with 17 opened-ended questions.
- Section H addressed respondents' opinions regarding the implementation of social media platforms in teaching and learning and composed of four opened-ended questions.

c) Pre-testing the quantitative data collection instrument

According to Hilton (2017:21), pre-testing is a method of checking that questions address the study's intended purpose and are understood by the respondents. The purpose of the pre-test is to identify flaws prior to collecting data for the main study and check the validity and reliability of the instrument. This study's questionnaire was pre-tested (refer to Annexure G) and helped the researcher identify weaknesses and correct ambiguities detected in order to enhance the reliability of the tool. Pre-testing

was conducted prior to conducting the main study. The validation of the instrument was finally confirmed by the statistician and the supervisor to ensure its relevance to the research objectives.

The lecturers and students were recruited using information flyers (refer to Annexure E), and they were also addressed during staff meetings and students' block periods, respectively, prior to the COVID-19 pandemic. The information flyers were displayed on different notice boards as a continuous reminder in all three Public Nursing Colleges. The respondents were informed about this study during phase 1's data collection in September – December 2019.

The pre-test was conducted in May 2020, during the first wave of COVID-19, under stage 3 of relaxed lockdown restrictions. In order to ensure compliance with research ethics (do no harm) and protect respondents against the transmission of the virus, the researcher had to reapply to the Research and Ethics Committee of the Department of Health Studies at Unisa to continue with the data collection. Permission was granted based on the researcher's agreement to comply with the guidelines to prevent cross-infection from COVID-19 as stipulated by the minister of health (Mkhize SABC News: 09 May 2020: 18:00).

During the first wave of COVID-19 in May 2020, a reminder was posted on the WhatsApp chat groups of students and lecturers requesting prospective respondents to volunteer to pre-test the questionnaires. The researcher had already built a rapport with the respondents during the recruitment phase between September and October 2019, prior to the COVID-19 outbreak.

c.i) Pre-testing the quantitative data collection instrument: student nurses

The pre-testing of the instrument was conducted at two Nursing Colleges, namely C1 and C2. In C1, pre-testing was done using manual hard copies. The researcher is a participant in the students' chat group in C1 for academic communication purposes, which made it easy to access the cell numbers of the different student nurses. The researcher made an announcement via C1's students' WhatsApp chat group on 14 May 2020 in order to request their participation in pre-testing the questionnaire. The

prospective respondents were contacted telephonically (individually) from the student nurses' group chat. A date and time (15 May 2020 between 13:00 – 15:00) of appointment were set telephonically based on their availability. The researcher was granted entry into the Nursing College as a permission letter to conduct the study was shown to the security guards at the gate. The researcher was also screened for COVID-19 compliance by the occupational health and safety officers in the Nursing College. The chairperson of the research committee was contacted to make her aware of the researcher's presence in the Nursing College.

The researcher welcomed the five students from C1 (refer to Annexure C1) who volunteered to participate in pre-testing the questionnaire. The researcher asked the respondents if they had participated in the first phase of this study to make sure that there was no duplication of data. The respondents gathered in the office at the nurses' residence. The office's capacity was large enough to accommodate at least 20 people as it is a waiting area as well. The students were wearing their own face masks as required by the government to ensure the prevention of the spread of COVID-19.

The researcher asked the students to maintain a 1.5-meter social distance from one another. The chairs were already arranged by the researcher in that regard. The students' hands were sanitised by the researcher in order to comply with COVID-19 regulations. The researcher wore her own face mask and sanitised her hands. Most of the other students were in their rooms, and movement by visitors was very minimal due to COVID-19 lockdown regulations. The researcher displayed a notice outside the office at the nurses' residence to request people not to disturb the data collection process between 13:00 and 15:00 on 15 May 2020, to provide privacy to the respondents.

The researcher introduced herself to the respondents and explained that the pre-testing is conducted to overcome possible errors that might have occurred during the development of the questionnaire. A confidentiality agreement (refer to Annexure I) was read and signed by both the researcher and the respondents to acknowledge non-disclosure of any information related to the names of the respondents and those of the institutions where data were collected, before commencing with the completion of the questionnaire. The questionnaires (Annexure G) were labelled as number 1 to

5 to protect the respondents' identity. No names were required from the respondents in order to maintain their anonymity. The respondents were made aware of the risks related to COVID-19, and the researcher ensured compliance according to health regulations.

The researcher and the respondents sanitised their hands by using the sanitiser placed at the door entrance, by pressing the foot pedal of the sanitiser holder before the respondents could take the questionnaires, information leaflets and consent forms from the table. Social distancing (1.5 meters) was maintained between the researcher and the respondents. Informed consent forms and questionnaires were placed and arranged on the table at the entrance of the classroom, and each pile was placed apart from one another, so respondents did not touch all the documents accidentally. The researcher directed the respondents to take one document from the consent form pile, questionnaire and confidentiality pile on the table.

They were asked to read and sign the informed consent form (refer to Annexure D). Moreover, respondents were informed that they could withdraw from pre-testing even if they had signed the informed consent if they wished to do so without any penalty. The questionnaires were constructed in English, since it is the language of instruction at their Nursing College.

The respondents were asked to complete the questionnaire as honestly as possible and individually. They were asked not to discuss the questions as the information might be biased. All the sections in a questionnaire were answered. It took an average of 25 – 30 minutes to complete the questionnaire. The respondents were asked to return the completed questionnaires and consent forms to boxes that the researcher placed on the table without touching each other. The researcher then thanked the respondents for their time and effort.

The respondents used the same sanitiser placed at the room's entrance to disinfect their hands again before leaving the venue. The researcher also asked the respondents to wash their hands with soap and water in their rooms for at least 20 seconds to comply with COVID-19 regulations. The researcher similarly washed her

hands after collecting the questionnaires and used sanitiser in compliance with COVID-19 regulations.

The questionnaires and the consent forms were placed in a provided box in the venue. The box was sprayed with sanitiser. The researcher took the box home where the questionnaires were analysed. The researcher read all the responses from the five questionnaires, and after her analysis, the researcher placed the questionnaires back into the box. The box was again sanitised and placed in a locked cabinet for safety, security and confidentiality reasons. The tool met the objectives of the study. All the respondents (100%) recommended the use of social media as an additional supportive tool for teaching and learning. Amendments were made to finalise the data collection tool based on the responses to the pre-tested tool. The questions that were ambiguous were rephrased, and spelling errors were corrected. A final corrected questionnaire was approved by the research supervisor and statistician, and it was used to collect the primary quantitative data (refer to Annexure G).

Another pre-test was conducted at C2. This was done online because the management of this Nursing College did not allow manual distribution of questionnaires (refer to Annexure G) at their campus, despite promised compliance with COVID-19 guidelines. This necessitated the use of a web link to test and collect data from this Nursing College. The researcher converted the original questionnaire to an online soft copy with the assistance of an ICT software specialist.

The researcher targeted five students for pre-testing. The researcher had to test the link to ensure that it would serve the intended purpose of data collection. The researcher was unable to contact the students since the researcher did not have any contact details of the students from that Nursing College. Therefore, the researcher requested the assistance of the chairperson of the research committee in forwarding the link to the students' chat group (refer to Annexure C2) (https://docs.google.com/forms/d/e/1FAIpQLSf-G1rNA49qN5ITMcswZxydZ-LdA8A3_vk_wb2A6hdt6UkA/viewform). An information leaflet (refer to Annexure E) was also emailed to the research chairperson to assist in briefing the students offline about the study, even though the link had the same information to enable clarifications of any

possible concerns. The researcher provided her contact details to the chairperson so that the researcher might easily be contacted at any time if necessary.

The online questionnaire was pre-tested with the first group of students who returned to Nursing College on 26 May 2020. The group consisted of 49 students, and only five students were targeted by the researcher to test if the link would work. The chairperson of the research committee briefed the students, as requested by the researcher. The chairperson was able to forward the link to the students' WhatsApp chat group. The students were informed of the purpose of pre-testing the linked questionnaire, which was to identify gaps in the link so that it could be rectified if necessary before collecting main data. The chairperson of the research committee posted the link of the study to the students' WhatsApp chat group.

The link provided students with the purpose of the study, and an informed consent form to be signed before attempting to answer the questionnaire. The group that participated in pre-testing the questionnaire was informed by the chairperson not to participate in the main study to avoid duplication of the information. Pre-testing commenced on 1 June until 5 June 2020. During that time, the five targeted students responded and answered the questionnaire on the link. No amendments were made to the link.

Ultimately, a total of 10 student respondents participated in pre-testing the questionnaire; five completed manual questionnaires, and the other five participated via the link online. All the respondents were excluded from main data collection. Their participation contributed on testing whether the tool would achieve the research objectives.

c.ii) Pre-testing of an instrument for lecturers

The researcher contacted and introduced herself telephonically to the respondents on 17 May 2020 in preparation for pre-testing. The researcher belongs to the same WhatsApp chat group as the other lecturers, making it easier for her to contact the prospective respondents. The respondents were telephonically informed that participation in pre-testing was voluntary, and that they could withdraw from

participating at any time without any repercussion to them, even if they had signed an informed consent form before participating in the study. They were excluded from the main study because that might cause duplication of the results. The researcher explained that pre-testing was conducted to overcome possible misinterpretation of questions which might affect the outcome of the research objectives.

The five lecturers from the first Nursing College (refer to Annexure C1) pre-tested the instrument on 18 May 2020. The researcher delivered the questionnaires to their homes due to challenges faced with COVID-19 restrictions. Pre-testing was conducted between 11:00 – 17:00. The lecturers who participated in the pre-testing resided within the same municipal ward and not far from one another. An appointment was set telephonically with them, and an agreement was reached to meet the respondents at their home gates. The respondents were asked to wear their face masks, wash their hands and apply sanitiser before taking documents, which included information leaflets (refer to Annexure E), an informed consent form (refer to Annexure D), and questionnaire (refer to Annexure G), and handing back the consent form and the questionnaires.

The questionnaires (Annexure G) were numbered from 1 to 5 in order to maintain anonymity. The questionnaires were constructed in English since it is the language used during teaching and learning in their Nursing College. The respondents were asked to complete the questionnaire as honestly as possible.

The researcher had her own face mask and sanitised her hands. The researcher dropped a box with the documents (refer to Annexures D, E & G) for each respondent to complete at their homes as arranged telephonically with them. The researcher waited in the car outside the respondents' homes to adhere to COVID-19 regulations while the respondents completed the forms. The respondents dropped the completed questionnaires and consent forms in the same box where they collected the documents. Information leaflets were not taken back by the researcher. The researcher waited approximately 30 minutes before receiving the completed consent forms and questionnaires from the respondents.

The researcher sanitised her hands before picking up the box. The respondents were reminded to wash their hands with soap and water when they entered their homes before touching anything.

The box with completed questionnaires was put in the back seat of the researcher's car. The researcher then thanked the respondents for their time and effort. All five questionnaires were completed and returned. The researcher read all the responses from the questionnaires and after her analysis, the box containing the questionnaires was disinfected with sanitiser and placed in a cabinet at her home. The cabinet was locked for safety, security and confidentiality reasons. The tool met the study's objectives. All the respondents (100%) recommended the use of social media as an additional supportive tool for teaching and learning. Amendments were made to finalise the data collection tool, based on the pre-testing responses to the original tool. The questions that were ambiguous were rephrased, and spelling errors were corrected. A final corrected questionnaire was approved by the research supervisor and statistician, and it was used to collect quantitative data (refer to Annexure G).

Based on the challenges caused by the COVID-19 pandemic, the management of C2 did not allow manual distribution of questionnaires (refer to Annexure G) at their campus (refer to Annexure C2), despite promised compliance with pandemic guidelines. The management asked the researcher to collect data online from their campus. The researcher converted the original questionnaire to an online soft copy with the assistance of an ICT software specialist. The researcher had to test the link with five lecturers to ensure that it would serve the intended purpose of data collection. The researcher asked the chairperson of the research committee to assist in forwarding the link to the lecturers' chat group. The researcher was unable to contact the lecturers directly since she did not have any of their contact details. The researcher provided the chairperson with the link (<https://docs.google.com/forms/d/e/1FAIpQLSevgAZL7hq0wMQ3O3daQYQDqheHEv8Vhml2mLGlkzoWM2gsCQ/viewform>) to enable her to facilitate and coordinate with different lecturers' groups. An information leaflet (refer to Annexure E) was emailed to the Nursing College research chairperson to brief the lecturers about the research study. The researcher provided her contact details to the chairperson of the research committee in that

Nursing College so that, if needed, the researcher might be easily contacted at any time.

Pre-testing of the online data collection instrument was conducted with the first group of lecturers who returned to Nursing College on 26 May 2020. The group consisted of 17 lecturers, and only five lecturers tested if the link would work. The chairperson of the research committee briefed the lecturers based on the researcher's request. The lecturers were informed about the purpose of pre-testing the link, which is to identify and rectify any gaps before collecting the primary data. The group was informed that once they participated in pre-testing, they were ineligible to participate in the main data collection phase to avoid duplication of the information. The link provided lecturers with the study's purpose and an informed consent form to be signed before attempting to answer the questionnaire. Pre-testing commenced on 1 June until 6 June 2020. During that time, five lecturers responded online. No amendments were made to the questionnaire. Therefore, a total of 10 lecturer respondents participated in pre-testing the questionnaire; five completed manual questionnaires, and the other five participated via the online link.

4.5.6.4 Phase 2.1: Quantitative data collection from student nurses

The quantitative data collection approach is used to emphasise objective measurements and the statistical analysis of data collected through the questionnaires (Sileyew 2019:2). It is used to quantify attitudes, opinions, behaviours, and other defined variables (Sileyew 2019:3).

The discussion in this section indicates how data were generally collected from two Nursing Colleges, namely **C1** and **C3**, where a similar approach was followed. Data from **C2** were collected online, but this Nursing College's detailed data collection process is also discussed in depth.

Data were collected from 696 student nurses at three Public Nursing Colleges. C1 (refer to Annexure C1), where the problem was initially identified, had 337 respondents, C2 (refer to Annexure C2) had 106 respondents, and C3 (refer to

Annexure C3), had 253 respondents who participated in this study. Data were collected from 29 May to 24 July 2020, over a period of seven weeks.

The researcher was granted permission to conduct the study in these Nursing Colleges by the Gauteng Department of Health and the management of the Nursing Colleges. The permission letter was produced to gain entry into the Nursing College campuses. The respondents were recruited using information flyers (refer to Annexure E), and they were addressed about the study and its purpose during students' theory block period prior to the COVID-19 pandemic. The information flyers were displayed on different notice boards as a continuous reminder in all three Nursing Colleges. The respondents were informed about this study during phase 1's data collection, which occurred between September and December 2019.

However, data collection for the quantitative phase took place during lockdown restriction alert stage 3 of the first wave of the COVID-19 pandemic in May 2020. On 11 May 2020, the researcher applied to the Research Ethics Committee of Unisa requesting permission to continue with data collection as the lockdown restrictions were eased. Permission was granted by the Research Ethics Committee of Unisa based on the researcher compliance to lockdown restrictions as stipulated by the minister of health (Mkhize SABC News: 09 May 2020: 18:00).

As the lockdown restrictions were relaxed, a reminder about the study was sent on different students' WhatsApp chat groups in **C1** since the researcher is in the same group chat with these students. This made communication easier for both the researcher and the students. The respondents were asked to report to the classroom in the morning prior to the commencement of their lessons to avoid any disruptions of lessons, and in the afternoon after classes as it suited the Nursing College activities for the purpose of data collection.

The researcher observed COVID-19 guidelines to prevent cross-infection among respondents. The 50 respondents were screened by the occupational and health safety officials before entering the classroom of their Nursing College in order to comply with COVID-19 restrictions; no mass gathering of more than 50 individuals was allowed. The researcher placed the chairs 1.5 meters apart from one another. Under

normal circumstances, the class can accommodate 200 students. Face masks were worn at all times by both the researcher and the respondents to completely cover the bridge of the nose and the mouth. Hands were sanitised before, during and after handling all documents and questionnaires.

Consent forms and questionnaires were placed and arranged on a table at the entrance of the classroom, where one pile was separated from another so that the respondents did not touch all the documents accidentally. The researcher directed the respondents to take one document from each pile on the table as they entered the classroom.

Briefing took place in the classroom about the purpose of this study, and the respondents were informed that their participation was voluntary, and they could withdraw from participating at any time should they wish, without any penalties. The respondents were reassured that their information would be handled privately as only the researcher had access to the questionnaires. Confidentiality was maintained by not disclosing the names of the Nursing Colleges that participated in the study during the reporting on the findings. Furthermore, a confidentiality agreement was read by the researcher (refer to Annexure I) to the respondents, and signed by the researcher. The questionnaires were assigned numbers to maintain respondents' anonymity, and the researcher ensured that the findings from this study would not trace back to their institutions during the reporting of the findings. No other person was allowed to access the classroom during the data collection sessions to ensure respondents' privacy.

Completed informed consent forms and questionnaires were returned to designated boxes in the classroom at the Nursing College. During this period, social distancing was observed as respondents were to queue according to 1,5 meters distance marked on the classroom floor. It took approximately 30 minutes to complete the informed consent forms and the questionnaires. Then, the researcher closed and sealed the boxes when all the questionnaires and informed consent forms were returned.

Data were collected from **C1** on 29 May 2020, 12 June and 08 July 2020. At that time, the minister of higher education (SABC News: 14 May 2020: 20:00) had announced the relaxation of COVID-19 lockdown restrictions under alert stage 3. This meant

Nursing Colleges could continue with their academic studies. Students started streaming in fractions of one-third of the total intake at a time. The students returned from 25 May 2020, and every second week, different groups of students returned to the Nursing College to be welcomed back. The researcher was permitted to enter the Nursing College based on permission to conduct the study by the Gauteng Department of Health and the management of the Nursing College (refer to Annexure C1).

Each day of data collection, the researcher divided the students into small groups of less than 50 students in a class. The questionnaire had an item for students to indicate their year of training, which made it easier for the researcher to identify the year of training of different students. On 29 May 2020, the group consisted of 181 respondents who were divided into four different classes to allow social distancing as a matter of compliance with COVID-19 regulations. Of the 181 questionnaires which were distributed, 169 were completed and returned.

On 12 June 2020, the group consisted of 169 respondents. Of the 169 questionnaires which were distributed, 131 were completed and returned. On 8 July 2020, the group consisted of 49 respondents. Of the 49 questionnaires which were distributed, 37 were completed and returned. Thus, at this Nursing College, a total of 337 ($169 + 131 + 37 = 337$) questionnaires were completed by the students. The completed questionnaires were deposited into the designated boxes in the classroom. It took an average of 25 – 30 minutes to complete the questionnaires. The researcher thanked the respondents for their time and participation in the study.

The researcher was not permitted to enter **C2**; based on the challenges caused by the COVID-19 pandemic, the management of this Nursing College did not allow manual distribution of questionnaires (refer to Annexure G) in their campus, despite promised compliance with COVID-19 guidelines. The management asked the researcher to collect data online from their campus. The researcher converted the original questionnaire to an online soft copy with the assistance of an ICT software specialist. The researcher was unable to contact the students since she did not have any of their contact details. The researcher thus requested the assistance of the chairperson of the research committee in forwarding the link to the students' chat groups. The

researcher forwarded the link via email and WhatsApp to the chairperson on 29 May 2020 (<https://docs.google.com/forms/d/e/1FAIpQLSevgAZL7hq0wMQ3O3daQYQDqheHEv8Vhml2mLGIkzoWM2gsCQ/viewform>) to enable her to facilitate and coordinate with different students' groups who were in the first and second year of training. The link had a consent form, presented the purpose of the study and a questionnaire. An information leaflet (refer to Annexure E) was emailed to the Nursing College research chairperson on 29 May 2020 to brief the students about the study. The total number of targeted students in this Nursing College was 291.

The students were asked to complete the informed consent on the link, which would allow them to continue completing the questionnaire. Furthermore, they were also advised to read the purpose of the study on the link. The students were reassured that their responses were anonymous, and no one would be able to trace their responses back to them. Their institution would also not be disclosed during the reporting of the results.

The chairperson of the research committee assisted the researcher by forwarding the link to the respondents in order for them to respond from 6 June 2020 until 24 July 2020. The researcher reminded the chairperson telephonically to forward reminders to different students' chat groups on a weekly basis, since the researcher was not part of the students' chat groups in that Nursing College (refer to Annexure C2). Data collection continued until 24 July 2020, when no new responses were received. In this Nursing College, only 106 students responded out of 291. Their responses were linked directly to the researcher's email; once a completed questionnaire was submitted via the link, a notification was posted to the researcher's email. Their responses were captured electronically for analysis.

Data were collected from **C3** on 2 June 2020 and 19 July 2020. The group that participated on 2 June 2020 consisted of 163 respondents who were divided into four different classes to allow social distancing as a matter of compliance with COVID-19 regulations. Of the 163 questionnaires that were distributed, 157 were completed.

On 19 June 2020, the group consisted of 114 respondents. Of the 114 questionnaires that were distributed, 96 were completed. The researcher did not have time to address

the students for the 2020 group as the students went on protest for reasons known to management alone. Thus, in this Nursing College, a total of 253 ($157 + 96 = 253$) questionnaires were completed by the students.

The initial target for data collection from the students in all three Nursing Colleges was 650. However, the researcher managed to collect 696 questionnaires (C1: 337 + C2: 106 + C3: 253 = 696) (refer to Annexures C1 + C2 + C3). The information from the completed questionnaires was captured electronically by the researcher for analysis and interpretation purposes, and to present the results. The completed questionnaires and informed consent forms were stored at the researcher's home in a lockable cabinet to ensure safety, security, confidentiality and privacy. The locked cabinet was only accessed by the researcher, and the researcher's laptop was secured with a security code that was known to the researcher alone.

4.5.6.5 Phase 2.2: Quantitative data collection from lecturers

The discussion in this section indicates how data were generally collected from **C1** and **C3**, where a similar approach was followed. **C2** is discussed separately since data collection was online as the Nursing College Management did not allow manual distribution of the questionnaires due to the COVID-19 pandemic.

The researcher was granted permission to conduct a study in these Nursing Colleges by the Gauteng Department of Health and the management of the Nursing Colleges. The permission letter was produced to gain entry into the Nursing College campuses. The respondents were recruited using the information flyers (refer to Annexure E) and they were addressed during staff meetings prior to the COVID-19 pandemic between September and December 2019. The information flyers were displayed on different notice boards as a continuous reminder in all three Nursing Colleges.

Data collection for quantitative phase 2 occurred during lockdown restriction alert stage 3 of the first wave of COVID-19. On 23 May 2020, the researcher applied to the Research Ethics Committee of Unisa requesting permission to continue with data collection as the lockdown restrictions were eased. Permission was granted based on

the researcher complying to lockdown restrictions as stipulated by the minister of health (Mkhize SABC News: 14 May 2020: 18:00).

Lecturers were contacted via WhatsApp chat groups as the researcher is in the same WhatsApp groups with the lecturers in C1. This made communication easier for both the researcher and the lecturers. The researcher asked the lecturers to report at the meeting halls of the Nursing Colleges for a briefing about the study on different dates. The respondents were briefed about the purpose of this study, and the information in the flyer (refer to Annexure E) was read to the respondents to give them an idea of what was expected of them during their completion of the questionnaire. The respondents were informed that participation was voluntary, and that they may withdraw from participating at any time, should they wish to do so without any fear of being victimised.

During the briefing session, the researcher observed COVID-19 guidelines to prevent cross-infection among respondents. The researcher screened the respondents before entering the meeting hall. No mass gathering of more than 30 respondents was allowed. Social distancing was maintained at all times when in contact with the respondents, and chairs were placed at a 1.5-meter distance apart. The meeting hall can typically accommodate 150 people at a time. A face mask was worn at all times by both the researcher and the respondents to completely cover the bridge of the nose and the mouth. Hands were sanitised before, during and after handling of documents. The informed consent forms (refer to Annexure D) and the questionnaires (refer to Annexure G2) were placed on the table at the entrance of the meeting hall. The researcher asked the respondents to pick a consent form and a questionnaire, and then proceed to the sitting area in a one-way direction flow to avoid congestion.

The respondents were reassured that their information would be handled privately as only the researcher had access to those questionnaires. Confidentiality was maintained by not disclosing the name of the Nursing Colleges that participated in the study during the reporting on the findings. Furthermore, a confidentiality agreement was read by the researcher (refer to Annexure I) and signed. The questionnaires were assigned numbers in order to maintain anonymity, and the researcher ensured that the findings from this study would not be traced back to their institutions during the

reporting of the findings to protect them. No other person was allowed to access the identified meeting hall during the data collection sessions.

Completed informed consent forms and questionnaires were posted in designated boxes in the meeting hall at the door site. It took approximately 30 minutes to complete the informed consent forms and the questionnaires. Then, the researcher closed and sealed the boxes.

Data were collected from the Nursing Colleges during their spare periods to avoid disruptions from daily activities. Data collection was completed on 24 July 2020 after the researcher had visited C1 and C3 for data collection, and no submission notifications were received from C2 of online questionnaire completions.

Lecturers returned to **C1** from 25 May 2020. Only one-third (26 lecturers) of the staff returned at that time on a weekly basis. Based on the Nursing College protocol, all lecturers were screened for COVID-19 symptoms by means of monitoring each lecturer's temperature, and they were required to complete the health questionnaire to comply with COVID-19 requirements. The screening was conducted by occupational health and safety officials of the Nursing College.

On every welcome date (25 May, 1 and 8 June 2020), the researcher requested a slot from the research committee chairperson to brief the lecturers about the study. The briefing was conducted between 10:00 – 11:00 in the morning. After the briefing, data were collected on 25 May 2020, 1 and 8 June 2020. Each day of data collection, the researcher divided the lecturers into small groups of less than 30 lecturers in a meeting hall.

The questionnaire had an item for lecturers to indicate the level of the students they were training, which made it easier for the researcher to identify the level of teaching of different lecturers. On 25 May 2020, the group consisted of 30 respondents, yet only 15 questionnaires were completed and returned. On 1 June 2020, the group consisted of 20 respondents, and 10 questionnaires were completed and returned. On 8 June 2020, the group consisted of 24 respondents. Of the 24 questionnaires which

were distributed, only 10 were completed and returned. Thus, at this Nursing College, a total of 35 (15 + 10 + 10 = 35) questionnaires were completed by the lecturers.

The researcher was not permitted to enter **C2** despite promised compliance with pandemic guidelines. The management asked the researcher to collect data online from their campus. The researcher converted the original questionnaire to an online soft copy with the assistance of an ICT software specialist. The researcher asked the chairperson of the research committee to assist in forwarding the link to the lecturers' chat groups in C2. The researcher was unable to contact the lecturers directly since she did not have any of their contact details. The researcher forwarded the link and information leaflet (refer to Annexure E) via email and WhatsApp to the chairperson of the research committee on 29 May 2020 (<https://docs.google.com/forms/d/e/1FAIpQLSevgAZL7hq0wMQ3O3daQYQDqheHEv8Vhml2mLGIkzoWM2gsCQ/viewform>). The link had a consent form, purpose of the study, and a questionnaire. The total number of targeted lecturers in this Nursing College was 10. The lecturers were informed that they must complete the informed consent on the link, which would allow them to continue to complete the questionnaire; they were also advised to read the purpose of the study on the link. The lecturers were reassured that their responses were anonymous, and no one would be able to trace their responses back to them. Their institution would also not be disclosed during the reporting of the results.

The chairperson of the research committee assisted the researcher by forwarding the link to the respondents in order for them to respond from 6 June 2020 until 24 July 2020. The researcher reminded the chairperson telephonically to forward the reminders to different lecturers' chat groups on a weekly basis, since the researcher was not part of the lecturers' chat groups in that Nursing College (refer to Annexure C2). By 24 July, no further responses were received. In this Nursing College, only 11 lecturers responded out of 113. Their responses were sent directly to the researcher's email; once a completed questionnaire was submitted, a notification was noted on the researcher's email. Their responses were captured for analysis.

Lecturers returned to **C3** from 25 May 2020, and only one-third (45 lecturers) of the staff returned at that time on a weekly basis; it took three weeks for all the lecturers to

return to campus. On arrival of each group, management gathered all lecturers in a meeting hall to welcome them back after lockdown restrictions were relaxed. On every welcome date (28 May, 11 June and 21 June 2020), the researcher requested a slot from the research committee chairperson to brief the lecturers about the research study. The briefing was conducted between 13:00 – 14:00, and data were collected thereafter.

Each day of data collection, the researcher divided the lecturers into small groups of less than 30 lecturers in a meeting hall. Based on the grouping, on 28 May 2020, the group consisted of 23 respondents who were gathered in the meeting hall to allow social distancing as a matter of compliance with COVID-19 regulations. Of the 23 questionnaires that were distributed, only 5 were completed and returned. On 11 June 2020, the group consisted of 18 respondents, and only 3 questionnaires were completed and returned. On 21 June 2020, the group consisted of 14 respondents, and only 2 questionnaires were completed and returned. Thus, in C3 a total of 10 ($5 + 3 + 2 = 10$) questionnaires were completed by the lecturers.

The initial target for lecturers in all three Nursing Colleges was 50. The researcher collected 56 questionnaires (C1: 35 + C2: 11 + C3: 10 = 56). These questionnaires were captured for data analysis and presentation. Data analysis commenced when all three Nursing Colleges under study's data were collected. The information from the completed questionnaires was captured electronically by the researcher for analysis and interpretation purposes, as well as for the presentation of the results. The completed questionnaires and completed informed consent forms were stored at the researcher's home in a lockable cabinet to ensure safety, confidentiality and privacy. The locked cabinet was accessed by the researcher alone, and her laptop was secured with a security code.

4.6 DATA ANALYSIS

Data analysis is the process of editing and reducing accumulated data to a manageable size, developing summaries and applying statistical techniques (Cooper & Schindler 2014:655). The qualitative data were analysed using qualitative methods, and quantitative data were analysed quantitatively. The findings from the qualitative

approach and the results from the quantitative approach were integrated to be presented, and recommendations were made based on these. A conceptual teaching and learning model, that comprised of theory and practice, was developed. The following section explains the data analysis of both the qualitative (phase 1) and the quantitative approach (phase 2).

4.6.1 Data analysis for phase 1: Qualitative approach

Data were captured electronically. The researcher used content analysis to identify and understand basic nursing students' and lecturers' perceptions regarding the implementation of social media platforms in teaching and learning. The researcher listened to the recorded data from the ADR and transcribed the information to ensure accuracy. Memos were written about the researcher's initial thoughts, field notes were written, and initial coding was undertaken by the researcher and the co-coder. The SAS software data analysis program was used by the statistician to implement a coding process. Themes and categories were developed, and major qualitative findings were summarised. The interview sessions with student nurses lasted between 25 and 49 minutes, while those with the lecturers lasted between 36 and 58 minutes.

Sentiment Analysis System is a smart data analysis and visualisation service used to discover patterns and meaning in collected data (SAS Institute 2013:1). The system is quick, provides statistical modelling, built-in reports and shows patterns and detailed reactions (SAS Institute 2013:1). The SAS assisted the researcher in coding and creating themes from the data, and the analysis and interpretation was done by the researcher with assistance from the statistician and co-coder.

Data analysis is discussed in detail in Chapter 5, which presents the qualitative data analysis and interpretation.

4.6.2 Data analysis for phase 2: Quantitative approach

Statistical analysis is the organisation and analysis of quantitative data using statistical procedures, including both descriptive and inferential statistics (Polit & Beck 2018:419). The analysis and interpretation in this study took place with the assistance

of a qualified statistician. The responses from the open-ended questions were also analysed qualitatively and validated statistically with the assistance of a statistician. The statistician was able to choose the appropriate inferential statistical test based on research question and objectives, scale type, number of variables and distributions (Creswell & Clark 2018:211).

Numeric values were assigned to the responses, and data were scrutinised for errors. Descriptive analyses for major variables were conducted. Appropriate inferential statistical tests based on research objectives were selected to analyse data quantitatively. Effect size and confidence intervals were calculated before the statistical results were presented in figures and graphs. Excel was used for quota settings, and Stata version 16.1 was used for descriptions, and to develop summaries, statistics, tables and graphs. All unreturned but distributed questionnaires were counted and excluded during analysis by the researcher. A deductive approach was used to deduce what the participants thought of the implementation of social media platforms as one of the teaching and learning strategies for student nurses.

Categorical data were expressed as a frequency percentage of 95% confidence interval. Cross-table descriptive thoughts were analysed through the Fisher-exact test to measure the significance of the variables. Data were presented in graphs and tables. The quantitative approach's data analysis is discussed in detail in Chapter 6.

4.6.3 Data integration of both approaches

The findings and interpretation of data obtained from phases 1 and 2 were integrated (phase 3) and are discussed in Chapter 7 of this study. The meaning that was derived from the researcher's findings was linked to the study's outcome. This assisted in the development of a conceptual teaching and learning model that integrated theory and practice in nursing.

4.7 RELIABILITY AND VALIDITY

Reliability and validity are important measures to ensure the credibility of any research study. It is vital to enhance rigour in quantitative research, and the quality of the data

collection tool determines the validity and reliability of the results, provided sources of bias were controlled (LoBiondo-Wood & Haber 2014:171).

4.7.1 Phase 1: Trustworthiness

Trustworthiness refers to the degree of confidence in data, interpretation, and methods used to ensure the quality of a study (Polit & Beck 2018:201). The four aspects of trustworthiness are credibility, transferability, dependability and confirmability. These principles were applied in this study to prevent potential bias, strengthen the findings, and increase the generalisability of the findings. Credibility refers to the confidence that can be placed in the truth of the research findings. In this study, the researcher used participants' quotations to back up the findings. Transferability is the extent to which research findings can be applied in other contexts; the researcher will publish the findings of this research to allow other researchers, who might have an interest in conducting similar research in a different context. Researchers might also conduct the same research in different contexts to evaluate if it yields the same results. Dependability refers to the consistency and reliability of the research findings. In this study, a co-coder was involved in data analysis to critique and audit the research process and findings. Confirmability is the degree to which the findings of the study could be confirmed by other researchers; in this study, the researcher will auditors to access the collected data and whenever it is requested by relevant authorities to verify the findings.

4.7.2 Phase 2: Validity

Validity refers to the degree to which inferences made in a study are accurate and well-founded. It also refers to the degree to which an instrument measures what it intended to measure (Polit & Beck 2018:421). The six concepts of validity are described as follows:

4.7.2.1 Face validity

Face validity involves the existence of a logical relationship between the variables and the proposed measure (Polit & Beck 2014:205). In this study, the questionnaire

captured respondents' responses through open-ended questions with regard to the types of gadgets they own and their use and understanding of the impact of social media platforms in teaching and learning.

4.7.2.2 Content validity

Content validity determines the full range of a variable and whether all those ranges are represented by the items that constitute the measuring device (Polit & Beck 2018:176). In this study, the statistician, colleagues in the three Public Nursing Colleges under study, and the research supervisor verified the content value of the questionnaire. They offered their input, and the researcher implemented the necessary changes to ensure participants' narratives on the feasibility of implementing social media platforms in teaching and learning were captured for analysis.

4.7.2.3 Criterion validity

Criterion validity measures how well one measure predicts the outcome of another measure (Polit & Beck 2018: 250). In this study, criterion validity measured if the same questionnaire can be used in a different study and yield the same results.

4.7.2.4 Construct validity

Construct validity refers to the degree to which a test measures the construct it is supposed to measure (Polit & Beck 2018:251). In this study, construct validity measured the extent to which social media platforms could be implemented in teaching and learning.

4.7.2.5 Internal validity

Internal validity is the extent to which its design and the data that the instrument yields allow the researcher to draw accurate conclusions about cause-and-effect and other relationships within the data (LoBiondo-Wood & Haber 2014:171). Five lecturers and five students were piloted to strengthen the internal validity of the data collection instrument prior to data being collected for the main quantitative data collection phase.

4.7.2.6 External validity

External validity is the extent to which a study's results apply to situations beyond the study itself (LoBiondo-Wood & Haber 2014:171). The respondents who completed the questionnaires were a true representative sample of the entire population of the study. The research took place in a real setting, at three Public Nursing Colleges in Gauteng province, and the actual data collection events were recorded. The results of this study will only be generalised to the three Public Nursing Colleges where the study was conducted.

4.8 TRIANGULATION

Triangulation refers to the integration of findings from two sets of data (Gray et al 2017:316). In this study, the first research phase was the collection of qualitative data. The findings were then analysed and used to inform the development of a quantitative data collection instrument for the quantitative phase of this study. The process was discussed according to the conceptual model of this study (refer to Section 4.4.4).

4.9 ETHICAL CONSIDERATIONS

Ethics deals with matters of right and wrong. Ethical considerations are essential to any research involving human subjects. In order to protect participants rights, human research should be intended to produce benefits for participants themselves or for other individuals or society as a whole (Polit & Beck 2014:178). The researcher adhered to the ethical principles required in research as stipulated in the Nuremberg Code, and obtained permission to conduct the study. The researcher further ensured the participants' voluntary participation, privacy and confidentiality, as well as freedom from harm and discomfort (Bless et al 2014:29). The researcher observed all guidelines concerning the prevention of COVID-19 cross-infections among the respondents to ensure safety and do no harm to respondents. This included the wearing of face masks, maintaining a 1.5-meter social distance at all times, and regular hand sanitisation.

4.9.1 Permission to conduct the study

Ethical approval for the study was granted by the following institutions:

- The Research and Ethics Committee of the Department of Health Studies at the Unisa granted ethical clearance (refer to Annexure A).
- The Gauteng Department of Provincial Health (refer to Annexure B).
- Management of the three targeted Public Nursing College in Gauteng province (refer to Annexures C1, C2 and C3). For the purpose of quantitative data collection, one of the Nursing Colleges (refer to Annexure C2) could not allow manual dissemination of questionnaires due to COVID-19-related issues. The researcher collected data online to abide by the request from the Nursing College Management.

4.9.2 Informed consent

Informed consent is the ethical principle of voluntary participation and protecting the participants from harm. It involves the transmission of essential ideas and content from the researcher to the participants (Brink et al 2018:31). The purpose of the study was explained to both the participants and the respondents, and they were informed that their participation in the study was voluntary, and they were under no obligation to participate. They were asked to sign an informed consent form (refer to Annexure D). The participants and respondents were informed that they had the right to withdraw from the study at any time during data collection without penalty or discrimination if they wished to do so. They could also choose not to participate by simply not completing the questionnaire or not participating in the focus group deliberations.

4.9.3 Privacy

Privacy is the right of individuals to determine the time, extent, and general circumstances under which personal information will be shared with or withheld from others (Brink et al 2018:31). The participants' information was stored safely under lock and key in a cabinet at the researcher's home, which the researcher alone could

access. The findings could not be linked or traced back to the institutions or individuals who participated in the research themselves.

4.9.4 Anonymity

Anonymity is defined as protecting study participants' confidentiality and identity; even the researcher could not link individuals with the data they provided (Polit & Beck 2018:83). While conducting the focus group interviews, the participants were assigned numbers with which to be addressed. For the quantitative data collection phase, the questionnaires were identified numerically, and no identifying information appeared on the questionnaire. This process guaranteed that whatever information was provided and shared would never be traced back to the participants or the respondents. The sites where data were collected will also not be made known to anyone after the publication of the research results.

4.9.5 Confidentiality

Confidentiality is defined as protecting study participants so that the data they provide is not divulged without their consent (Polit & Beck 2018:84). On the basis of the right to confidentiality, the researcher and the respondents completed and signed confidentiality agreements (refer to Annexure I). The researcher maintained confidentiality in this study to ensure a trusting relationship was built with both the participants and respondents. By maintaining confidentiality, the researcher protected the integrity of this study and the privacy of the participants and respondents.

The findings of the completed study could not be linked to any of the individuals who took part in the study. A numerical coding system was implemented using an ordinal scale. The researcher ensured that the aggregated data from the questionnaires and the notes from the focus group interviews were kept in a locked cabinet in sealed boxes in the researcher's home for safety, security, privacy and confidentiality. No unauthorised persons were allowed to access the information. The researcher's laptop was used to capture the data, and no other person had access to the researcher's password.

4.9.6 Principle of beneficence and non-maleficence

Beneficence imposes a duty on researchers to attend to the welfare of participants, minimise harm and maximise benefits. Researchers who conduct human research should intend to produce benefits for participants themselves or for society as a whole (Polit & Beck 2014:178). In this study, the researcher ensured that both the participants and respondents were able to make informed decisions by providing them with relevant information about the study. Both the participants and the respondents gave input that benefitted nurses' education and training, and could ultimately translate into improved patient care quality.

The researcher ensured that all the participants and respondents had an equal chance to participate in the study as everyone who met the inclusion criteria were invited. Participants and respondents were guaranteed of their safety as no medical interventions were implemented throughout this study, and the questions asked were not emotionally invasive or hurtful. The respondents and the participants could vacate the data collection sessions in case of emotional and psychological discomfort. No adverse effects were anticipated, and the results of the study will be available for their access.

4.10 CONCLUSION

This chapter described the research design and methodology, including the research setting, population, data collection and analysis employed in this study. Data were collected by means of focus group interviews for the qualitative phase, and a structured questionnaire was completed for the quantitative phase. The rigour and credibility of both the quantitative and qualitative phases were also discussed.

Chapter 5 presents the qualitative phase's data analysis and interpretation.

CHAPTER 5

PHASE 1: QUALITATIVE DATA ANALYSIS, PRESENTATION AND INTERPRETATION

5.1 INTRODUCTION

Chapter 4 outlined the methodology adopted in this study, and this chapter presents and discusses the findings that emerged from the analyses of the qualitative data. The purpose of this study was to develop a conceptual teaching and learning model, using social media platforms to integrate nursing theory and practice. An interview guide, which consisted of five questions, was used to collect data from 34 participants.

The following table 5.1 indicated the total number of participants per Nursing College for both student nurses and lecturers.

Table 5.1: Participants per nursing college

Nursing college	Student nurses	Lecturers
C1	10	5
C2	5	5
C3	5	4
	Subtotal = 20	Subtotal = 14
Grand total = 34		

In qualitative data analysis, the researcher intends to hear and understand participants' opinions, in order to organise and eliciting meaning from the collected data and draw realistic conclusions (Bengtsson 2016:6). The following research questions were answered:

- What is your understanding of social media platforms?
- What are student nurses' and lecturers' perceptions regarding the possibility of implementing social media in teaching and learning, that will integrate theory and practice?
- What is the feasibility of the successful implementation of social media in teaching and learning at Public Nursing Colleges?

- What are the recommendations regarding the use of social media as an additional supportive tool for teaching and learning, both in theory and practice?
- How will a conceptual teaching and learning model, using social media platforms to integrate nursing theory and practice, be developed?

In this study, data were recorded and captured electronically. In explorative studies, data analysis involves reading through all the data to develop a general understanding of the database (Creswell & Clark 2018:213). Coding refers to a process of grouping evidence and labelling ideas to reflect broader perspectives (Creswell & Clark 2018:215). The researcher followed this process during data analysis, and coding was done by the SAS software program, with the aid of a statistician and a co-coder who is experienced in qualitative data analysis.

The analysis was conducted after all three private Nursing Colleges were visited and participants were interviewed. Data collected from focus group interviews were transcribed verbatim, and transcripts were analysed one at a time (Creswell & Clark 2018:216). The researcher used content analysis to identify and understand nursing students' and lecturers' perception regarding the implementation of social media platforms in teaching and learning. The researcher listened to recorded data from the ADR and transcribed the information. Transcripts were read repeatedly by the researcher to draw meaning and develop themes. Field notes were also used to acquire and capture more information during focus group sessions to enhance the researcher's understanding of participants' perceptions. Furthermore, field notes were used as a back-up to the ADR in case it became faulty.

All the transcripts were examined line-by-line to determine key statements describing the participants' perceptions regarding the implementation of social media platforms in teaching and learning. Key statements were highlighted and coded. Further coding was performed to allow the emergence of new themes and subthemes after re-reading the transcripts. Subthemes were substantiated by direct participant quotes and supported by literature. The participants' quotes were labelled as "P" (being Participant) followed by the participant's number in order to differentiate them. The analysis and presentation of the findings of focus group interviews with all student

nurses and lecturers who participated were consolidated. Ultimately, four major themes emerged from the data analysis for each participant group.

To ensure a true reflection of the participants' perceptions, the research supervisor and the appointed co-coder were given transcripts to ensure clarity, appropriateness and trustworthiness of the study findings.

The following major themes emerged from the data analysis of student nurses' focus groups:

- Existing knowledge related to social media platforms for socialisation
- Perceptions related to the use of social media platforms in teaching and learning
- Readiness to implement social media platforms
- Existing types of social media platforms

The following major themes emerged from data analysis of lecturers' focus group interviews:

- Existing knowledge of communication platforms and advantages thereof
- Existing views related to the implementation of social media platforms in education and training
- Barriers to the implementation of social media platforms in teaching and learning
- An outline of preferred types of social media platforms

5.2 PRESENTATION OF THE FINDINGS: STUDENT NURSES - PHASE 1.1

This section provides an overview of the major themes, subthemes and categories that emerged from the data analysis of phase 1.1 in particular. The participants consisted of 20 students from three different Public Nursing Colleges in Gauteng province, as outlined earlier. These students were enrolled in the basic nursing programme R.425. After analysing the interviews and focusing on participants' perceptions of implementing social media platforms in teaching and learning, four

main themes emerged as listed below. These were slightly different from the findings presented in phase 1.2.

An overview of the emergent themes in phase 1.1 is summarised in Table 5.2 to illustrate the relationship between the major themes and their respective thematic subcategories.

Table 5.2: Themes, subthemes and categories from phase 1.1: Students' perceptions

Theme	Subtheme	Categories
5.2.1 Existing knowledge related to social media platforms for socialisation	Existing sources of communication	- Interaction - High reach - Information centre
5.2.2 Perceptions related to the use of social media platforms in teaching and learning	A description of costs related to the use of social media platforms	- Control measures - Accessibility
5.2.3 Readiness to implement social media platforms	An outline of material and human resources	- Training - Proficiency
5.2.4 Existing types of social media platforms	A list of audio-visual tools that might be used in teaching and learning	- Facebook, YouTube, - Google Drive, Skype - Multiple channels - Learner management system - WhatsApp

5.2.1 Existing knowledge related to social media platforms for socialisation

Participants seemed to be confidently knowledgeable about social media. There was a generally high understanding of social media platforms among students. In their own words, the majority understood social media platforms as a digital communication hub, where one can communicate with anyone, regardless of location. It was understood that communication and information on social media platforms reach many people in a short period of time. These platforms are used for socialising with people/businesses. These communication platforms were also identified as

information hubs where information is easily found and shared among users. They allow for simple and fast interactions, and the most widely mentioned social media platforms were Facebook, Twitter, Instagram and WhatsApp.

The participants believed that social media platforms are areas for socialisation, a means of communication, a source for interaction, and serve as an information centre. 'Existing sources of communication' was identified as a subtheme in support of socialisation as the major theme, and interaction, high reach and information centres emerged as categories of communication.

The participants explained the concept of social media in their own words within the context of daily living. Currently, most people communicate with one another using some form of social media platform. People are inclined to use the platform that is the most friendly and accessible to that population. This study's findings align with a study conducted on the use of social media platforms as a support tool that found the most used social media platforms are Facebook, WhatsApp, Snap Chat, Twitter and Google plus (Mngwengwe & Dlamini 2020:3). This is what participants had to say about social media platforms:

P1: *“Social media platform is a digital internet based, it's a medium for communication but when you say social, I think initially it was meant for socialization, it's there for social reasons, socialization to reach people in remote distances from each other. People spend a lot of time on these platforms be it Facebook, Instagram, Twitter, I don't know to what extent does WhatsApp fall within social media for me, it's a messaging platform however others categorise it as social media. Facebook, Twitter and Instagram have evolved over time. These platforms are now used for a number of things to reach people, initially it was socialization but as it grew, it is now used for marketing, other forms of mass communication.”*

Social media platforms were seen as a way of connecting people from different parts of the world. Different forms of social media platforms were mentioned to substantiate the participants' understanding of this concept (social media platform). One participant said:

P2: *“I understand like the internet, maybe, Facebook, Instagram, WhatsApp and Twitter. Like it’s what most people do to socialise and communicate and connect with friends and family members who are near and abroad.”*

It is evident that the participants were in agreement in their understanding of the uses of social media platforms and how technology has made the world a better place compared to some years back, before the 4IR. The following is what a participant had to say about social media platforms.

P3: *“My understanding of social media platforms, I will have to agree with participant 1 and 2, I will just sum up what they said, while we were at school, we used to write each other letters but now social media makes it easy for us to reach one another. It doesn’t matter where you are and it keeps people together especially the groups that are formed there. The groups can be family members, friends, etc. Their purpose is to keep people together and make sure socialization goes on. It’s meant to keep the socialization going.”*

In their deliberations, the participants mentioned the advantages and disadvantages of using social media platforms to substantiate their understanding in relation to their past experiences. One of the participants is quoted as saying:

P4: *“So, the term social media in itself is self-explanatory. It’s used to socialise. It is a way of being able to reach people faster so you socialise there. It has got various advantages as well as disadvantages because it is something bad or inappropriate, that thing is able to spread fast, and sometimes it’s difficult to contain something once it spreads, because it can go from one platform to the next because it gets shared, we can save it in our phones where there’s no getting it back.”*

Participants perceived communication as a form of connecting with one another from all walks of life. Some participants are quoted to support their views of social media platforms being a form of communication. According to some of the participants, social media enhances people’s connections with different people from different parts of the world. Social media platforms may be used for business or family matters. One of the participants shared:

P5: *“What I understand about social media platform is that, it is a platform that is newly introduced to this generation. It is used to be the main communication system in our generation where you can communicate with a person with only the use of data with no airtime. You can communicate with a person who is not in the same country with you. People can even market their own businesses, where a person can use the social media platform to apply for entry at different institutions. That is what I understand.”*

Another participant was quoted saying that communication through social media platforms is quick, and potentially reaches several people at the same time.

P6: *“What I understand about social media platforms is that it's a communication network utilized to reach masses all at once. It is actually time saving.”*

Most of the participants were in agreement that social media is appreciated by its users as people are able to keep in contact with one another despite their location. One participant explained:

P7: *“My understanding of social media, I think it's a platform where we get to socialise and talk with different people from different parts of the world, different time zones at the same time. And it's a quicker way to communicate with people and we get to share as she said, we get to share our opinions but at the same time we keep connected and keep in contact.”*

The participants were of the view that social media platforms are communication tools loaded with information for socialisation. It allows people to interact with one another and it reaches masses of people in a short space. Thus, interaction, high reach and forms of information centres emerged as categories of communication.

Participants shared that social media platforms serve as an information hub as people share their life experiences with people they sometimes do not know and have never met before. This is what a participant said:

P8: *“It's also advantageous for us as a people because we can relate to the experiences of others, sometimes you think you are the only one that is suffering from*

that particular problem. But when you listen to the media, you can relate to other people's situations."

Participants agreed that social media provides a platform where people can interact with one another anonymously, as one participant was quoted as saying:

P9: *"I'd say my understanding of social media is different means of technology where different people from different age groups, ethnic groups share information about what is happening in the world without disclosing their names, people can voice their concern and express their feelings. Some people are not able to talk to others, but can use a social media platform, to say whatever that bothers them."*

As evidence of the high reach of communication, the participants perceived social media platforms as a tool that might unite the nation and create awareness campaigns. A participant shared:

P10: *"Social media platform is also used to unite us, as a nation, as the recent actions that have been happening in our country, it has been used to take action like they create hashtags against something that is happening, then together even though I don't know that person, then we can stand against what we don't like in our country."*

A participant was of the view that information is readily available, and there are no more waiting periods to get any type of information. As a result, communication through social media reflects such platforms' uses as information centres:

P11: *"What I understand about social media platforms is that we share information via internet. So you don't need to find information via phone call or anything. You don't have to wait to get information. It is already provided via social media. Someone is always sharing information. That's how I understand it."*

5.2.2 Perceptions related to the use of social media platforms in teaching and learning

Participants seemed to have varying perceptions about the usage of social media platforms in teaching and learning. With a majority of the perceptions being positive, all the participants believed the use of social media in teaching and learning would be a good move for both students and lecturers. The findings of this study are similar to those of a study on students' perceptions of using social media as teaching tools. It revealed students perceived social media platforms as necessary tools, which increased their motivation to engage in educational processes (Figuera-Maz, Grandio-Perez & Mateus 2021:23). A minority of participants claimed to already use social media in their studies. They were referring to communication through the WhatsApp groups they were using, and a few were using YouTube channels.

These students claimed that the use of social media in their studies could foster greater interaction among them and their lecturers. They believed because they have access to social media platforms on their devices, they could also have easy access to content and discussions with their lecturers and fellow students. Even when they are not in class, they could still access class content and be in the know. A handful of the students also saw social media platforms as good storage facilities where they can access and peruse past examination papers and content. There were a few students who raised the issue of tools; they mentioned concern for students who do not have data/Wi-Fi access or smartphones.

The participants were quoted as saying that social media platforms will enhance and promote communication between students and lecturers.

P1: *"I think the social media platforms can be used in learning because it makes life easier in communication, where a lecturer can communicate with students; she doesn't have to go around the hospital when she wants to meet with them at a certain time, she can just send a message on WhatsApp group that can we meet at seven o'clock in this room, then everyone gets the message, so it makes life as a student and life for the lecturer easy."*

The participants perceived social media as a platform that would allow lecturers to be proactive in making study materials available to students, as this could be achieved via an online systems approach.

P2: *“In addition, because the lessons are released during block, it will be so much easier to post that material release link to the group. The students can receive notification on when material is available and links to where that material is stored. Students from different Nursing Colleges across the world can reach that content.”*

According to participants, the idea of using social media in teaching and learning is welcomed since most of the students were already using it. They claimed that as long as the resources are available, this could improve their ways of studying.

P3: *“Like, using, especially WhatsApp or like recording the lecture and then posting it is also another way of studying on our own without interruptions, you can revisit the lesson and you get to capture and understand the content more. It will work but data needs to be considered and made available. Gadgets must be available. Then everything will work. Students spend a lot of time on social media already, they might as well learn from there too.”*

Some of the participants shared that the use of social media platforms might serve as a contingency plan when unforeseen circumstances force students to miss classes. This is what one participant had to say:

P4: *“Yes, I agree with her. Even if you travelled, maybe you went to the next province because of an emergency, they can record the lesson session because you were not there and send it to you via WhatsApp and you can listen what they discussed during the lesson then you can understand.”*

Social media platforms require dedicated budgets in order to be implemented; hence, the related financial cost was identified as a subtheme related to students' perceptions on the use of social media platforms in teaching and learning. Participants perceived accessibility for some students to be a problem, and they suggested that the government fund sufficient resources to make this type of teaching a success.

P5: *“Yona it can be used. You have to consider that some of us come from homes that can’t afford cell phones to communicate unless the institution provides every student with a cell phone, and then use it to communicate. Otherwise without it, three out of five students will have cell phones. So there will be communication brake down and teaching will take place with some students and other students will be excluded.”*

When it came to the financial implications and the availability of resources, the participants had different views. Some believed that the cost of data and purchasing of electronic gadgets could be manageable if control measures were put in place. The potential cost savings would also extend to students not having to incur travelling costs to the Nursing College daily. A participant explained:

P6: *“It depends on how you use it. I already heard about the WhatsApp thing. Students are already using these platforms, they communicate with lecturers, with each other using those platforms. Also some of the things are cost effective. The more people use it; the cost goes down. Even the cost of phones has gone down. So it is accessible. It's expensive to travel. Social media reaches many people faster. There has to be ground rules in place to control usage. People mustn't use it for sales etc. It definitely can work.”*

The participants were mostly concerned about the issue of safety of the information that will be posted on social media platforms. However, they were also excited about the opportunity to have ample time to access their lectures and relevant information in many different ways. Control measures and accessibility were thus identified as categories related to the costs of social media platform use. In their own words, the participants shared:

P7: *“I feel like it is very beneficial to have it because you know, like from my experience, I'm not one person who asks a lot of questions in class. I wouldn't go to the lecturer and ask so what I like about social media when you have a group of people there's going to be that 1 person who will go to the lecturer to clarify something and that person will come back to the group and will share the information.”*

Among other issues, the participants were thrilled that some of the benefits of implementing social media in teaching and learning include reduced direct contact time with their lecturers, but increased ways of accessing lessons and communicating with their peers and lecturers. One of the participants said:

P8: *“So social media will include lectures over the internet, like how other Nursing Colleges would do, how they would send you assignment via the internet via your student number, you know how you'll log in and there's an assignment for you and all that will cut Nursing College hours and if we cut Nursing College hours then people will have time to study and make notes because going to class for the whole day can be mentally exhausting by the time you get home. So I think it will be more effective in that way if you are thinking of a student portal system.”*

Participants were concerned about the issue of safety and security on the posted study material, as well as the behaviour of the users. They suggested that if social media platforms are to be implemented in teaching and learning, strict control measures should be put in place to avoid compromising the quality of education and training.

P9: *“So it can be used but it needs discipline, obviously there'll be people who'll deviate when there's a group. So I think if there's discipline in the group, some rules implemented in the group, I think then it would work well.”*

The participants perceived the use of social media for learning as advantageous as there would be no limitations in terms of geographic location and time constraints:

P10: *“I think it also help us. Even if you are away from home you can go through your phone and study wherever you are. Even in the taxi, whether you are on holiday on the way, it would be beneficial. Adding on that, it also serves us with the ability to retrieve past communication. It also enhances mode of interaction with lecturers.”*

5.2.3 Readiness to implement social media platforms

Most of the participants believed their Nursing Colleges are ready to implement social media platforms immediately since some digital tools, such as Wi-Fi, have already

been installed and are working. Even though they questioned some older lecturers' digital capabilities, they still believed it is feasible to action the use of social media. A handful of students claimed their Nursing Colleges were not ready for the social media movement, backed by limitations related to digital tools for students to access those platforms. The students suggested that Nursing Colleges provide them with sufficient electronic tools to be able to use those platforms effectively. Some of the students claimed to be using social media platforms, yet they felt it was not as successful as it could be due to the lack of lecturer involvement. These findings are similar to a study on the digitalisation of teaching in higher education by Islam et al (2015:102), which revealed African countries are not yet ready for digitalisation.

For the theme 'readiness to implement social media platforms', the participants were quoted in their own words as saying the Nursing Colleges are ready for social media platforms, as they have already partially implemented it. However, as stated, a minority was under the impression their Nursing Colleges were not ready to implement social media in teaching and learning.

Those participants who believed that their Nursing College was ready, were still concerned about control measures and suggested that ways of logging in should be limited to academic issues to avoid misuse of the Wi-Fi. One of the participants is quoted below to substantiate their perception:

P1: *"Okay, at my Nursing College we already have access to Wi-Fi when we are there but now I think it needs to be controlled because now we go to class, have the lecturer there but we are on the internet doing other things not concerning the lecture. So like, it will be feasible for both lecturers and students to log in, if a lecturer log into a website and we all use that website. it has to be controlled and regulated, there needs to be monitoring that we are all logged in the same space as the lecturer so that one can't access Google or Facebook while you are in the lecture room. Training will need to be provided for both the lecturers and the students on how to use that website or that social media platform, also rules and regulation, what to post and not, and time frames, we shouldn't interfere in personal spaces. So like the main concern is that it can be accessible to the students, in the presence of the lecturer of the class because social media has many distractions. So it has to be controlled."*

Some of the participants mentioned their positive experiences and the challenges they faced in the use of social media platforms as a teaching strategy.

P2: *“What I’ve experienced in our page, is that it does work because in other subjects, we log in and we can learn with our lecturer. We are learning from the website that they’ve created. I think it’s working just that sometimes not all of us were able to connect with it. Sometimes it doesn’t allow all the students, it gets overloaded.”*

Digitalisation was seen as the way to go by some of the participants, as they were already provided with e-books and were able to receive emails. They did not think finance would be a problem. They believed the government had already started financing programmes to provide in-service training on different teaching strategies, and it will be able to fund these types of teaching strategies as well.

P3: *“I’d say the Nursing College is ready for digitalization. Just adding on, we have access to Wi-Fi, we are living in a digital era whereby our phones are our lives. We carry our phones everywhere. If there were to be digital, they’d save costs in printing of study guides and micro curriculum. They can email us these material, they can email soft copies. Most of our learning is already on e-books. An e-book is easier to carry around than an actual book. Therefore, if the Nursing College goes digital, it will be an added advantage for both students and lecturers.”*

According to other participants, their Nursing College was not yet ready to use social media platforms. In their own experiences, they found some lecturers were not willing to be contacted beyond working hours.

P4: *“Personally, I don’t think that my Nursing College is ready. Because, for example, in our class there are certain lecturers that are more comfortable to open chats with us which is easier to communicate but at the same time, there are those that think they are only there for Nursing College time, past Nursing College time it’s their time, they don’t want to be disturbed. So I think we are not ready as a Nursing College, maybe if it was implemented from the people on top like the principal.”*

Material and human resources were identified as a subtheme related to the Nursing Colleges' state of readiness to implement social media platforms in teaching and learning. The following participant quotes reflect their own views on why they believe their Nursing Colleges are not ready to be digitalised.

P5: *“Feasibility meaning it can work however the resources need to be upgraded and improved. There’s some resources that are doing well with technology and others are lagging behind. It can work if those are address. Then talking about the aging population of nursing lecturers that is a challenge. There needs to be somebody that manages this. It becomes the white elephant in the room whereby all the information is available but no one is posting it. Most companies have people that are managing their social media platforms because it becomes a job on its own.”*

The quality of the current connections cable to the network, as well as the size of the computer laboratory, seem to be a barrier to the accessibility of social media platforms. The system gets easily overloaded during teaching and learning, as one participant mentioned:

P6: *“There was a time where we tried to log into a certain website during our lesson and because we have different cell phones, the cell phones have different models, so some of our cell phones couldn't connect to the website and almost half of the class, couldn't connect to the website. So they had to take us to the computer lab. And when we went to the computer lab, we were many, the computers were not able to accommodate all of us. So, we didn't really get to see what they saw on the website, because when we got there, some of us didn't get space into the, computer lab. When we tried to log in with our phones we couldn't log in and she was saying that sometimes the Wi-Fi get overloaded.”*

The participants viewed resources in two ways, relating to the training of personnel and proficiency in using technology. In their deliberations, the participants verbalised that the availability of Wi-Fi alone is not sufficient to implement social media platforms in teaching. Significantly more is required, including human resources, as most lecturers are ageing.

P7: *“I also think our Nursing College is not ready technology wise, I think we are still behind, for example the Wi-Fi was installed this year. So I think we are still behind because I think in order for us to move onto let’s say create a social media platform, first we need to create a student portal. We need to be technology wise, we need to implement more technology into the system. So I think it would have to start there, and then after that, only be able to give you the latest in this case, the social media platform that would suit the nature of the lecturers and students, remember there’s also a generation gap. There are some lecturers who are much older than us, who don’t really understand technology. I think that’s the issue of social media, the older generation, they don’t understand what I said. So, it would have to be something that would accommodate both generations. So I don’t think the Nursing College is ready we still need that portal.”*

Other participants mentioned the need for venues that can accommodate a large number of students with a good number of functional computers. A participant explained:

P8: *“I agree with participant 1 however as an institution, we are not there yet. For example, we don’t have a well-equipped computer lab for training. Our computer lab has about 20 - 30 computers and if you look at our student population, that lab doesn’t even cover half of the students. Not deviating from the question, not everyone was computer literate by the time they joined the Nursing College.”*

Other participants mentioned issues related to the SANC as regulatory body for the nursing profession. They questioned the clinical practice part of learning; they stated that even if Nursing Colleges implement social media platforms in teaching and learning, the students are still expected to meet and comply with the requirements set by SANC.

P9: *“I personally feel like with us, the practicality part, I’m not so sure about it because we will have to go to the institutions and be practical about nursing care. I don’t think is something social media can help with. But with theory, we are still a lot behind. I think that because as a Nursing College we are under certain laws like we have to work certain hours and follow certain rules, we cannot just do it because we need to*

follow the procedures and the protocol that the Nursing Council gives us. We are expected to work certain hours for practical. Theory we can try minimise the theory part because I feel it is what makes other students not to be able to perform well because of the long hours of class attendance.”

5.2.4 Existing types of social media platforms

The different types of social media platforms that were mentioned in this study are WhatsApp, Facebook, YouTube, Twitter, Instagram, Skype, Google and blogs. Approximately two social media platforms were mentioned by each participant, with WhatsApp being the most popular among the majority of participants. Its familiarity is possibly the result of it being what they are currently using in their personal space. Participants agreed that WhatsApp would be the easiest and simplest platform to integrate into their learning space. However, as much as WhatsApp was favoured, concerns were raised related to control, regulation and the privacy of contact numbers.

Facebook was also favourably mentioned, especially because it does not force one to add any personal details such as contact numbers. Facebook was preferred for its multiple abilities, including the posting of videos, sharing of links, and basic information posting. YouTube was also noted for its video content, particularly related to the practical component of nursing. Blogs were only mentioned once the researcher probed participants; a few students agreed to it being an appropriate social media channel. This study's findings are like those of a study conducted by Mngwengwe and Dlamini (2021:3), which revealed Facebook, WhatsApp, Snap Chat, Twitter, YouTube and Google plus are most frequently used by social media users.

In their own words, the participants were quoted as perceiving the use of audio-visuals as a good move in the 4IR in terms of teaching and learning. They believed that if one watches something repeatedly, it makes it easy to remember. One of the participants highlighted the purpose of different social media platforms and the popularities of some of these platforms:

P1: *“I personally think each platform created had a purpose, like Facebook to connect us, Twitter for jokes, Instagram for bragging. That is where we post our new clothes, handbag, Brazilian - that is where we brag. So, Instagram, there’s no time for study, so you won’t even have to type something that is school-related people aren’t going to comment, they’re not even going to view the photo. We want to see the recent fashion clothes not information about school.”*

Some of the participants were concerned about the current system that is in use for administrative purposes. The participants shared that the manual publication of students’ academic results provides no privacy. There is no confidentiality as their academic progress is made available for everyone to see, hence digitalisation might provide them with some degree of privacy.

P2: *“I strongly feel the student portal is the best and what I like about it is; it is yours personally, so your results are going to be received from that, it personal to you unlike what is currently happening now when your laundry is put out there for everyone to see. People are taking pictures of the results but with that one you've got your own, if your marks are out, you'll be the 1 to see them, and you can see where you went wrong. I feel like that's the one most important social media we must use.”*

WhatsApp:

As mentioned earlier, WhatsApp is one social media platform already in use in the Nursing Colleges and it accommodates all age groups. Participants reported on some of its benefits, based on their experiences:

P3: *“WhatsApp groups; the same purpose the YouTube channel will serve; you can still upload that video on WhatsApp. They can still download it on WhatsApp. Some students might think downloading on WhatsApp takes lesser data than YouTube. It’s also dependent on which social media platform our students spend more of their time on. It’s better to use the one they use the most. You can upload on various platforms.”*

Moreover, the participants shared their views on different ways of using WhatsApp in teaching and learning. The participants agreed that it is an appropriate social media platform to use:

P4: *“I would say WhatsApp because in terms of WhatsApp, it would simplify 1 on 1 communication. You can also create groups whereby its students with that particular lecturer. The lecturer can share how he / she would like you to answer questions based on their knowledge of the marker guide if they want us to mark the answers.”*

As much as WhatsApp was considered the most popular social media platform among participants, some were concerned about its disruptive nature compared to other platforms like Facebook. This is what a participant had to say:

P5: *“I feel WhatsApp for me can be frustrating because sometimes we will be in a group with people that don’t get it, so they’ll be sending messages you know and [wena] you are waiting for this important message. I would go with what participant four said, Facebook will be better for me. With Facebook you can have your personal Facebook and still have a group, still talk to the lecturer without people seeing your chats or messages.”*

Facebook:

Facebook, according to the participants, could benefit the Nursing College as a whole and not only a particular student level. The participants were of the view that Facebook can be used both in theory and in clinical practice as a teaching strategy. They explained:

P6: *“I think even Facebook, where we can have a group for each level of study in the Nursing College. Then in that way people can record themselves while they are practising a skill, because Facebook can save videos, then you can record yourself whilst practising the skill and save it on the group, then I can see how you did. That way we can learn, practical and with theory, a person can summarise, their own notes and post them on their Facebook group, or you can save it on your phone you can screenshot it on your phone, and then study through that.”*

Facebook’s multipurpose was mentioned during the deliberations with participants. Most of the benefits of using Facebook were highlighted. The fact that a lot of

information can be uploaded and it caters for older generations was an added advantage. One of the participants shared:

P7: *“Just adding on to what everyone has said, they can also develop a social platform - Facebook page whereby all lecturers can upload their notes, videos and slides so that it's easier for us to access and download that content and I think it covers most of the older generation, because it's been here for a long time so I think everyone is able to use Facebook. It's much easier to use and it's very broad.”*

YouTube:

YouTube was favoured for the easy uploading of videos. The participants were of the view that lecturers can organise their work in such a way that students can follow along easily.

P8: *“I'd say YouTube channel. Your videos can be sequential. The students will be able to follow the studies in a sequential manner.”*

The participants agreed that YouTube could be used together with other social media platforms like WhatsApp and Facebook. These allow the integration of communication and information sharing, as one participant is quoted below as saying:

P9: *“I agree with both the responses. You can upload on YouTube and send a link on WhatsApp. Instead of having the students search for the video. I think it works hand on hand. On Facebook you can also post the link directly to the video. You can also post updates on Facebook. I think these platforms support each other.”*

Participants shared that YouTube can be used both in clinical practice and in theoretical teaching and learning sites. The following statement elaborates on the participant's perceptions:

P10: *“In terms of YouTube, it would be beneficial. They can create a channel whereby they can upload videos made by the lectures showing us a particular skill according to the way the Nursing College wants us to tackle that skill, if it is demonstrated by them*

and we see it, it can make us do or perform that skill better. So if they can create a YouTube to upload for us their videos would be beneficial.”

Skype:

The minority of the participants perceived Skype as an ideal social media platform for teaching and learning. It needs a secured appointment between the lecturers and the students, and most of the participants viewed it as outdated, and they claimed it was not easy to log into the program.

P11: *“Skype is convenient. We can set an appointment, Saturday at 10 o’clock I’ll be calling you, you as a lecturer telling us, we will avail ourselves, it’s convenient, instead of us having to cancel our social plans and travel to a common venue, Skype can work.”*

It was evident that Skype was less favoured by the participants. They perceived Skype as being outdated and unable to accommodate a large number of students. YouTube was preferred over Skype, as quoted below:

P12: *“I have used Skype before in an interview so Skype for me is like a phone call. I haven’t seen where I can record a video and that video be seen by 200 people. So it’s a 1 on 1, I don’t think it would be useful, when we talk of social media platform we mean something that can reach a wide group of people at once. With Skype it will just be 1 on 1, if we needed something that can cater for video, tutorials, then maybe we can consider a YouTube channel where we can post videos and people can comment and share. A YouTube channel will be better than a Skype.”*

Other participants seemed not to like the process one needs to follow before logging in to be able to use Skype. The process was considered cumbersome, and they rather opted for other social media platforms like WhatsApp, Facebook and YouTube. A participant expressed:

P13: *“I think with Skype is outdated. Also with Skype, you have to register and know if the other member is online. You’ll have to send a message to check if they are available. You can go live on Facebook, it’s more effective than Skype.”*

Some participants felt that there might be challenges with Skype, it can be irritating at times, and it requires good working technological equipment. Some of the participants also preferred to be with their lecturers physically during the lessons.

P14: *“I think with Skype it can be very tricky. What if there's no network? What if you don't have a phone with a camera? We'll need gadget that can cater for it and the quality has to be good. I think it's going to be costly. For me it would be very irritating, for example if we are in a class and 1 student has to Skype call to ask a question. I prefer to see my lecturer; I don't think Skype will work.”*

Blogs:

Some participants knew what a blog is, and they were able to share their opinions about blogs as a teaching and learning tool:

P15: *“My understanding of a blog is; I think it's personal to someone. If I open a blog for makeup tutorials, it's personal to me. So I'm not sure how it would work in a teaching manner. I'm not sure how it works but I think it allows people's comments. I think it could work if it allows for people to share information then it could work.”*

One participant was able to share different ways of using a blog for the benefit of others. The participant said:

P16: *“Yes, I have heard of blog. With a blog, somebody has a blog, sometimes its owned by a group and I as an individual, will use that platform to express how I feel about certain things. If it's health for instance, if I am studying to be a nurse then I'll express how it feels to be a student nurse on a daily basis, maybe updates on how they treat us in the wards, how it is to be at the Nursing College, how is it to study for exams. So, if it is owned by group; then I will raise my opinion, and she will raise her own opinion, and that information will be compiled together posted on there. People will be given a chance to comment on the opinions that are posted on the blog.”*

Challenges were mentioned in terms of using blogs as a teaching strategy. Participants seemed to perceive more challenges than benefits with this platform, and preferred other social media platforms over blogs.

P17: *“If we had to use the blog system, it would mean each and every lecturer would have to have their own blog. We need something that can be shared amongst people. I don’t even know what a blog is so I would really be challenged. Does a blog not include videos? What would happen when that 1 person that is managing the blog is not there? I think a blog is not effective.”*

Google:

Google was not favoured by the participants based on its nature of openness. Participants were concerned about the authenticity of the information posted on Google as it varied from author to author. They did not view it as an academic study site, as one participant said:

P18: *“Google, I don’t think is a good social media platform because, remember, you can post your own opinion and lessons from an untrusted website, unless it’s a trusted website. Because you get information with different estimations we can use it as a guide, not as a professional tool. The only thing that I think that will work is like having a direct YouTube as an App on its own. We must have an App for students let’s say an App for health students in all your social media, and all things that we use link, and then also have an App for our Nursing College. Our lecturers will simulate procedures, but if you do assessment, how do they let us to do assessments.”*

Some of the participants based their argument about Google’s trustworthiness on past experience. They argued that some of their lecturers do not credit work from Google, as one participant shared her experience as follows:

P19: *“With Google can I answer based on an experience at our Nursing College, in a certain subject, there was a learning outcome that I didn’t understand from how they explained it in the book. So I googled it, and I found the information on Google. I studied it and I understood what they were saying on Google, and the learning outcome was asked in a test. I answered the way that Google was saying. When our*

scripts came back, I didn't get it correct. So I went to the lecturer and I asked her why did she mark me wrong while I wrote the correct thing, and she explained to me that I didn't explain it the way it is explained in the book. I told her that it is how Google explained it and she said, no, you must use your prescribed books to study, maybe add with Google, but don't study using Google. So don't let your basics be Google. So for me, Google cannot work because they'll tell you to use the prescribed book."

Twitter and Instagram:

The participants mostly compared different social media platforms and weighed different options of the available social media platforms. Twitter and Instagram were not deemed ideal for teaching strategies:

P20: *"For me, it would have to be WhatsApp because most of us do have WhatsApp, even our lecturers, the ones we say are old, most of them, if not all of them have WhatsApp. I think they are more comfortable using WhatsApp. Also the aim of having social media is to have both students and lecturers to be involved, so I feel with WhatsApp it will be possible for both students and lecturers to communicate. Most of us have WhatsApp. With Facebook, Twitter and Instagram, most lecturers are not used to those and they are not comfortable with them. So for me it's WhatsApp."*

These transcripts conclude the findings of phase 1.1. In both phases, the participants engaged in dialogues and their brain-storming stimulated other participants' responses as the interviews unfolded. Their interest in the discussion on implementing social media platforms in teaching and learning inspired provoking thoughts, which were good for this study's benefit. The next section presents the findings obtained from the focus groups with lecturers.

5.3 PRESENTATION OF THE FINDINGS OF INTERVIEWS WITH LECTURERS FOR PHASE 1.2

This section provides an overview of themes, subthemes and categories that emerged from the data analysis of this study's phase 1.2. The participants consisted of 14 lecturers who were teaching basic nursing students registered for the programme R.425. Lecturers were selected from three different Public Nursing Colleges in

Gauteng province. After analysing the data from the interviews with the participants regarding their perceptions on implementing social media platforms in teaching and learning, four main themes emerged, as presented in Table 5.3. This overview of the emerged themes illustrates the relationship between the major themes and their respective thematic subcategories.

Table 5.3: Major themes, themes and subthemes from Phase 1.2: Lecturers' perceptions

Theme	Subtheme	Category
5.3.1 Existing knowledge of communication platforms and advantages thereof	Information hub	- Internet - High reach
5.3.2 Existing views related to the implementation of social media platforms in education and training	Finance	- Capacity - Control measures
5.3.3 Barriers to the implementation of social media platforms in teaching and learning	Infrastructure	- Physical - Resources
5.3.4 An outline of preferable types of social media platforms	Audio-visuals	- Facebook page, YouTube, Google drive/Drop box - Podcast, e-learning, Whiteboard - WhatsApp, Skype, Video conference, Click up

Verbatim excerpts of participant interviews are used to support the themes and subthemes, and are indicated in italics.

5.3.1 Existing knowledge of communication platforms and advantages thereof

Participants were asked to explain social media platforms in their own words. With an average of four mentions per participants, the participants knew and understood social media platforms well. The majority of the participants were young lecturers in their early thirties, and they labelled social media as technological communication tools, including Facebook, WhatsApp, Instagram, Google, YouTube, blogs, Zoom and Twitter. These tools are easy to use and can reach a high number of people conveniently. Most of the participants were already using Facebook, WhatsApp, Instagram, Google, YouTube, blogs, Zoom and Twitter, although they were concerned about security and the safety of information. They also worried that some people might not know how to use certain platforms.

The following quotes present the participants' responses as they were reflecting on social media platforms as a source of communication and a major theme for this study.

P1: *"What I understand with social media platforms is that it is a form of communication which is very convenient especially nowadays. You can communicate with people and don't have to be in direct contact eye to eye with that person."*

One of the participants understood social media as an informal communication platform that is not controlled. This participant gave examples of what is known to be social media platforms:

P2: *"I think social media is where different types of people communicate in a platform that is not controlled that is not formal. It can be Twitter, Facebook, and even WhatsApp."*

Social media was seen as promoting varied interactions among different people, and examples were given of commonly used social media platforms:

P3: *"My understanding of social media platform is what we have currently, your Twitter, Your Facebook, Your WhatsApp. These are for me, the social platforms where*

the conversation or interaction is as wide as possible. And anyone could be invited to interact. That is my take on it.”

Participants reflected that social media platforms are information hubs. Participants perceived social media platforms as a source of information from which people can draw to keep current with daily events – good or bad. Some of the participants are quoted below to support the view of social media platforms being an information hub.

P4: *“To add on to what he's saying, social media platforms, I think it's where large information can easily be accessed by a large number of people. People can learn a lot of information freely within seconds and it's readily available and accessible for all.”*

Participants agreed that, although social media platforms are seen as information hubs, for teaching and learning purposes, the students must be clearly guided on which sites are appropriate to use.

P5: *“I think I agree with my colleagues here. What I just want to add is that with these platforms, we need to teach our students to look for reliable, authentic and valid information, because I've seen in the class that they actually know how to use Twitter and, you know, blogs and things like that. But to search for academic-related information that is actually evidence based, they don't know how to do that.”*

Participants cautioned one another on the negative impact that comes with the good intentions of using social media platforms as a source of information.

P6: *“We must be careful of whatever we write in social media, because these days there are companies that check the social media platforms for what people post. If you use it in a bad way, it can come to have a negative impact when you want to change jobs or apply for other positions.”*

One of the participants highlighted the advantages and disadvantages of using social media platforms as a source of information. This participant was of the view that its use in teaching and learning could be beneficial:

P7: *“When I hear the word media platforms, I immediately create a negative and positive feeling in my mind. Because a lot of negative things are being exposed in public, but it can also be used as a positive tool to send out positive information, and therefore I believe it can also be used in a nursing training set up.”*

The participants shared that social media platforms are communication tools that are loaded with information. In order to communicate using this approach, internet connectivity is needed, and many people can be reached almost instantly. Thus, the internet and the ability to reach many people in a short period were categories under the information hub subtheme.

As much as they agreed that social media platforms are widely used, most of the participants mentioned the importance of having accessible internet connectivity for social media platforms to be functional.

P8: *“Social media platforms how I understand it, it uses internet, when you don’t have internet you cannot use it. It is good because you are able to communicate and disseminate information abroad.”*

One participant was of the view that social media platforms are limitless in terms of the total number of people one can reach. Examples that are commonly used were also provided:

P9: *“From my understanding of the question, social media refers to a means of communication in the simplest form whereby there is no security of the information. But the means of it is just to convey the message in its simplest form. It could be the following, Facebook, WhatsApp, Twitter. Any form of internet can reach every or big number of persons.”*

In their own view, the participants verbalised that the incorporation of social media platforms in teaching and learning might establish blended learning as an innovative teaching strategy. One participant shared:

P10: *“I’m just thinking of blended learning; it just came into my mind that it’s another innovative way of making use of blended learning having to make use of technology, as well as face-to-face contact.”*

5.3.2 Existing views related to the implementation of social media platforms in education and training

With an average of four mentions per participant, participants had a lot of positive and negative perceptions of social media and its implementation in teaching and learning. There were existing concerns about the roll-out of social media platforms. Generally, there was a positive consensus for the addition of social media platforms in basic nursing teaching and learning. Participants agreed that it would be a good move to add social media platforms as tools to use when teaching students. While a lot of questions and concerns were raised around the mechanics of these new tools, other concerns centred around connection tools, such as Wi-Fi and data. If students were to require constant access to social media platforms, this could increase their expenses as data is expensive in South Africa. Most participants agreed that they would require training and assistance in class to gain the capacity and skill to effectively use social media platforms in their teaching.

The following responses were shared by participants:

P1: *“I think it is very important if we are on implementation of social media platforms. If we can take one example of e-learning. The institution content will have a regulatory mechanism that allow only for certain students with certain passwords to access that information. To make an example of this; university of KwaZulu Natal is using e-learning for Masters in Public Health. The student for instance if they are 50 they would have different passwords to log on if there’s a tasks on hand to do. Students will only access the task via e-learning, they can also submit it via e- learning. So then let’s not limit it all to just Facebook and it will just eliminate other forms, because it’s just the internet communication. Also another example benchmarking is very important. There are universities overseas that studying is managed via e-learning, there’s no need to go there to attend classes. It will also make sure that the information on those courses*

is limited on platforms like Facebook and Twitter for activities. They use internet to access that information.”

The participants welcomed the idea of going digital in teaching and learning, and substantiated their argument based on their experiences with other learning institutions.

P2: *“I can give an example which participant number two was talking about which is present at the University of Pretoria, the ‘click up’, all students have access to ‘click up’ but with the passwords. So, on that ‘click up’ they can upload tasks, they can even do showcased and submit via ‘click up’. So yes, there are some social media platforms that are definitely functioning very well in terms of education, tertiary level education. I just think people need to get on board of that.”*

One participant highlighted different ways for social media platforms to be used in teaching and learning, and the benefits associated with it, as well as how security measures can be instituted:

P3: *“Just to add to what participate number one was saying, except for the test, all the other activities for students can be given with a ‘click up’. For example, what it has been said with the ‘click up’ process that we could click up their assignments. The information from internet that needed to be shared with students, it can be shared on the social media platforms, but with the tests that can be done in a very controlled environment.”*

In terms of security and reliability when it comes to students’ assessment, this is what one of the participants had to say regarding the trustworthiness of the e-learning system:

P4: *“My take on that. It gives me mixed feelings. How do we control it? What is the security measures that we can put in place? How do we make certain, that the response that comes through it’s really the student that is responding? Because the student could be having someone else responding on his own behalf. Yes, we need to live with the time we can’t be left behind, that it’s a given fact. However, we can also*

not compromise the quality of teaching and learning. If we find it difficult at times to maintain control in an ordinary test/exam situation. If we are struggling within that physical environment; now where there are electronics? The security must be at an absolutely high standard. Look, corruption is all over really, we must also not be naive, fraud can happen, even exam papers can leak. That is where my concern is. That's my take."

The participant was also of the view that social media tools might help students evaluate their understanding of content as they will perform quizzes online, by themselves at their own time.

As participants deliberated on the issues of security based on their own experiences, some were suggesting measures to enhance safety, security and quality control without compromising the quality of teaching and learning. Below is the perception of one participant to support this view.

P5: *"If I mentioned tests done on 'click up'. It was just tests for the student to assess him or herself. It was not necessary for your summative assessments, just quizzes lined up for themselves to get real feel, to know where to get the information of a particular subject. They've also used a 'click up' with their passwords when they wrote their exams, there were different computers in a room, and they had to click on the computer, and they did the exam and then they got out."*

Participants agreed to embrace the digital world of technology and shared their experiences in initiating some of the social media platforms in teaching and the positive feedback received from those students who accessed and learnt from these. A participant shared:

P6: *"I definitely agree with her. I think social media can be used as a teaching tool. I actually have uploaded a video of myself this year on Facebook where I was demonstrating the mechanism of labour for my students in class and it was viewed almost by all students, about 1200 views. I even got feedback from students of other institutions. They were very happy about the video. The other thing is the video will*

remain there forever unless I remove it, students can always go back anytime to view the video whenever they need clarity. So I like it.”

Social media platforms require an adequate budget in order to be used effectively, hence, finance was identified as a subtheme. The participants' perceptions with regard to finances are presented to support this subtheme:

P7: *“I’m thinking of Wi-Fi, if for example the Nursing College can have an active Wi-Fi, then it will be easier the finance problem will be solved. But as participant number three said that it does need to be controlled, so that students don't do their own things. Then the steps how to control it must also be in place. And remember, the other advantage, they can form groups of which they can discuss via WhatsApp or whatever. It's a good thing.”*

Some participants were concerned about the accessibility of the internet and the control measures to contain expenditure and avoid misuse of the internet by eligible users. The following quote supports this view:

P8: *“I just wanted to add that when we refer them to a site or when we give information that it must be available offline as well, because we are studying at home, and not all students have access to Wi-Fi at their homes. I think we need a lot of policies and protocols to manage this.”*

Even though there are costs involved in accessing social media platforms, participants shared that they would rather use social media platforms for studying than spending money on transport to get to the Nursing Colleges. This is what a participant had to say:

P9: *“Just to follow in terms of economic benefits. It might save money when we look at travelling issues. It might also cost money for the one that does not need to travel, but does not have data. Due to uneven economic status that we are living in, we all have our difficulties; but when it comes to spreading information is efficient, fast and effective. It might be of good service to us, provided that everybody has a means of*

access. We need to have very stringent measures to protect the information going out or even being received, so that nothing is being distorted. That's my take.”

Finance is needed to set up technology in teaching and learning, but there are also long-term benefits that come with it:

P10: *“In my view I think, with the movement of technological advancement, it is significant that we move with technology within the nursing fraternity; that we use social media platforms as well. More importantly to save costs and to be in line with other institutions, they use social media platforms. For an example, most of these higher learning institutions they've got their Facebook pages whereby they can communicate to a big number of students in 1 second, whereby if we were still using the old methods we would have not been able to reach those numbers – social media advantage is that you can communicate with a big number of people within a short space of time hence I believe it should be used in teaching and learning because it can be facilitated in a faster way than the previous methods.”*

The participants were concerned about the issue of safety of the information that will be posted on social media platforms. They were concerned about the control measures and the targeted population to receive the information. The participants were also concerned about some lecturers' and students' ability – especially the older generation – to manage their teaching and learning activities within the digital space. Hence, capacitation and control measures were identified as categories related to 'finance'.

The issue of funding and control measures overlapped throughout the deliberations by the participants. These challenges were also emphasised when the participants spoke about capacitating lecturers, as one participant is quoted as saying:

P11: *“I think in order to implement social media platforms, first of all, the lecturers need to be capacitated about it, because it will involve a lot of computer literacy and technology. So, we need to be abreast about the knowledge. Another thing it will also need finance because technology is expensive. So we need the department of health to come on board to fund those methods, so that we can be able to implement social*

media platforms. And moreover, if we have implemented it; I agree with my colleagues we need to control it; we cannot totally rely on that because we need to actually support the posted information by providing contact sessions in the classrooms, so it should not be the replacement of contact sessions in the classroom.”

Control measures should be integrated into lecturers’ capacitation to ensure effective implementation of social media platforms in teaching, as these can be destructive if users lack control and its purpose for teaching might be defeated:

P12: *“My understanding is that when we use this platform or when we use social media in class, is that we will have to somehow control it. Because students will, and I've seen that, while you give them a task that they have to read through e-book, they will chat to friends, they'll receive other messages. You know the phone goes under the table and then you know they start chatting things which interrupts your class, at times they'll start giggling. It's a good platform that we can use as a teaching strategy, but then we have to come up with how we are going to control it.”*

Suggestions were brought forward on how to ensure the positive aspects of implementing social media platforms in teaching and learning are not defeated. These involved ways to empower the lecturers, as facilitators, to be more proactive in their planning to enhance the quality of teaching and learning. A participant was quoted as saying:

P13: *“I wanted to add, to what my colleague, participant number 5 was saying maybe one way of trying to control and monitor what's coming up for me is, instead of having one facilitator maybe the one would have the students been broken in a Wi-Fi area into small groups and then whilst the other facilitator is busy directing their content, then the other lecturer can be monitoring if those small groups are doing what they're supposed to be doing. So, in essence, it needs teamwork. I don't think one lecturer or one facilitator is enough, it's a team effort. Yeah, and the Wi-Fi idea would be a great one. So, like it's been said that the government and stakeholders have to come on board in terms of having to make that happen.”*

One way to ensure users understand the effective use of social media platforms included students being given pre-programmed gadgets that only permit its user to access academic content, as this participant said:

P14: *“I just want to add as well, to what they said. For instance, I know one way how they control it in the schools is for instance, that gadget is used for educational purposes. They are only allowed to use it for the Nursing College purposes so by other words, it's only to access the social media pertaining the school materials, and they can end there. They can have their own gadgets for socialisation.”*

5.3.3 Barriers to the implementation of social media platforms in teaching and learning

Participants shared several barriers to the use of social media. The majority of the participants believed their institutions are not ready to implement social media platforms in their everyday teaching and learning. They questioned the computer literacy skills among both lecturers and students. They also mentioned the capacity of the ICT department being a barrier, since most Nursing Colleges have a limited number of ICT personnel. Some participants questioned the availability of tools for students to be able to use social media platforms because most claimed their computer laboratories can only accommodate a handful of students.

In relation to the barriers to the implementation of social media platforms in teaching and learning, the participants were quoted in their own words saying the Nursing Colleges are not yet ready for digitalisation.

P1: *“On feasibility, my view is that the Nursing College is not ready. I believe the Nursing College should benchmark as we move to higher education as to how other institutions are doing. The universities, if you are at residence they install the wireless at the student residence. All the first-year students are being given free laptops. I believe we have to move in line with that hence I'm saying the implementation of this cannot be successful now.”*

Issues of contingency plans were a concern for some of the participants. Participants also reported the issue of poor accessibility to connect to available network services:

P2: *“Currently, I think we still at a baby stage, in terms of development towards the platforms that we want to create. Yes, we have Wi-Fi available. We also need to look at what other back-up can we have, because from time to time you find that it’s shut. So what do you do if you’re a student that is perhaps studying, or have work that need to be submitted. What do I do as a lecturer? Do I accept the explanation that the student is giving to me? That’s the thing.”*

Infrastructure was identified as a subtheme related to barriers to the implementation of social media platforms in teaching and learning. The participants viewed infrastructure in two ways, which included physical structures, like buildings, as well as material and human resources. In their own words, the participants’ views are expressed as follows:

P3: *“In terms of technology, I also agree with my colleagues. My only concern is, the structural infrastructure like where we are seated now. If we were to put students in groups and having to make use of technology in the classroom. That could be a great challenge so having to provide situations where they can sit around the table and using one gadget that’s more of where my concern is, because most of the structures are more of lecture halls, as opposed to making provision where you can move around, and monitor the usage whilst using whatever gadget it is.”*

The computer laboratory’s capacity was a concern. In the participant’s view, the current venue will not be able to accommodate a lot of students based on the limited number of available computers:

P4: *“We do have a computer lab whereby student can be able to access those platforms. I’m not sure about the numbers but it has a lot of computers, where it can accommodate a lot of student. I know that they are done with the fibre installation, although I have tried to access it but I’m not able as yet but we are in the process of getting it in place. I’m sure the rest will follow.”*

The effectiveness of the existing service was problematic based on the participants' experiences, as the ICT personnel was unable to render simple service like sending emails to students. This participant was quoted as saying:

P5: *“The implementing of social media platforms in the Nursing College I think is still a very big challenge if I think about it. There were so many tries that we have to send the students emails, so that there could be communication with them through emails, it didn't materialise at all. The only thing that I found positive was the WhatsApp groups. I think it is because it can be controlled directly by a tutor in connection with his student. Yes, my feeling on these platforms, public platforms, is not a positive one.”*

It seems participants were not convinced about the current ICT personnel's level of knowledge, and they suggested that they must be upskilled to ensure effective implementation of social media platforms:

P6: *“I totally agree, the ICT department, should be totally changed. And it should take people with a broad knowledge of ICT systems. And the other thing that I will suggest is. Go and benchmark at, for instance, University of Pretoria with their click up system.”*

Manpower, as a human resource, was reflected on by the participants in terms of the available number of ICT personnel not being enough to render services to the lecturers. They wondered what would happen if students were also in constant need of their service. The current ICT personnel are failing to meet the demands of the lecturers who also, to some extent, have below the minimum-expected basic computer literacy:

P7: *“When you go back to the ICT department. You can imagine the lecturers are struggling with assistance from time to time. These guys are only three. The lecturers themselves are not clued up with ICT, computer literacy. So both the lecturers and ICT personnel should go for upgrading lessons. We have to meet the standards of the world. We have to be well conversant with the outside world, how to do things, quick and easy to save time, we can't be having a lecturer that is struggling with a program; when we have so many students to assess and so many students that will also want*

to consult. And you also need to be able to help them. So, we lecturers must meet the standard.”

According to the participants, one way of improving the level of knowledge of those in need is to develop a standardised basic computer module for all Nursing Colleges to ensure the basics of a computer are known. Users of social media platforms should at least be able to find their way in the digital world:

P8: *“I think I made this point, on benchmark. There is a module in computer, that is introduction to computer same way as literacy, because capacitation cannot be enough. If you talking about a computer because even myself, if you have capacitated me it is just that you will be giving me highlights and I won’t have deep knowledge, so it is advisable to have at all Nursing Colleges a module in computer at first-year level the same way as they do also in the English language.”*

One way of identifying those in need to enrol for a computer module is to let prospective users write a basic computer test so that a distinction can be made between those who need to attend computer modules and those who can be sent for upgrading courses only. One of the participants explained:

P9: *“I just also want to bring in here that the first years at for instance at UP are writing tests for entry into the university. And one of them, one of those tests is computer literacy. So, they are already sifting out the people with computers literacy from those who are computer illiterate.”*

The issue of recruiting lecturers was another concern. Participants alluded to the challenge of certain skills being required to be appointed as a lecturer in Nursing Colleges, versus poor basic computer literacy skills. The following quote reflects the perception of one of the participants:

P10: *“Now, it becomes a little tricky dicey. Because now what can be kind of a disadvantage would be, we might lose out on the very good people only because they are not computer literate. So, that would not push the institution to see to that every employed lecturer should be computer literate. If you are employed and you are not*

computer literate, then you have to be trained in computers. And with the computers, it's a hands on thing. You have to be active and be involved in it. Just like nursing itself is, you have to be hands on, there's no way that you can do nursing on the computer. You have to be hands on. Now was a computer literacy, it means every one of us must be able to do programmes that are being utilised in the Nursing College. So, would also in a way, touch the recruitment; how recruitment is going to be done. Are we now going to be depriving ourselves of good lecturers, because they are not computer literate, or are we willing to take those that are computer literate, even if they are not as competent, as we want them to be in other areas. That is where, it might just, just be a little tricky when it comes to recruitment."

5.3.4 An outline of preferred types of social media platforms

The participants outlined preferred types of social media platforms that, in their view, might be used in teaching and learning. WhatsApp was the most effective platform these participants believed should be implemented in teaching and learning. E-learning, Facebook and YouTube were the next most appropriate platforms according to these participants. Participants valued easy to access, interactive and immediate types of platforms where the students can get help as requested, and where it will be easy to reach the lecturer.

It was evident that the participants were of the view audio-visuals are the way to go in terms of teaching and learning in the 21st century. They believed that if one sees something, it is easy to remember. Moreover, any material that is recorded can be viewed several times until learning has taken place.

WhatsApp:

WhatsApp was recommended for its nature of being user friendly, the fact that it is multifunctional, and most people who are on social media platforms do have a WhatsApp account.

P1: *"As I said before they can form WhatsApp groups, and on WhatsApp there is voice messages if maybe somebody want to talk to one another, then they can discuss via voice messages."*

According to some participants, WhatsApp facilitates communication fast and effectively:

P2: *“WhatsApp we have a WhatsApp group. And what is nice, I have one for the students and I have one for the operational managers, so that they don't play any one of us, but whatever I post to the students or information that I give them is also posted to their operational managers and I must say, these, you know it improves the communication, and the cooperation; the operational managers that I'm working with are really supportive.”*

e-Learning:

According to the participants, e-learning seems to be a more formal and effectively controlled way of going digital in Nursing Colleges. e-Learning has several advantages and might reduce the administrators' costs once it is up and running. A participant said:

P3: *“I would recommend e-learning, with e-learning all students registered with an institution are given personal passwords. With that passwords, the lecturers can communicate in that forum, whereby all students can see the communication from the lecturer. Also, the students can communicate within themselves. It is only limited to the student that is registered for that subject or module. The advantage to this is that the lecturer can upload certain resourceful information. So then, on the financial resource; the moment one logs in, one will have access to that information. When you have to submit certain assignments or a certain exercise that has been sent to students as personal exercises, you can also upload on demand. So, the disadvantage to e-learn is just that it might be costly to students, because as it was mentioned, to our discussion that if you don't have data what do you do? Here's a disadvantage to e-learning, but with the proper capacitation of students, and personnel, in this case, it can be used.”*

The participants shared that e-learning is more beneficial for students in times when they are unable to attend class. The student will be able to access the lessons at their own place and time, as quoted below:

P4: *“e-Learning can be easily accessible, especially when you consider the student that cannot come to class, and the student can still connect through to you. If the student has a laptop, the student can then access the lecture whether being at home, sick or being on a maternity leave. You still gain you will not be left behind. So you can continue with the class that for me it’s a plus for it.”*

It was evident from the participants’ deliberations that both WhatsApp and e-Learning could be used in teaching and learning. The participants argued that control measures are possible in both social media platforms if these are carefully planned, although WhatsApp might have its own disadvantages. This is what a participant said to substantiate this view:

P5: *“I agree with other participants, on WhatsApp and e-learning. WhatsApp and e-learning are both controlled groups. For example, with e-learning, what will be displayed, what will be sent or put out there will be from the lecturer. And it will be having clear instructions to students. On the part of students, I think it enforces responsibility because they won’t have to be negotiating irrelevant stuff on these social platforms. I think WhatsApp, and ‘click up’ for me, because they’re more controlled they can work. I just want to say one thing about the WhatsApp groups. It is very effective. Yes, but never switches off. So, if a student wants to WhatsApp you at 12 o’clock at night she / he’s going to WhatsApp you as a tutor.”*

Facebook:

Facebook, according to the participants, was ideal as it can be controlled to confirm if it is used for academic purposes only. This participant said:

P6: *“Facebook page, but you create a blog. And then you can have your topic for discussion, and you will have your followers that you will also monitor and it’s easy for you as a blog owner or developer to control who has access to your page. And the students can ask questions and you can respond as well.”*

Some of the participants shared their experiences of using Facebook to gather information for educational purposes, and they benefitted from the platform. This is what this participant had to say:

P7: *“Okay, I would like to ask you for those that have internet and have time most people are connected to Facebook and creating a platform, there are ways where it can be controlled where you put your lesson in fiscal can be used, I’ve used it. I’ve used that accessing some learning content using Facebook, and it was quite useful.”*

The participants were also aware of the possible disadvantages of social media platforms, especially in terms of the safety and security of posted information, and Facebook was mentioned along with other platforms. A participant said:

P8: *“Facebook and Twitter out, personally I don’t think it’s a safe space, because everybody can access and say things that we are going to be struggling to delete from the memory of our students. Facebook is like just a wall that everybody posts, his or her opinion.”*

Facebook was also viewed alongside other social media platforms like Skype and video conferencing, as one is able to go live on Facebook as well. One participant is quoted below to support this view:

P9: *“Facebook, podcast. I tend to assume YouTube is equivalent to the Skype and the video conferencing.”*

Skype:

Skype was welcomed by participants as there is, to some extent, an allowance of live images of the lecturer and the students during the engagement. In addition, questions are answered on the spot should any clarification be needed. Still, participants were of the view that it would be ideal to use more than one social media platform at once:

P10: *“I concur with my core participants, we could be looking at Skype, where the lecturer can be talking directly on a screen with the students. Then the lecturer is able to address the students, not necessarily in a classroom because the lecturer can Skype from home. And the students will still be able to access the information, or even make contact with the lecturer if there’s any questions to pose they will be able to pose a question to the lecturer. When it comes to the e-books, probably goes in line with e-*

learning. The WhatsApp system might also be working. However, it all comes down to accessibility of data. If you're on the grounds of the Nursing College because we have Wi-Fi available, it's easy to use because you are connected."

YouTube:

The multifunctional purpose of YouTube was noted, and the different ways to effectively use this platform in teaching and learning was outlined by the participants. One participant was quoted saying:

P11: *"YouTube can load up your slides any other participant in the group. It could come as a process of series, particularly if you want to engage the students in terms of also having a feel of their understanding and their level of maturity as well. Because now, if you pose the questions; it could also be something like a debate that they can all be engaged, you can divide the group into sub groups and pose a question for them to debate. Then you can also be able to assess their level of understanding."*

Google:

Google was also mentioned by some of the participants as a preferred social media platform that Nursing Colleges can adopt. A participant explained:

P12: *"Also thinking Google making use of Google that Dropbox. The one we learnt recently where you could Google in the Google Drive, where we could communicate via Google and content would be posted in that space, and only specific people that are targeted to have the information can log in."*

Podcast:

The participants shared their own experiences of how they typically benefitted from information that they gathered from podcasts. They felt that if it is good for general knowledge, it can also be used in teaching and learning. A participant shared:

P13: *"I stand to be corrected. There is this one where you can make podcasts, I heard it being used on Kaya FM where you can tell your story whatever it is that you are broadcasting or doing, and then people can later access it, if they had missed your show. Or you send them a link and then they can access that information later"*

Whiteboard:

Whiteboard was seen as an interactive tool that connects a lecturer with students from different campuses. It was deemed to be a social platform that could benefit Nursing Colleges:

P14: *“I’ve seen somewhere it’s called a whiteboard. Then lecturer from that particular University and the students are attending at different campuses. So it won’t be necessary for us to attend now and then. They can have contact with them throughout that whiteboard and submit whatever they have to.”*

5.4 DYNAMICS BETWEEN THE FINDINGS OF THE LECTURERS AND STUDENTS

This section of the chapter is aimed at analysing the similarities and differences between lecturers’ and students’ perceptions as portrayed in the focus group interviews. The researcher used descriptive analysis to identify the perceptions of nursing students and lecturers regarding the implementation of social media platforms in teaching and learning. Descriptive analysis entails analysing data to help summarise patterns that might emerge from the data in a meaningful way (Jamshidi, Molazem, Sharif, Torabizadah & Kalyani 2016:1). The recorded data from the ADR were transcribed, and the transcripts of the interviews were read by the researcher several times to reach an overall understanding.

5.4.1 Similarities between the lecturers’ and the students’ perceptions

The concept ‘social media platform’ seems to have been clearly understood by lecturers and students. They were in agreement that it is a tool that promotes prompt communication and connects a large number of people. The most commonly used social media platforms in their context was WhatsApp, Facebook and Twitter. According to the participants, the roll-out of social media platforms as additional tools for studying was considered a positive move. However, they were concerned about the accessibility of the technological equipment involved. Their other concern was on

older lecturers' and students' capabilities to implement social media in teaching and learning.

The following statement was made by a lecturer to reflect how social media is perceived:

P1: *“From my understanding of the question, social media refers to a means of communication in the simplest form whereby there is no security of the information. But the means of it is just to convey the message in its simplest form. It could be the following, Facebook, WhatsApp, Twitter. Any form of internet can reach every or big number of persons.”*

In their deliberations of what social media platforms are, the students shared:

P2: *“social media platform is a digital internet based, it's a medium for communication but when you say social, I think initially it was meant for socialization, it's there for social reasons, socialization to reach people in remote distances from each other. People spend a lot of time on these platforms be it Facebook, Instagram, Twitter, I don't know to what extent does WhatsApp fall within social media for me, it's a messaging platform however others categorise it as social media. Facebook, Twitter and Instagram have evolved over time. These platforms are now used for a number of things to reach people, initially it was socialization but as it grew, it is now used for marketing, other forms of mass communication.”*

The participants acknowledged the fact that the Department of Health is in the process of developing their Nursing College's infrastructure, but their Nursing Colleges are not yet ready to roll-out social media platforms for teaching and learning. They argued that the computer laboratories are too small to accommodate the number of students in their Nursing Colleges. The ICT personnel also require advanced training before they can capacitate any other person. The other concern was the internet connection cables, as they get easily overloaded during class periods when more users log into the system at once. This was perceived as a challenge that might compromise the quality of training, since some students might be disadvantaged.

In light of the challenges, a lecturer verbalised that:

P3: *“On feasibility, my view is that the Nursing College is not ready. I believe the Nursing College should benchmark as we move to higher education as to how other institutions are doing. The universities, if you are at residence they install the wireless at the student residence. All the first-year students are being given free laptops. I believe we have to move in line with that hence I’m saying the implementation of this cannot be successful now.”*

Conversely, a student said:

P4: *“I also think our Nursing College is not ready technology wise, I think we are still behind, for example the Wi-Fi was installed this year. So I think we are still behind because I think in order for us to move onto let’s say create a social media platform, first we need to create a student portal. We need to be technology wise, we need to implement more technology into the system. So I think it would have to start there, and then after that, only be able to give you the latest in this case, the social media platform that would suit the nature of the lecturers and students, remember there’s also a generation gap. There are some lecturers who are much older than us, who don’t really understand technology. I think that’s the issue of social media, the older generation, they don’t understand what I said. So, it would have to be something that would accommodate both generations. So I don’t think the Nursing College is ready we still need that portal.”*

While there were similarities in the findings of this study between the lecturers’ and the students’ perceptions, some differences were identified, as discussed in the next paragraph.

5.4.2 Differences between the lecturers’ and the students’ perceptions

The students shared that even though some lecturers are aware of different social media platforms that are available, they are not very familiar with platforms like Instagram. They described Instagram as a platform for those who enjoy bragging about their achievements, and they argued that it cannot be used for academic

purposes. Blogging was not popular among the students, and some lecturers had no idea of what a blog is. Moreover, the students were of the view that blogs cannot be used for teaching and learning purposes as it is owned and controlled by an individual.

This is what one of the participants from the students' interview session had to say about blogs:

P5: *"If we had to use the blog system, it would mean each and every lecturer would have to have their own blog. We need something that can be shared amongst people. What would happen when that 1 person that is managing the blog is not there? I think a blog is not effective."*

Lecturers were uninformed of what a blog is:

P6: *"I don't even know what a blog is so I would really be challenged. Does a blog not include videos?"*

The students shared that lecturers are not very conversant in the use of Instagram, and among the students themselves, they argued that Instagram is used for bragging and not for study purposes:

P7: *"You say Instagram is for bragging. I can brag about my marks. Yes, I got 85%, next test you brag I got 80%, we can brag about that."*

One lecturer said that:

P8: *"Facebook, Twitter and Instagram, most lecturers are not used to those and they are not comfortable with them. So for me it's WhatsApp."*

Other social media platforms like Whiteboard and podcasts were mentioned by the lecturers, while the students did not mention anything about these platforms. The lecturers believed that if teaching and learning is to be digitalised, interactive boards may be used as they are multifunctional and innovative. Google was mentioned by the students, even though they questioned the authenticity of the information posted on it.

Based on their experiences, some lecturers did not give credit to such information and wanted them to use prescribed books instead. Conversely, the lecturers did not say much about using Google in teaching and learning.

This is what one lecturer had to say about Whiteboard, while the students said nothing about interactive boards during their focus groups:

P9: *“I’ve seen somewhere it’s called a whiteboard. Then lecturer from that particular University and the students are attending at different campuses. So it won’t be necessary for us to attend now and then. They can have contact with them throughout that Whiteboard and submit whatever they have to.”*

As stated, there were variations between the lecturers’ and the students’ perceptions of social media platforms. In terms of podcasts, one lecturer said:

P10: *“I stand to be corrected. There is this one where you can make podcasts, I heard it being used on Kaya FM where you can tell your story whatever it is that you are broadcasting or doing, and then people can later access it, if they had missed your show. Or you send them a link and then they can access that information later”*

When it comes to Google, lecturers did not have much to say, until one recalled a workshop they recently attended. This is what that participant had to say:

P11: *“Also thinking Google making use of Google that Dropbox. The one we learnt recently where you could Google in the Google Drive, where we could communicate via Google and content would be posted in that space, and only specific people that are targeted to have the information can log in.”*

The students shared their experiences of using Google and what their lecturers had to say about Google as a learning tool:

P12: *“With Google can I answer based on an experience at our Nursing College, in a certain subject, there was a learning outcome that I didn’t understand from how they explained it in the book. So I googled it, and I found the information on Google. I*

studied it and I understood what they were saying on Google, and the learning outcome was asked in a test. I answered the way that Google was saying. When our scripts came back, I didn't get it correct. So I went to the lecturer and I asked her why did she mark me wrong while I wrote the correct thing, and she explained to me that I didn't explain it the way it is explained in the book. I told her that it is how Google explained it and she said, no, you must use your prescribed books to study, maybe add with Google, but don't study using Google. So don't let your basics be Google. So for me, Google cannot work because they'll tell you to use the prescribed book."

Next, the findings of this study are discussed. Based on the deliberations with both the lecturers and students, it was evident that there are several different social media platforms available in the digital world. Different views were noted from the two groups. The discussions are based on the major findings from phase 1.

5.5 DISCUSSIONS OF THE FINDINGS

The findings of phase 1 of this study were summarised in Table 5.1 (phase 1.1) and Table 5.2 (phase 1.2). Four major themes were developed for each phase. The themes are somewhat similar as they addressed similar concerns, even though participants from each phase used different phrases. The major themes reflected participants' existing knowledge of communication platforms and advantages thereof; existing views related to the implementation of social media platforms in education and training; barriers to the implementation of social media platforms in teaching and learning; and an outline of preferred types of social media platforms that might be used in teaching.

5.5.1 Existing knowledge of communication platforms and advantages thereof

Based on the results of this study, the participants seemed well informed about technology. They appeared to be keeping current with new developments in the digital world. The participants mentioned different ways that social media platforms might be used in teaching and learning. It was evident that, in their views, social media platforms connect a large number of people together; be it families, communities, society, the

nation, and even globally. It was perceived as the fastest way of communication. Some participants felt that it is an ideal way to grow a business fast and easily.

The findings, in terms of understanding what social media platforms are, were in line with those of Pande et al (2016:276), who perceived social media as a digital way of communication and an information-sharing centre that connects different people from varying walks of life. Voorveld, Van Noort, Muntinga and Bronner (2018:46) revealed that social media platforms are a way of remaining up to date with information, and it is a convenient and necessary way to communicate with family and friends. These findings are similar to the findings of this study.

5.5.2 Existing views related to the implementation of social media platforms in education and training

In view of the findings, participants from one of the Nursing Colleges claimed that their Nursing College had already implemented some social media platforms in teaching and learning. They argued that there are some developments with regard to challenges around networks and Wi-Fi. Their Nursing College was installing improved optic fibres to ensure that the system works effectively. Participants from this Nursing College alluded to the fact that access to such platforms made their schoolwork easier. They were able to connect with their lecturer through different modes of communication. Thus, they welcomed the idea of digitalisation and wished to have stakeholders come on board with funds; more money is needed to get this system fully functional.

On the contrary, there was a minority group of participants from the other two Nursing Colleges who argued that there is still a long way to go in getting the correct equipment to get digitalisation up and running.

According to Bond et al (2018:9), in their study of digital transformation in German higher education, it was found that lecturers were using digitalisation for class enrolment, planning, uploading of study content, and student promotion. The students were found to be primary consumers and users of the internet and digital tools. This is in line with the findings of this study, as the students found social media more

convenient and could use it for anything that comes their way. In a different study on the impact of social media in the health field, it was found that medical health researchers, public health researchers, animal welfare and genomics are sharing in improvements generated by the researchers on social media with which citizens interact (Pulido, Rendondo-Sama, Sorde-Marti & Flecha 2018:17). The researchers were of the view that similarly academic lessons might be shared in some of the secured social media platforms, as suggested in the findings of this study.

5.5.3 Barriers to the implementation of social media platforms in teaching and learning

In terms of finance, the participants felt that it might hinder accessibility if social media platforms were to be implemented at this stage, unless government and other funders come on board. In some Nursing Colleges, the accessibility of digital resources is a scarce commodity, and the students and personnel's proficiency in basic computer literacy skills are lacking.

The lecturers and the student nurses both viewed this challenge as an obstacle. This might distort the intended purpose of keeping abreast with the developments of the 21st century. Instead, the lack of finance might compromise the quality of teaching and learning as most students will be left out of this process. Only the minority group who are able to afford their gadgets will benefit from this approach.

Most of the participants were concerned about funding for equipment to get the social media platform running for everyone in the Nursing College. They were concerned about the infrastructure as the current venues can accommodate a limited number of students. The other challenge that was identified was human resources. According to the participants, the Nursing Colleges do not have adequate ICT personnel, and the current ones are not very knowledgeable. They claimed to be unable to get assistance from them, and they wondered what would happen if ICT personnel had to assist lecturers and students at the same time.

Lecturers and students were concerned about the ageing population of lecturers and whether they keep up with technological developments in the 4IR. Another concern

was some of the students coming from disadvantaged communities; they might experience a challenge in finding their way around gadgets in the digitalised world.

The accessibility of internet connections was mentioned and the extent to which Wi-Fi will be available, since data is expensive and users need the internet to access social media platforms. They recommended social media platforms that could also be downloaded and enable users to access information without internet connections. In light of the disadvantages, participants questioned the destructive nature of social media platforms. They called for stringent measures of control so that the focus is only on academic matters.

A few of the participants argued that not everything posted on the internet is authentic, correct and reliable. It is therefore advisable for lecturers to guide students on different websites they would recommend.

These findings are not different from those of Islam et al (2015:102), who researched digitalisation in higher education in African countries. They found that African countries still experience challenges in implementing e-teaching and learning successfully, mostly due to poor infrastructure and the unavailability of resources. In South Africa, Bagarukayo and Kalema (2015:171) evaluated e-learning usage in South African universities and reported several similar challenges in terms of infrastructure constraints, staffing issues, learner issues, pedagogical issues, lack of resources, shortage of ICT skills, and user penetration.

5.5.4 An outline of preferred types of social media platforms

Based on the findings of this study, participants seemed to have substantial knowledge of different types of social media platforms. The most commonly used and best-known social media platforms were discussed based on their own understanding.

WhatsApp was the most popular platform for communication. According to the participants, it allows its users to communicate and share information with individuals and groups instantly.

YouTube was viewed as the world largest video-sharing social networking site. It allows users to upload their work, and they can even develop their own YouTube channel. YouTube was considered a valuable platform for uploading videos, as repetitively watching lessons might increase students' understanding of content and will not be limited to school hours only.

Facebook was favoured for its use to accommodate the Nursing College as a whole and its multi-channel approach. It could accommodate the nursing practica lessons and theoretical aspects of nursing. It could also serve as a channel for mass communication.

A learner management system was perceived as a way to go as it provides privacy and accommodates most schoolwork. It could reduce class attendance period as the whole day in class was perceived as physically and mentally exhausting.

Twitter was explained as a social networking site that allows its users to post short text messages. Participants argued that it cannot be used as a teaching and learning tool, but rather for the marketing of businesses and socialisation.

Skype was described as a popular communication site that uses voice calls, video calls, video conferencing and texting. Some participants argued that it requires good network connections for it to be effective. Others complained about the long process that users need to follow in order to Skype. Participants had different opinions and some perceived it as a good teaching strategy that would allow them to connect with one another despite their location.

Instagram was considered a unique social network platform that was essentially launched for the sharing photos and videos. Participants disputed the idea of using it for teaching and learning. Some participants referred to it as a social network for bragging.

Google was seen as a social networking platform that allows its users to stay connected and share their projects. Students were of the view that lecturers should

give them clear directions on which website to use for information searching, as not everything that is posted on Google is scientifically proven.

The findings of this study are in line with findings from a study on the advances in social media research in terms of the most popular social sites' applications, their benefits and disadvantages (Kapoor, Tamilmani, Rana, Patil, Dwivedi & Nerur 2017:532).

The next section of this study concludes the qualitative analysis phase. Voorveld et al (2018:45), in their study of engagement in social media and social advertising, revealed that each social media platform is experienced differently, even though there are some similarities. Facebook, Twitter, Google and Instagram were the highest-ranking social media platforms. Herhold, a designer and reporter on social media digital marketing trends, reported in the Manifest Newspaper (2018:02) about a survey conducted with 627 social media consumers. The findings of that survey revealed that in 2018, about 63% of consumers used YouTube, 61% used Instagram, 58% used Snapchat, 52% used Facebook, and 36% used Twitter. The findings of this study agree, as Twitter and Instagram were also less preferred social media platforms to YouTube and Facebook due to negative emotional insults associated with these platforms.

5.6 CONCLUSION

Based on the findings of this study, it is evident that participants in the nursing fraternity are willing to embrace the technological development of the 21st century. The students acknowledged that they spend most of their time using electronic gadgets. They shared that they might as well use them for educational purposes, even though they could be seen as distracting, at times. The students and the lecturers were of the opinion that stringent control measures must be in place to maintain order, and discipline should be enforced according to set protocols.

The Department of Health, the Department for Higher Education and Training, and all stakeholders must come on board to fund this system. Most of the funding must be used to restructure the infrastructure to soothe multi-approach teaching strategies,

facilitate the skills upgrading of students, lecturers and ICT personnel, and for the purchasing of digital equipment to improve proficiency.

Seemingly, in terms of the types of social media platforms that might be used, participants felt that WhatsApp, Facebook, YouTube, blogs and student portals or a learner management system could be ideal and relevant social media platforms. They recommended that these social media platforms be implemented in teaching and learning once all identified challenges were resolved.

The findings of this phase of the study were used to finalise the development of the quantitative tool. The next chapter presents the final development of the quantitative data collection tool and a discussion on the quantitative data collected from both the lecturers and the students.

CHAPTER 6

PHASE 2: QUANTITATIVE DATA ANALYSIS, PRESENTATION AND INTERPRETATION

6.1 INTRODUCTION

This chapter presents the results of the data collected as outlined in Chapter 4, followed by the data analysis. The purpose of this study was to develop a conceptual teaching and learning model, using social media platforms to integrate nursing theory and practice. Two sets of questionnaires, each with a section A up to section H, were developed (refer to Annexures G1 and G2). The first questionnaire was developed for the basic nursing students in three Public Nursing Colleges in Gauteng province. The second questionnaire was for the lecturers at the same Nursing Colleges.

The following objectives were addressed in this chapter:

- Explore student nurses' and lecturers' perceptions regarding the possibility of implementing social media in teaching and learning, to integrate theory and practice.
- Describe the feasibility of the successful implementation of social media in teaching and learning at Public Nursing Colleges.
- Identify and describe recommendations regarding the use of social media as an additional supportive tool for teaching and learning, both in theory and practice.

6.2 DATA ANALYSIS

Data, which were collected using questionnaires (refer to Annexure G), were analysed, presented and interpreted. The researcher's interpretation was supported by relevant literature. Six hundred and ninety-six student nurses from three public Nursing Colleges in Gauteng province, who were in the first and second level of their basic training, and 56 lecturers teaching these students were the respondents.

Data analysis is the process of editing and reducing accumulated data to a manageable size, developing summaries, and applying statistical techniques (Cooper & Schindler 2014:655). Quantitative data analysis is performed through appropriate inferential statistics tests based on the research objectives and variables to provide numbers without a rationale behind those numbers (Creswell & Clark 2018:211).

The researcher chose a descriptive quantitative research design for this study. Descriptive research involves gathering data that describe events and then organising, tabulating, depicting and describing the collected data. Visual aids, such as graphs and charts, are used to assist the reader in understanding the data distribution (Burns & Grove 2013:260).

The respondents' perceptions of the use of social media platforms in teaching and learning were described to analyse the feasibility of implementing social media platforms in Public Nursing Colleges in Gauteng province. In this study, inferential analysis was used to allow for the generalisation of the results to the population. Descriptive analysis was deployed to summarise the data and find patterns for the presentation of results. Descriptive statistics, using frequencies, were used to describe the data, and the results were presented in graphs and tables.

The researcher worked with a statistician who analysed the data using Stata 16 software. A comparison of the responses was undertaken using the two-sample Wilcoxon rank-sum (Mann-Whitney) test; this is an equivalent non-parametric procedure used for comparing two non-normal samples. The two samples that were compared were the 696 responses from the student nurses and the 56 responses from the lecturers. The researcher analysed the open-ended questions descriptively and quantitatively to address respondents' opinions regarding the implementation of social media platforms in teaching and learning.

SECTION A

Section A addressed the respondents' demographic data, which included respondents' age and gender. The respondents were asked to further respond to questions about their educational qualifications, the types of electronics they owned, their level of computer expertise, and their preferences or ranking of different social

media platforms and what they use social media platforms for. The students were asked to indicate their level of training, and lecturers indicated the level of students they were teaching.

SECTION B

Section B addressed the frequency with which the respondents were on social media platforms (daily, weekly, monthly) or if they had never used social media platforms. They further had to indicate the number of hours they spent on social media, rated between 3 hours per day, 6 hours per day, 9 hours per day, or over 12 hours per day.

SECTION C

Section C addressed the different methods respondents used to obtain educational information. A list of 11 items was provided in a table format for the respondents to indicate their preferences on a Likert scale. Preferences were indicated either as always, sometimes, seldom, or never.

SECTION D

Section D covered the respondents' perceptions of the feasibility of using social media platforms in teaching and learning. Indicators, on a Likert scale, were identified as strongly agree, agree, disagree, and strongly disagree. This section consisted of 20 statements.

SECTION E

Section E addressed the possible challenges that could be experienced by the respondents if social media platforms were to be used in teaching and learning. This section consisted of 16 statements. The Likert scale indicators were strongly agree, agree, disagree, and strongly disagree.

SECTION F

This section addressed different teaching strategies, and the respondents were asked to indicate the types of teaching strategies they would prefer to use in their Nursing Colleges.

SECTION G

This section focused on factors that enhance the successful implementation of digital e-learning. The section consisted of 17 statements, answered on a Likert scale, as strongly agree, agree, disagree, and strongly disagree.

SECTION H

Section H addressed respondents' opinions regarding the implementation of social media platforms in teaching and learning. They were asked to list policies that might guide the use of social media platforms in teaching and learning. The respondents were also asked to list the anticipated challenges that might hinder the implementation of social media platforms in teaching and learning. They then provided recommendations on the use of social media platforms in teaching and learning. The following section presents the results of the study's quantitative phase.

6.3 DATA ANALYSIS PHASE 2.1: STUDENT NURSES

The data collected from 696 first and second-year basic nursing students for the academic years 2018, 2019 and 2020, registered in the three Public Nursing Colleges under study, were analysed.

SECTION A

6.3.1 Demographic data (N = 696)

The demographic data included respondents' age and gender.

6.3.1.1 Age

Table 6.1 indicates the respondents' age distribution.

Table 6.1: Respondents' age (N = 696)

Age	Frequency (n)	Percentage %
18 years – 20 years	28	4.0
21 years – 25 years	298	42.8
26 years – 30 years	157	22.5
31 years – 35 years	83	11.9
Over 36 years	130	18.8
Total	696	100

The results indicated that 4.0% (n = 28) of the respondents were 18 – 20 years old, 42.8% (n = 298) were 21 – 25 years old, 22.6% (n = 157) were 26 – 30 years old, 11.9% (n = 83) were 31 – 35 years old, and 18.8% (n = 130) were 36 years and older. The majority of the students were between 21 and 25 years of age. The findings of this study are in line with higher education statistics in South Africa, where the majority of learners (78.6%) are reportedly between 20 – 24 years old (Stats SA Report 92 – 01 – 05, 2017:37). Based on the results, 69.3% (4.0% + 42.8% + 22.5%) of respondents were under the age of 30 years.

6.3.1.2 Gender

Figure 6.1 indicates the respondents' gender.

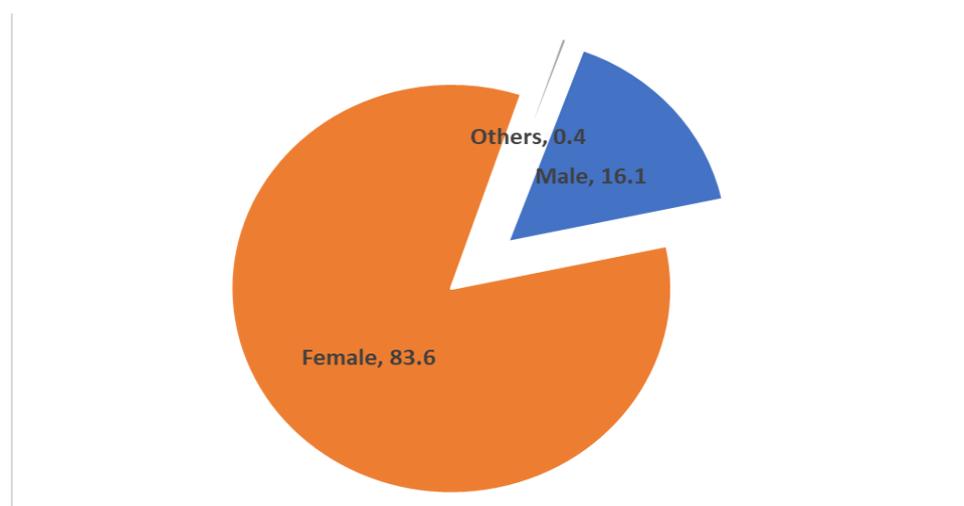


Figure 6.1: Gender (N = 696)

The results showed that 83.6% (n = 582) of the respondents were female, 16.1% (n = 112) were male, and 0.4% (n = 2) were 'other' groups. The gender distribution reflected

a similar pattern as that of students in training in Gauteng province, where 81% (n = 3 829) were female, and 19% (n = 908) were male (South African Nursing Council Statistics 2016:2). The results reflect gender distribution as being predominantly female, as can be seen in Figure 6.1.

6.3.2 Years since respondents passed grade 12

Figure 6.2 shows when the respondents' passed grade 12.

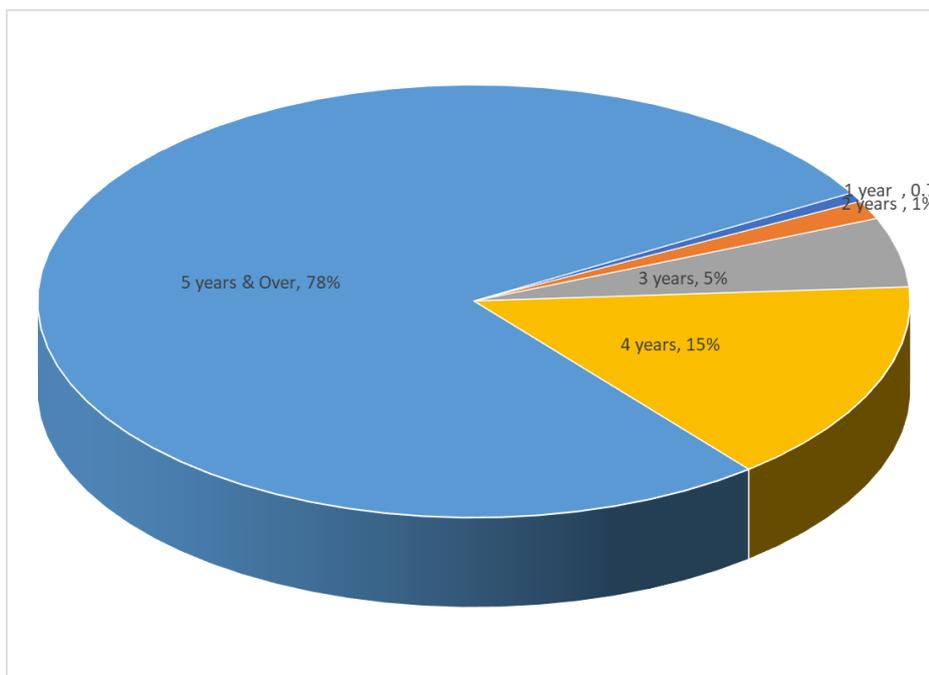


Figure 6.2: Year of passing grade 12 (N = 696)

The results showed that 0.7% (n = 5) of the respondents passed grade 12 a year ago. One percent (n = 10) passed grade 12 two years ago. Five percent (n = 36) passed three years ago, 15% (n = 106) passed four years ago. Moreover, the results showed that 78% (n = 539) of the respondents completed their grade 12 over five years ago. It is evident that the majority of the students in the Nursing Colleges under study waited longer than five years before they registered for nursing courses. It is not known what contributed to this delay as it was not part of the objectives in this study. It could be interesting to identify the factors related to these results.

6.3.3 Ownership of electronics

In this era of the 4IR, digital natives are exposed to various gadgets that might be used for personal, educational or business reasons. Table 6.2 illustrates the different types of gadgets owned by the respondents in this study.

Table 6.2: The number of students who own electronics (N = 696)

Electronics	Frequency (n)	Percentage %
Smartphone	242	34.8
Tablet	13	1.9
Computer	2	0.3
Smart/Tablet	52	7.5
Smart/Laptop	239	34.4
Smart/Tablet/Laptop	94	13.5
Smart/Tablet/Computer	4	0.6
Smart/Laptop/Computer	14	2.0
Smart/Computer	11	1.6
Laptop	10	1.4
Tablet/Computer	2	0.3
Non-Response	13	1.7
Total	696	100

Of the respondents, 34.8% (n = 242) owned smartphones, 34.4% (n = 239) had smartphones and laptops, 13.5% (n = 94) had smartphones, tablets and laptops, 7.5% (n = 52) had smartphones and a tablet, and approximately 2% (n = 14) had either smartphones, laptops or computers. Two percent (rounded from 1.7%) (n = 13) of the respondents gave no response. The results revealed that most of the respondents (37.4%; n = 260) owned a combination of a smartphone, laptop and computer. The results of this study concur with the findings presented in a study on technology and social media use in higher education; it was reported that people choose to buy smartphones and laptops for personal use (Aldahdouh, Nokelainen & Korhonen 2020:11).

6.3.4 Level of computer expertise

Figure 6.3 presents the results of respondents' level of knowledge and skills in relation to the use of ICT.

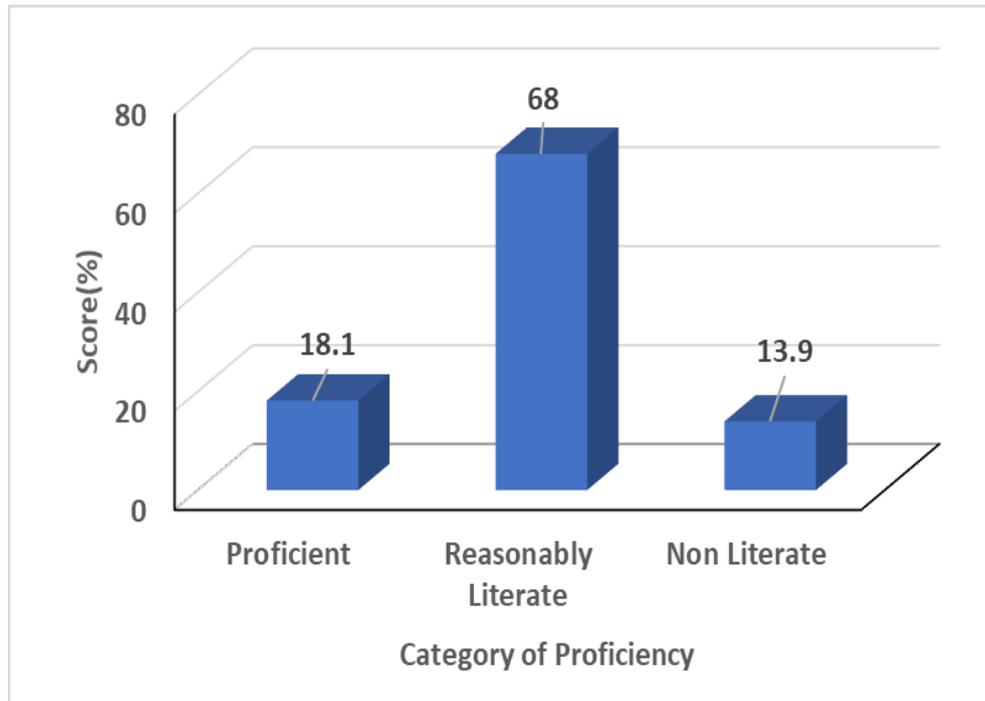


Figure 6.3: Students' level of computer expertise (N = 696)

The results showed that 18.1% (n = 126) of the respondents were proficient in computer literacy, 68% (n = 473) were reasonably computer literate, and 13.9% (n = 97) were computer illiterate. The level of computer expertise showed that the respondents were relatively literate in the use of computers. The findings support those of Spante, Hashemi, Lundin and Algers (2018:3), who found that most students are digital natives and computer literate. In this study, 86% (n = 599) of the respondents reported being computer literate.

6.3.5 Distribution of computer literacy skills

Figure 6.4 presents the distribution of respondents' computer literacy skills.

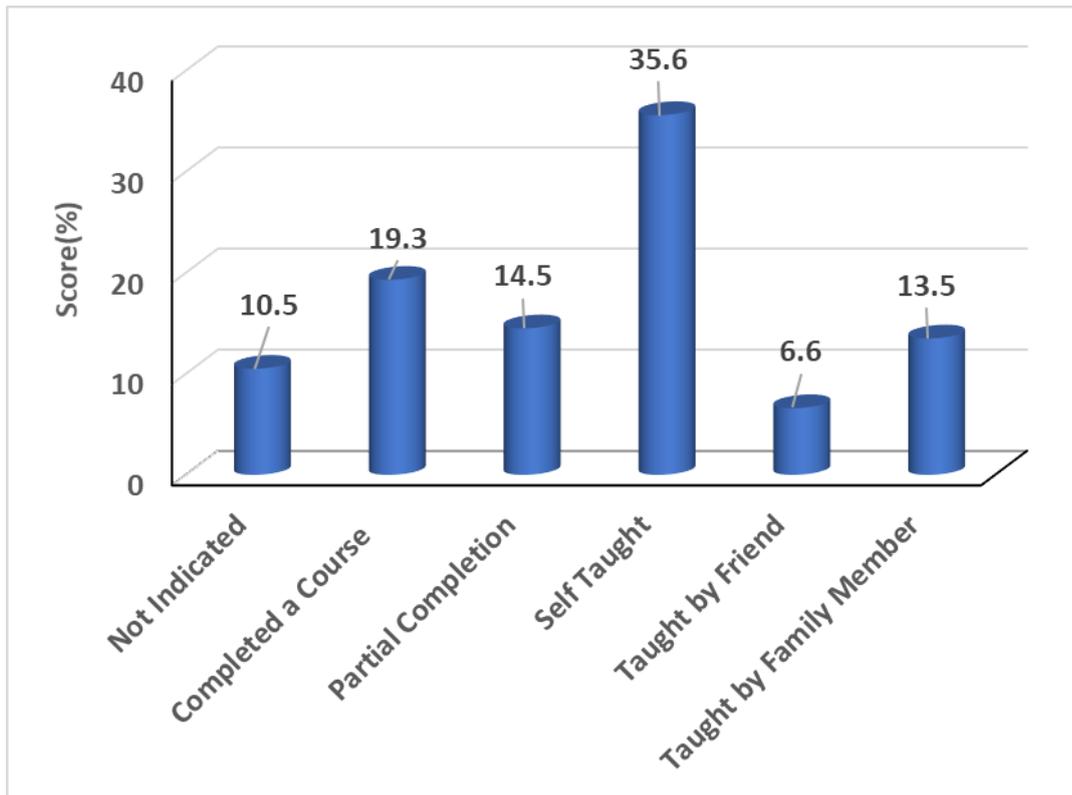


Figure 6.4: Distribution of computer literacy (N = 696)

In Figure 6.4, the results indicated that 10.5% (n = 73) of respondents did not have any form of computer literacy, and only 19.3% (n = 134) of respondents completed a course in computer literacy; 14.5% (n = 101) of respondents partially completed a course in computer literacy; 35.6% (n = 248) of respondents taught themselves some computer skills; 6.6% (n = 46) of respondents were taught by their friends, and 13.5% (n = 94) were taught by their family members how to use a computer. Only 19.3% (n = 134) of the respondents had formal computer training.

6.3.6 Social media platform ranking

Table 6.3 indicates the respondents' ranking of social media platforms.

Table 6.3: Social media platform ranking (N = 696)

No	Platforms	Frequency (n)	Percentage %
1	WhatsApp	292	42.7
2	Google	198	28.4
3	YouTube	53	7.5
4	Facebook	34	4.7
5	Blog	32	4.5
6	Skype	28	4.0
7	Twitter	26	3.5
8	Zoom / Student Portal/ email/ Telegram/ TikTok	18	2.5
9	Instagram	15	2.2
	Total	696	100

The results in Table 6.3 showed that the majority of the respondents (42.7%; n = 292) ranked WhatsApp as the preferred type of social media platform; followed by 28.4% (n = 198) for Google and 7.5% (n = 53) for YouTube. Thirty-four (4.7%) respondents ranked Facebook as number four on the list, 4.5% (n = 32) ranked blogs as number five, Skype was ranked number six by 4% (n = 28) of the students, and 3.5% (n = 26) ranked Twitter as number seven. Eighteen (2.5%) respondents ranked Telegram, emails, Zoom, TikTok and a learner management system as number eight, and 2.2% (n = 15) ranked Instagram last. It is evident that the respondents preferred WhatsApp, Google and YouTube over other social media platforms. The results of this study reflect that students engaged in different social media platforms. Similarly, Bal and Bicen (2018:178) studied the purpose of students' social media use and found that there are different types of social media platforms that people engage in to communicate; either for academic, social or business reasons.

6.3.7 Main use of social media platforms

Table 6.4 indicates the primary uses of social media platforms.

Table 6.4: Main use of social media platforms (N = 696)

Main use of social media platforms	Frequency (n)	Percentage %
Working through educational-related packages	45	6.5
Working through social-related packages with others	54	7.8
Both social media and educational-related packages	595	85.5
Non-response	2	0.2
Total	696	100

Table 6.4 showed that the majority of respondents (85.5%; n = 595) claimed they use social media platforms for both educational and social packages. Fifty-four (7.8%) respondents indicated that they use social media platforms for social-related packages, and 6.5% (n = 45) indicated that they use them for educational-related packages. Only 0.2% (n = 2) of the respondents did not respond to the question. Based on the results, most people use social media platforms mainly for educational and social-related packages.

6.3.8 Student nurses' level of training

Table 6.5 indicates the respondents' level of training.

Table 6.5: Respondents' level of training (N = 696)

Level of your study	Frequency (n)	Percentage %
First-year basic student nurse	193	27.7
Second-year basic student nurse	503	72.3
Total	696	100

The results in Table 6.5 showed that most of the respondents (72.3%; n = 503) were in the second year of training, and the minority of the respondents (27.7%; n = 193) were in the first year of their training.

SECTION B

6.3.9 Time spent on different social media platforms

Table 6.6 shows the time respondents spent on different social media platforms.

Table 6.6: Time spent on different social media platforms (N = 696)

Social Media Platforms		Daily	Weekly	Monthly	Never	Frequency = n / Percent
1	WhatsApp	n = 675 (97.0%)	n = 8 (1.2%)	n = 6 (0.8%)	n = 7 (1.0%)	n = 696 (100%)
2	Facebook	n = 360 (51.7%)	n = 161 (23.1%)	n = 59 (8.5%)	n = 116 (16.7%)	n = 696 (100%)
3	Twitter	n = 127 (18.3%)	n = 102 (14.7%)	n = 73 (10.5%)	n = 394 (56.6%)	n = 696 (100%)
4	Blog	n = 11 (1.6%)	n = 43 (6.2%)	n = 62 (8.9%)	n = 580 (83.3%)	n = 696 (100%)
5	Google	n = 518 (74.4%)	n = 116 (16.7%)	n = 16 (2.3%)	n = 46 (6.6%)	n = 696 (100%)
6	YouTube	n = 266 (38.2%)	n = 276 (39.7%)	n = 90 (13%)	n = 64 (9.1%)	n = 696 (100%)
7	Skype /Video call	n = 84 (12.1%)	n = 152 (21.8%)	n = 144 (20.7%)	n = 316 (45.4%)	n = 696 (100%)
8	Instagram	n = 152 (21.8%)	n = 121 (17.4%)	n = 100 (14.4%)	n = 323 (46.4%)	n = 696 (100%)

Table 6.6 shows that the majority of the respondents (97%; n = 675) used WhatsApp daily, followed by 74.4% (n = 518) who used Google and the internet daily, while 51.7% (n = 360) indicated they used Facebook daily. Twitter was used by 18.3% (n = 127) of the respondents daily, those who blogged daily were 1.6% (n = 11), and 38.2% (n = 266) of the respondents used YouTube daily. The results showed that Skype or video calls were used by 12.1% (n = 84) daily, and 21.8% (n = 152) were on Instagram daily. The majority of the respondents used WhatsApp, Google, Facebook and YouTube more than any other social media platforms listed in Table 6.6. These findings concur with those of a study on the rise of social media platforms by Ortiz-Ospina (2019:2),

which revealed that young people are more likely to use social media than older people.

6.3.10 Number of hours spent daily on different social media platforms

Table 6.7 showed the results of the hours respondents spent daily on different social media platforms.

Table 6.7: Number of hours spent daily on different social media platforms (N = 696)

Social Media Platforms		12 Hours and more	9 Hours	6 Hours	3 Hours and less	Frequency = n / Percent
1	WhatsApp	n = 360 (51.7%)	1 n = 38 (19.8%)	n = 69 (10%)	n = 129 (18.5%)	n = 696 (100%)
2	Facebook	n = 120 (17.2%)	n = 111 (16%)	n = 106 (15.2%)	n = 359 (51.6%)	n = 696 (100%)
3	Twitter	n = 40 (5.8%)	n = 42 (6%)	n = 64 (9.2%)	n = 550 (79%)	n = 696 (100%)
4	Blog	n = 6 (0.9%)	n = 12 (1.7%)	n = 22 (3.2%)	n = 656 (94.2%)	n = 696 (100%)
5	Google	n = 104 (14.9%)	n = 147 (21.1%)	n = 160 (23%)	n = 285 (41%)	n = 696 (100%)
6	YouTube	n = 74 (10.6%)	n = 106 (15.2%)	n = 175 (25.2%)	n = 341 (49%)	n = 696 (100%)
7	Skype /Video call	n = 14 (2%)	n = 32 (4.6%)	n = 61 (8.8%)	n = 589 (84.6%)	n = 696 (100%)
8	Instagram	n = 45 (6.5%)	n = 63 (9.1%)	n = 78 (11.2%)	n = 510 (73.2%)	n = 696 (100%)

Most of the respondents (51.7%; n = 360) spent more than 12 hours using WhatsApp daily, followed by 17.2% (n = 120) on Facebook and 14.9% (n = 104) on Google and the internet. The respondents who tweeted more than 12 hours per day was 5.8% (n = 40), and those who blogged for more than 12 hours per day were 0.9% (n = 6). YouTube was used more than 12 hours in a day by 10.6% (n = 74) of the respondents, Skype was used by 2% (n = 14), and Instagram by 6.5% (n = 45) of respondents.

Most respondents seemed to favour WhatsApp (51.7%) by reportedly spending 12 hours and more each day using this platform. Of the respondents, 14.9% used Google daily for 12 hours and more. Facebook stood at 17.2% of users spending 12 hours and more daily. In a study on the rise of social media by Ortiz-Ospina (2019:4), the results revealed that the daily hours spent on digital media (digital images, videos, web pages and social media platforms) by young people in 2016 was an average of six hours, mostly on their mobile phones and four hours on desktops.

SECTION C

6.3.11 Respondents' preferred way of obtaining educational information: Perception measure for educational information

Table 6.8 reflects the different ways respondents obtained educational information.

**Table 6.8: Respondents' preferred way of obtaining educational information
(N = 696)**

Source of educational information		Always	Sometimes	Seldom	Never	Frequency = n / Percent
1	Obtaining information from the textbooks	n = 561 (80.6%)	n = 114 (16.4%)	n = 10 (1.4%)	n = 11 (1.6%)	n = 696 (100%)
2	Obtaining information from the CD-ROM	n = 30 (4.3%)	n = 177 (25.4%)	n = 179 (25.8%)	n = 310 (44.5%)	n = 696 (100%)
3	Obtaining information from the e-books	n = 196 (28.2%)	n = 254 (36.5%)	n = 120 (17.2%)	n = 126 (18.1%)	n = 696 (100%)
4	Obtaining information from the audiotapes	n = 132 (19%)	n = 247 (35.5%)	n = 161 (23.1%)	n = 156 (22.4%)	n = 696 (100%)
5	Obtaining information from videotapes	n = 225 (32.3%)	n = 305 (43.8%)	n = 79 (11.4%)	n = 87 (12.5%)	n = 696 (100%)
6	Obtaining information from the internet and Google	n = 443 (63.6%)	n = 195 (28%)	n = 31 (4.5%)	n = 27 (3.9%)	n = 696 (100%)
7	Participating in online chatting with	n = 290 (41.7%)	n = 266 (38.2%)	n = 80 (11.5%)	n = 60 (8.6%)	n = 696 (100%)

Source of educational information		Always	Sometimes	Seldom	Never	Frequency = n / Percent
	other students for educational purpose					
8	Participating in video conferencing with other students for educational purpose	n = 138 (19.8%)	n = 225 (32.3%)	n = 161 (23.1%)	n = 172 (24.8%)	n = 696 (100%)
9	Participating in video conferencing with lecturers for educational purpose	n = 161 (23.1%)	n = 215 (30.9%)	n = 137 (19.7%)	n = 183 (26.3%)	n = 696 (100%)
10	Exchange information with other students by using different social media platforms	n = 406 (58.2%)	n = 205 (29.5%)	n = 40 (5.8%)	n = 45 (6.5%)	n = 696 (100%)
11	Exchange educational information with lecturers by using different social media platforms	n = 301 (43.2%)	n = 267 (38.3%)	n = 83 (12%)	n = 45 (6.5%)	n = 696 (100%)

The results reflected in Table 6.8 revealed that the majority of the respondents (80.6%; n = 561) always obtained educational information from their textbooks, 16.4% (n = 114) sometimes obtained information from textbooks, and 1.4% (n = 10) seldom obtained information from textbooks, while 1.6% (n = 11) never used textbooks for educational information. The respondents who indicated that they obtained educational information from CD-ROM was 4.3% (n = 30), 25.4% (n = 177) used CD-ROM sometimes, 25.8% (n = 179) seldom used CD-ROM, and 44.5% (n = 310) had never used CD-ROM for educational information.

Of the respondents, 28.2% (n = 196) always obtained educational information from e-books, 36.5% (n = 254) used e-books sometimes, 17.2% (n = 120) seldom used e-books to obtain educational information, and 18.1% (n = 126) never used e-books. The respondents who always used audiotapes to obtain educational information was 19% (n = 132), those who sometimes used audiotapes was 35.5% (n = 247), 23.1% (n = 161) had seldom used audiotapes, and 22.4% (n = 156) had never used audiotapes to obtain educational information.

Moreover, 32.3% (n = 225) of the respondents always obtained educational information from videotapes, 43.8% (n = 305) obtained information from videotapes sometimes, 11.4% (n = 79) had seldom obtained information from videotapes, and 12.5% (n = 87) had never used videotapes to obtain educational information. The respondents who always obtained educational information from the internet/Google was 63.6% (n = 443), the respondent who sometimes obtained information from Google was 28% (n = 195), 4.5% (n = 31) had seldom obtained educational information from Google or the internet, and 3.9% (n = 27) had never obtained educational information from Google or the internet. The respondents who always participate in online chatting for educational purpose was 41.7% (n = 290), 38.2% (n = 266) participated sometimes, 11.5% (n = 80) seldom participated in online chatting for educational purposes, and only 8.6% (n = 60) never participated in online chatting for educational purposes.

Respondents indicated that 19.8% (n = 138) always made use of video conferencing with other students, 32.3% (n = 225) sometimes participated in video conferencing with fellow students, 23.1% (n = 161) seldom participated, and 24.8% (n = 172) never participated in video conferencing with fellow students. The respondents who always participated in video conferencing with their lecturers was 23.1% (n = 161), those who sometimes participated was 30.9% (n = 215), respondents who seldom participated in video conferencing with the lecturers was 19.7% (n = 137), and those who never participated was 26.3% (n = 183).

Some respondents (58.2%; n = 406) indicated that they always obtained information by exchanging knowledge with other students on social media platforms, 29.5% (n = 205) sometimes exchanged information with fellow students on different social media

platforms, 5.8% (n = 40) seldom exchanged knowledge on social media platforms with other students, and only 6.5% (n = 45) had never used social media platforms to exchange information with other students. Of the respondents, 43.2% (n = 301) always exchanged information with lecturers using social media platforms, 38.3% (n = 267) sometimes exchanged educational information with lecturers using social media platforms, 12% (n = 83) seldom exchanged educational information with lecturers on social media platforms, and 6.5% (n = 45) had never exchanged educational information with lecturers using social media platforms.

Table 6.8 indicated the order of preference of the various channels respondents used to obtain educational information. It was determined that printed format was still the most preferred way of obtaining educational information. These findings concur with the study of Mizrachi (2015:736), which was conducted with undergraduate students at the University of California, Los Angeles. It was found that students preferred reading their course material in print format over electronics, even though the cost of printed material and the convenience of electronic access often determined their behaviour. Students were more likely to read shorter and lighter texts electronically; that is, information that is supplementary or not core to the class discussion or assignment (Mizrachi 2015:736). This study's results imply that even though the students were open to searching for information elsewhere, they still preferred to obtain most of their educational information from textbooks.

SECTION D

6.3.12 Feasibility of the use of social media platforms in learning

Table 6.9 presents the results of social media platforms and their impact on learning.

Table 6.9: Social media platforms that might enhance learning (N = 696)

Use of social media platforms benefitted me by		Strongly agree 1	Agree 2	Disagree 3	Strongly disagree 4	Frequency = n / Percentage
1	Enhancing my motivation to learn	n = 279 (40.1%)	n = 292 (42%)	n = 87 (12.5%)	n = 38 (5.4%)	n = 696 (100%)
2	Giving me a sense of being in control of my own learning	n = 267 (38.4%)	n = 309 (44.4%)	n = 93 (13.4%)	n = 27 (3.8%)	n = 696 (100%)
3	Enabling me to select the time for my study	n = 274 (39.4%)	n = 287 (41.2%)	n = 104 (14.9%)	n = 31 (4.5%)	n = 696 (100%)
4	Enabling me to establish my own pace of learning	n = 288 (41.4%)	n = 268 (38.5%)	n = 110 (15.8%)	n = 30 (4.3%)	n = 696 (100%)
5	Enabling me to discontinue learning when my concentration wavers	n = 226 (32.5%)	n = 296 (42.5%)	n = 132 (19%)	n = 42 (6%)	n = 696 (100%)
6	Enabling me to repeatedly study sections of the learning material until I gain understanding	n = 328 (47.1%)	n = 263 (37.8%)	n = 86 (12.4%)	n = 19 (2.7%)	n = 696 (100%)
7	Giving me the freedom to make mistakes and learn from it	n = 237 (34.1%)	n = 321 (45.1%)	n = 115 (16.5%)	n = 23 (3.3%)	n = 696 (100%)
8	Decreasing pressure placed on me by other students	n = 204 (29.3%)	n = 258 (37.1%)	n = 190 (27.3%)	n = 44 (6.3%)	n = 696 (100%)
9	Decreasing pressure placed on me by lecturers	n = 203 (29.2%)	n = 263 (37.8%)	n = 191 (27.4%)	n = 39 (5.6%)	n = 696 (100%)
10	Enabling me to access information	n = 419 (60.2%)	n = 211 (30.3%)	n = 53 (7.6%)	n = 13 (1.9%)	n = 696 (100%)
11	Enabling me to store and retrieve information	n = 429 (61.6%)	n = 208 (29.9%)	n = 49 (7%)	n = 10 (1.4%)	n = 696 (100%)

Use of social media platforms benefitted me by		Strongly agree 1	Agree 2	Disagree 3	Strongly disagree 4	Frequency = n / Percentage
12	Enabling me to develop my critical thinking skills	n = 287 (41.2%)	n = 316 (45.4%)	n = 80 (11.5%)	n = 13 (1.9%)	n = 696 (100%)
13	Enabling me to be actively involved in learning	n = 262 (37.6%)	n = 306 (44%)	n = 105 (15.1%)	n = 23 (3.3%)	n = 696 (100%)
14	Enabling me to become an independent student	n = 320 (46%)	n = 292 (42%)	n = 71 (10.2%)	n = 13 (1.8%)	n = 696 (100%)
15	Enable me and other students to engage in collaborative learning	n = 246 (35.3%)	n = 333 (47.8%)	n = 98 (14.1%)	n = 19 (2.7%)	n = 696 (100%)
16	Enable me to keep up to date with current developments in health sciences	n = 301 (43.2%)	n = 308 (44.3%)	n = 73 (10.5%)	n = 14 (2.0%)	n = 696 (100%)
17	Making it exciting to discover new knowledge	n = 313 (45%)	n = 282 (40.5%)	n = 79 (11.3%)	n = 22 (3.2%)	n = 696 (100%)
18	Relieving the boredom which I previously experienced during exposure to traditional teaching	n = 200 (28.7%)	n = 268 (38.6%)	n = 168 (24.1%)	n = 60 (8.6%)	n = 696 (100%)
19	Enabling me to experience satisfaction during the learning process	n = 192 (27.6%)	n = 349 (50.1%)	n = 126 (18.1%)	n = 29 (4.2%)	n = 696 (100%)
20	Enabling me to develop my problem-solving skills	n = 243 (34.9%)	n = 329 (47.3%)	n = 97 (13.9%)	n = 27 (3.9%)	n = 696 (100%)

Table 6.9 reflects that 40.1% (n = 279) of the respondents strongly agreed that the use of social media platforms motivates them to learn, 42% (n = 292) were in

agreement, while 12.5% (n = 87) disagreed that using social media platforms motivates them to learn, and 5.4% (n = 38) disagreed strongly. The results revealed that 38.4% (n = 267) strongly agreed that using social media platforms gives them a sense of control, 44.4% (n = 309) agreed, 13.4% (n = 93) disagreed, and 3.8% (n = 27) strongly disagreed that they get a sense of being in control when learning while using social media platforms.

Some (39.4%; n = 274) respondents strongly agreed that using social media platforms for learning enabled them to select the best time for their studies, and 41.2% (n = 287) agreed; however, 14.9% (n = 104) disagreed and 4.5% (n = 31) strongly disagreed. Two hundred and eighty-eight (41.4%) respondents strongly agreed that they are able to pace their studies when using social media platforms for learning, 38.5% (n = 268) agreed with them, 15.8% (n = 110) disagreed, and 4.3% (n = 30) strongly disagreed.

As reflected in Table 6.9, 32.5% (n = 226) of respondents strongly agreed that the use of social media platforms enable them to discontinue learning when their concentration wavers, 42.5% (n = 296) agreed, 19% (n = 132) disagreed, and 6% (n = 42) strongly disagreed. Some (47.1%; n = 328) respondents strongly agreed that using social media platforms for studying enabled them to repeatedly study sections of their learning content until they gained understanding, 37.8% (n = 263) agreed, 12.4% (n = 86) disagreed, and 2.7% (n = 19) strongly disagreed with this statement.

Respondents (34.1%; n = 237) strongly agreed that they get freedom of making mistakes and learn from them when using social media platforms for learning, 45.1% (n = 321) agreed, 16.5% (n = 115) were in disagreement, and 3.3% (n = 23) strongly disagreed. Of the respondents, 29.3% (n = 204) strongly agreed, 37.1% (n = 258) agreed, 27.3% (n = 190) disagreed, and 6.3% (n = 44) strongly disagreed that using social media platforms when studying decreased the pressure placed on them by other students. Conversely, 29.2% (n = 203) of the respondents strongly agreed that using social media platforms for learning decreased the pressure placed on them by their lecturers, 37.8% (n = 263) were in agreement, 27.4% (n = 191) disagreed, and 5.6% (n = 39) strongly disagreed.

The results of this study revealed that 60.2% (n = 419) of the respondents strongly agreed that they are able to get information from social media platforms, 30.3% (n = 211) agreed, 7.6% (n = 53) disagreed, and 1.9% (n = 13) strongly disagreed with this statement. Four hundred and twenty-nine (61.6%) respondents strongly agreed that they are able to store and retrieve information from social media platforms, 29.9% (n = 208) agreed, 7% (n = 49) disagreed, and 1.4% (n = 10) strongly disagreed.

A number of respondents (41.2%; n = 287) strongly agreed that the use of social media platforms enabled them to develop critical thinking skills, 45.4% (n = 316) agreed, 11.5% (n = 80) disagreed, and 1.9% (n = 13) strongly disagreed. Only 37.6% (n = 262) of respondents strongly agreed that they were able to be actively involved in learning when using social media platforms, 44% (n = 306) agreed, 15.1% (n = 105) disagreed, and 3.3% (n = 23) strongly disagreed.

Some respondents (46%; n = 320) strongly agreed that they were able to become independent students through the use of social media for learning, 42% (n = 292) agreed, 10.2% (n = 71) disagreed, and 1.8% (n = 13) strongly disagreed that they were able to become independent students. Moreover, 35.3% (n = 246) strongly agreed that they were able to engage in collaborative learning with other students, 47.8% (n = 333) agreed, 14.1% (n = 98) disagreed, and 2.7% (n = 19) strongly disagreed. Several respondents (43.2%; n = 301) strongly agreed that they were able to get information on current developments in health science when using social media platforms, 44.3% (n = 308) agreed, 10.5% (n = 73) disagreed, and only 2% (n = 14) were in strong disagreement.

The results showed that 45% (n = 313) of the respondents strongly agreed that using social media platforms made them excited to discover new knowledge, 40.5% (n = 282) agreed, 11.3% (n = 79) disagreed, and 3.2% (n = 22) strongly disagreed. Two hundred (28.7%) respondents strongly agreed that they were relieved from the boredom they previously experienced during traditional teaching strategies, 38.6% (n = 268) agreed, 24.1% (n = 168) were in disagreement, and 8.6% (n = 60) strongly disagreed with this statement.

There were 27.6% (n = 192) of respondents who strongly agreed that they experienced satisfaction during the learning process when using social media platforms, 50.1% (n = 349) agreed, 18.1% (n = 126) of respondents disagreed, and 4.2% (n = 29) disagreed strongly that they experienced satisfaction in the use of social media platforms for learning purposes. Respondents (34.9%; n = 243) strongly agreed that they were enabled by the use of social media platforms to develop problem-solving skills, 47.3% (n = 329) agreed, 13.9% (n = 97) disagreed, and only 3.9% (n = 27) strongly disagreed.

From the presentation of these results, it is evident that some social media platforms might be useful in academic learning. These findings seem to be in agreement with the study conducted on “digital or printed textbooks: which do students prefer?” by Millar and Schrier (2015:173), which revealed that today’s students are quite comfortable with the use of techniques that appeal to visual learning styles.

SECTION E

6.3.13 Challenges experienced with the use of social media platforms

The challenges experienced by the respondents are presented in Table 6.10.

Table 6.10: Challenges experienced with the use of social media platforms (N = 696)

Challenges		Strongly agree 1	Agree 2	Disagree 3	Strongly disagree 4	Frequency = n / Percentage
1	I struggle to operate computer equipment	n = 58 (8.3%)	n = 123 (17.7%)	n = 300 (43.1%)	n = 215 (30.9%)	n = 696 (100%)
2	I struggle to operate on Blog	n = 130 (18.7%)	n = 313 (30.6%)	n = 220 (31.6%)	n = 133 (19.1%)	n = 696 (100%)
3	I struggle to operate on Facebook	n = 25 (3.6%)	n = 71 (10.2%)	n = 253 (36.4%)	n = 347 (49.8%)	n = 696 (100%)

Challenges		Strongly agree 1	Agree 2	Disagree 3	Strongly disagree 4	Frequency = n / Percentage
4.	I struggle to operate on Twitter	n = 71 (10.2%)	n = 127 (18.3%)	n = 217 (31.2%)	n = 281 (40.3%)	n = 696 (100%)
5.	I struggle to operate on WhatsApp	n = 18 (2.6%)	n = 25 (3.6%)	n = 204 (29.3%)	n = 449 (64.5%)	n = 696 (100%)
6.	I struggle to operate on Google	n = 16 (2.3%)	n = 26 (3.7%)	n = 206 (29.6%)	n = 448 (64.4%)	n = 696 (100%)
7.	I struggle to operate on YouTube	n = 22 (3.2%)	n = 39 (5.6%)	n = 205 (29.5%)	n = 430 (61.7%)	n = 696 (100%)
8.	I struggle to operate on Instagram	n = 71 (10.2%)	n = 106 (15.2%)	n = 197 (28.3%)	n = 322 (46.3%)	n = 696 (100%)
9.	I struggle to operate on Skype/ Video call	n = 76 (10.9%)	n = 123 (17.7%)	n = 224 (32.2%)	n = 273 (39.2%)	n = 696 (100%)
10.	I cannot afford the necessary computer equipment	n = 163 (23.4%)	n = 247 (35.5%)	n = 182 (26.2%)	n = 104 (14.9%)	n = 696 (100%)
11.	I am hampered by the cost of data	n = 382 (54.9%)	n = 206 (29.6%)	n = 68 (9.7%)	n = 40 (5.8%)	n = 696 (100%)
12.	I am hampered by slow network signal coverage	n = 298 (42.8%)	n = 253 (36.3%)	n = 98 (14.1%)	n = 47 (6.8%)	n = 696 (100%)
13.	The use of social media platforms is not my preferred way of learning	n = 152 (21.8%)	n = 169 (24.3%)	n = 245 (35.2%)	n = 130 (18.7%)	n = 696 (100%)
14.	I struggle to independently obtain information	n = 66 (9.5%)	n = 125 (18%)	n = 309 (44.4%)	n = 196 (28.1%)	n = 696 (100%)

Challenges		Strongly agree 1	Agree 2	Disagree 3	Strongly disagree 4	Frequency = n / Percentage
	from social media platforms					
15	I struggle to achieve my learning objectives from the social media platforms	n = 86 (12.4%)	n = 163 (23.4%)	n = 304 (43.7%)	n = 143 (20.5%)	n = 696 (100%)
16	I lose sight of my learning objectives because I focus too much on social matters	n = 111 (16%)	n = 192 (27.5%)	n = 272 (39.1%)	n = 121 (17.4%)	n = 696 (100%)

Table 6.10 revealed that a few respondents (8.3%; n = 58) strongly agreed that they struggle to operate computer equipment, 17.7% (n = 123) agreed, 43.1% (n = 300) disagreed, and 30.9% (n = 215) strongly disagreed. Those respondents who strongly agreed that they struggle to operate blogs was 18.7% (n = 130), 30.6% (n = 313) agreed with them, 31.6% (n = 220) were in disagreement, and 19.1% (n = 133) strongly disagreed that they struggle to operate blogs.

Twenty-five (3.6%) respondents strongly agreed that they struggle to operate Facebook, 10.2% (n = 71) agreed, 36.4% (n = 253) disagreed, and 49.8% (n = 347) strongly disagreed. Seventy-one (10.2%) respondents strongly agreed that they struggle to operate Twitter, 18.3% (n = 127) agreed, 31.2% (n = 217) disagreed, and 40.3% (n = 281) strongly disagreed that they struggled to operate Twitter.

The results revealed that 2.6% (n = 18) of the respondents strongly agreed that they struggle to operate WhatsApp, 3.6% (n = 25) agreed, 29.3% (n = 204) disagreed, and 64.5% (n = 449) strongly disagreed with this statement. Sixteen (2.3%) respondents strongly agreed that they struggle to operate Google, 3.7% (n = 26) were in agreement, 29.6% (n = 206) were in disagreement, while 64.4% (n = 448) strongly disagreed.

Of the respondents, 3.2% (n = 22) strongly agreed that they struggle to operate YouTube, 5.6% (n = 39) agreed, 29.5% (n = 205) disagreed, and 61.7% (n = 430) strongly disagreed that they struggle to operate YouTube. The result of this study showed that 10.9% (n = 76) of respondents strongly agreed that they struggle to use Skype, 17.7% (n = 123) agreed, 32.2% (n = 224) disagreed, and 39.2% (n = 273) strongly disagreed that they struggled to use Skype.

Some respondents (23.6%; n = 163) strongly agreed that they cannot afford the necessary computer equipment, 35.5% (n = 247) agreed, 26.2% (n = 182) disagreed, and only 14.9% (n = 104) strongly disagreed with this stance. Moreover, 54.9% (n = 382) strongly agreed that they were hampered by the cost of data, 29.6% (n = 206) were in agreement, 9.7% (n = 68) were in disagreement, and 5.8% (n = 40) strongly disagreed.

Some respondents (42.8%; n = 298) strongly agreed that they are hampered by slow network signal coverage, 36.3% (n = 253) were in agreement, 14.1% (n = 98) were in disagreement, and 6.8% (n = 47) strongly disagreed. Respondents (21.8%; n = 152) strongly agreed that the use of social media platforms is not their preferred way of learning, 24.3% (n = 169) agreed, 35.2% (n = 245) disagreed, and 18.7% (n = 130) strongly disagreed that the use of social media platforms is not a preferred way of learning.

The results showed that 9.5% (n = 66) of the respondents struggle to obtain information from social media platforms independently, 18% (n = 125) agreed, 44.4% (n = 309) disagreed, and 28.1% (n = 196) strongly disagreed. Eighty-six (12.4%) respondents strongly agreed that they struggle to achieve learning objectives from social media platforms, 23.6% (n = 163) agreed, 43.7% (n = 304) were in disagreement, and 20.5% (n = 143) strongly disagreed with this statement.

Sixteen percent (n = 111) of the respondents strongly agreed that they lose sight of learning objectives because they focus too much on social matters when using social media platforms, 27.5% (n = 192) agreed, 39.1% (n = 272) disagreed, and 17.4% (n = 121) strongly disagreed. According to the respondents, most could operate on

different social media platforms; only a few respondents found it challenging to operate on different social media platforms.

This study's results are supported by the findings of a study about the challenges and opportunities for the use of social media in higher education in New York, conducted by Anderson (2019:11). It was determined that the successful implementation of the use of online teaching strategies is secondary to the availability of human and material resources, which implies competency among users and availability of the equipment.

SECTION F

6.3.14 Preferences of different study methods

Table 6.11 shows the ways in which respondents' wanted to be taught.

Table 6.11: Preferences of study methods (N = 696)

Teaching strategies	Frequency (n)	Percentage %
I prefer the use of social media platforms as a teaching strategy	52	7.5
I prefer traditional teaching strategies	170	24.4
I prefer both social media platforms and traditional teaching strategies	474	68.1
Total	696	100

Table 6.11 revealed that the majority of the respondents (68.1%; n = 474) preferred both traditional and social media teaching strategies. The minority of the respondents (7.5%; n = 52) preferred social media platforms as a teaching strategy to be used in basic nursing studies, while 24.4% (n = 170) preferred the traditional teaching strategy. The results of this study illustrated that the traditional lecture teaching method was preferred by the majority of the respondents. Similarly, Anderson (2019:11) conducted research in New York, focusing on technology in education; findings showed that despite the use of audio-visual teaching strategies, students still needed contact sessions with their lecturers. It is evident that the respondents in this study similarly

still valued old ways of teaching even though they were open to new ways of teaching and learning.

SECTION G

6.3.15 Factors enhancing the successful implementation of digital e-learning

Table 6.12 presents the factors that enhance the successful implementation of digital e-learning.

Table 6.12: Factors enhancing the successful implementation of digital e-learning (N = 696)

Factors		Strongly agree 1	Agree 2	Disagree 3	Strongly disagree 4	Frequency = n / Percentage
1	Availability of resources	n = 466 (67%)	n = 177 (25.4%)	n = 40 (5.7%)	n = 13 (1.9%)	n = 696 (100%)
2	Ability of users to navigate effectively through digital technological world	n = 377 (54.2%)	n = 258 (37.1%)	n = 54 (7.7%)	n = 7 (1.0%)	n = 696 (100%)
3	Motivation to be techno-wise	n = 320 (46%)	n = 315 (45.3%)	n = 52 (7.5%)	n = 9 (1.2%)	n = 696 (100%)
4	Access to multimedia content	n = 312 (44.8%)	n = 337 (48.4%)	n = 40 (5.8%)	n = 7 (1.0%)	n = 696 (100%)
5	Use of collective knowledge	n = 316 (45.4%)	n = 339 (48.7%)	n = 35 (5.0%)	n = 6 (0.9%)	n = 696 (100%)
6	Rapid knowledge sharing	n = 309 (44.4%)	n = 337 (48.4%)	n = 43 (6.2%)	n = 7 (1.0%)	n = 696 (100%)
7	Control of the learning process	n = 300 (43.1%)	n = 318 (45.7%)	n = 67 (9.6%)	n = 11 (1.6%)	n = 696 (100%)
8	Availability of learning material	n = 366 (52.6%)	n = 275 (39.5%)	n = 47 (6.8%)	n = 8 (1.1%)	n = 696 (100%)

Factors		Strongly agree 1	Agree 2	Disagree 3	Strongly disagree 4	Frequency = n / Percentage
9	Quality of content material	n = 336 (48.3%)	n = 293 (42.1%)	n = 60 (8.6%)	n = 7 (1.0%)	n= 696 (100%)
10	Easy to use intuitive	n = 299 (43%)	n = 307 (44.1%)	n = 80 (11.5%)	n = 10 (1.4%)	n= 696 (100%)
11	Reliability of resources and content knowledge	n = 288 (41.4%)	n = 330 (47.4%)	n = 70 (10.2%)	n = 8 (1.0%)	n= 696 (100%)
12	Offers a variety of activities	n = 276 (39.7%)	n = 347 (49.9%)	n = 61 (8.7%)	n = 12 (1.7%)	n= 696 (100%)
13	Encourages interaction between students	n = 278 (39.9%)	n = 306 (44%)	n = 98 (14.1%)	n = 14 (2.0%)	n= 696 (100%)
14	Formative evaluations and feedback are available	n = 252 (36.2%)	n = 322 (46.3%)	n = 103 (14.8%)	n = 19 (2.7%)	n= 696 (100%)
15	Risk management guidelines are clearly stipulated	n = 200 (28.7%)	n = 326 (46.8%)	n = 145 (20.8%)	n = 25 (3.7%)	n= 696 (100%)
16	Student and lecturers support: e.g. Finance and Skills development.	n = 246 (35.3%)	n = 287 (41.3%)	n = 117 (16.8%)	n = 46 (6.6%)	n= 696 (100%)
17	Faculty support e.g. Policies	n = 225 (32.4%)	n = 317 (45.4%)	n = 123 (17.7%)	n = 31 (4.5%)	n= 696 (100%)

The results in Table 6.12 showed that the majority of the respondents (67%; n = 466) strongly agreed that the availability of resources enhance the successful implementation of e-learning, 25.4% (n = 177) agreed, 5.7% (n = 40) disagreed, and 1.9% (n = 13) strongly disagreed. The respondents (54.2%; n = 377) strongly agreed that users' ability to navigate effectively through digital technology would enhance their success in e-learning, 37.1% (n = 258) agreed, 7.7% (n = 54) disagreed, and only 1% (n = 7) strongly disagreed with this statement.

Forty-six percent (n = 320) of the respondents strongly agreed that the motivation to be techno-wise enhances the successful implementation of digital e-learning, 45.3% (n = 315) agreed, 7.5% (n = 52) disagreed, and 1.2% (n = 9) strongly disagreed. The study showed that 44.8% (n = 312) of respondents strongly agreed that access to multimedia content enhances successful use of e-learning, 48.4% (n = 337) agreed, 5.8% (n = 40) disagreed, and 1% (n = 7) strongly disagreed with this statement. Some respondents (45.4%; n = 316) strongly agreed that the use of collective knowledge enhances the successful implementation of digital e-learning, 48.7% (n = 339) agreed, 5% (n = 35) disagreed, and 0.9% (n = 6) strongly disagreed that the use of collective knowledge enhances e-learning.

The results reflect that 43.1% (n = 300) of respondents strongly agreed that control over the learning process enhances the successful use of e-learning, 45.7% (n = 318) agreed, 9.6% (n = 67) disagreed, and 1.6% (n = 11) strongly disagreed. Respondents (52.6%; n = 366) strongly agreed that the availability of learning material enhances the successful use of digital e-learning, 39.5% (n = 275) agreed, 6.8% (n = 47) disagreed, and 1.1% (n = 8) disagreed strongly with this statement.

The respondents (48.3%; n = 336) strongly agreed that the quality of content material enhances the successful use of digital e-learning, 42.1% (n = 293) agreed, 8.6% (n = 60) disagreed, and 1% (n = 7) strongly disagreed. The results revealed that 41.4% (n = 288) of respondents strongly agreed, 47.4% (n = 330) agreed, 10.2% (n = 70) disagreed, and 1% (n = 8) strongly disagreed that the reliability of resources and content knowledge enhance the successful use of digital e-learning.

It was illustrated that 39.7% (n = 276) of respondents strongly agreed that the use of digital e-learning offers a variety of activities, 49.9% (n = 347) agreed, 8.7% (n = 61) disagreed, and 1.7% (n = 12) strongly disagreed. Respectively, 39.9% (n = 278) of respondents strongly agreed, 44% (n = 306) agreed, 14.1% (n = 98) disagreed, and 2% (n = 14) strongly disagreed that the use of e-learning encourage interaction between students.

The results reflect that 36.2% (n = 252) of the respondents strongly agreed that the availability of formative evaluations and feedback enhances the successful use of

digital e-learning, 46.3% (n = 322) agreed, 14.8% (n = 103) disagreed, and 2.7% (n = 19) strongly disagreed.

Moreover, 28.7% (n = 200) of the respondents strongly agreed, 46.8% (n = 326) agreed, 20.8% (n = 145) disagreed, and 3.7% (n = 25) strongly disagreed that risk management guidelines must be clearly stipulated to enhance the use of e-learning. Of the respondents, 35.3% (n = 246) strongly agreed that students and lecturers need support in terms of finances and skill development to enhance the successful implementation of digital e-learning, 41.3% (n = 287) agreed, 16.8% (n = 117) disagreed, and 6.6% (n = 46) strongly disagreed.

Respectively, 32.4% (n = 225) of the respondents strongly agreed, 45.4% (n = 317) agreed, 17.7% (n = 123) disagreed, and only 4.5% (n = 31) strongly disagreed that facility support, such as policies, are needed to guide the successful implementation of digital e-learning.

According to the respondents, all the factors indicated in Table 6.12 are important for the successful implementation of digital e-learning. Anderson (2019:13) studied the use of social media in higher education, and found that for social media platforms to be used effectively, there should be good quality of users and equipment. The findings support the results of this study, which found that the availability of resources is necessary for the successful implementation of social media platforms in teaching and learning.

SECTION H

6.3.16 Students' perceptions regarding the possibility of implementing social media platforms that will integrate theory and practice

The respondents' perceptions are provided in Table 6.13, showing how the implementation of social media platforms could integrate theory and practice.

Table 6.13: Students' perceptions regarding the possibility of implementing social media platforms that will integrate theory and practice (N = 696)

Perceptions	Frequency (n)	Percentage %
Lack of resources	209	30.4
Convenience	191	27.4
Good idea / initiative	133	19
Lack of skills	80	11.4
Use of videos	73	10.4
Efficiency	10	1.4
Total	696	100

Table 6.13 reflects that the majority (30.4%; n = 209) of the respondents perceived the lack of resources as an obstacle towards the successful implementation of social media platforms in teaching and learning. Some of the respondents (27.4%; n = 191) perceived the use of social media as convenient in learning. Another 19% (n = 133) of the respondents perceived the use of social media platforms as a good idea, while 11.4% (n = 80) were concerned about the lack of skills among the users of social media platforms. Meanwhile, 10.4% (n = 73) perceived the use of videos as an ideal source for learning, and the minority of the respondents (1.4%; n = 10) mentioned that it would be efficient to learn through social media platforms.

The researcher's interpretation is that the students perceived the use of social media platforms as a good initiative; however, a lack of resources might limit the use thereof. The students do not have the necessary equipment to use social media platforms in learning, and they require smartphones, data, and other electronic gadgets. Even though there are noted possible barriers, students saw the convenience of using social media platforms in teaching and learning. The students perceived the initiative to be facilitating the necessary interaction in learning through the use of videos. However, the Nursing College might need to train the students and lecturers on the use of social media platforms, as most of the students and lecturers are not fully computer literate.

6.3.17 Students' perceptions of policies to guide the use of social media platforms in teaching and learning

Students' perceptions of policies to guide the use of social media platforms in teaching and learning are presented in Table 6.14

Table 6.14: Students' perceptions of policies to guide the use of social media platforms in teaching and learning (N = 696)

Perceptions	Frequency (n)	Percentage %
Disclaimer / Code of conduct on social media users	252	36.3
Access to resources	169	24.2
Interaction with lecturers	94	13.5
Time management	61	8.7
Mutual respect among social media users	34	4.8
No response	86	12.3
Total	696	100

Table 6.14 reflect that the majority (36.3%; n = 252) of the respondents perceived a code of conduct to be one of the necessary policies to guide the use of social media platforms in teaching, 24.2% (n = 169) mentioned a policy that focuses on accessing resources, 13.5% (n = 94) reflected on the importance of interactions with lecturers to modify behaviour on social media platforms. The other 8.7% (n = 61) perceived a policy that addresses time management as being vital, and the minority of respondents (4.8%; n = 34) mentioned a policy that relates to mutual respect among social media users; 12.3% (n = 86) of the respondents did not respond. The results of this study concur with the findings of a study on the state of social media policies in higher education that was conducted at the University of Bloomington. It was reported that the following policies were necessary to guide the use of social media platforms in teaching and learning: a code of conduct, copyright and intellectual property, acceptable use of technology, and a privacy policy (Pomerantz, Hank & Sugimoto 2015:10).

6.3.18 Challenges identified with regard to the use of social media platforms in teaching and learning

The challenges identified by students with regard to the use of social media platforms in teaching and learning are presented in Table 6.15.

Table 6.15: Challenges identified with regard to the use of social media platforms in teaching and learning (N = 696)

Challenges	Frequency (n)	Percentage %
Lack of resources	368	52.8
Lack of computer skills	165	23.9
Lack of self-discipline	111	15.9
Quality of content posted on social media platforms	27	3.8
Interaction between lecturers and students and among students themselves	25	3.6
Total	696	100

Table 6.15 showed that the majority of the respondents (52.8%; n = 368) perceived lack of resources as a challenge, 23.9% (n = 165) perceived lack of computer skills as a challenge to the successful use of social media platforms, 15.9% (n = 111) perceived lack of self-discipline as a challenge, and 3.8% (n = 27) perceived the quality of content posted on social media platforms to be a challenge. The minority of the respondents (3.6%; n = 25) perceived interaction between lecturers and students and among students themselves as a challenge to successful implementation. Similarly, Anderson (2019:11) conducted a study on the challenges and opportunities related to the use of social media in education. It was determined that cultural resistance and fear of an uncontrolled space might affect the quality of content posted on social media platforms.

6.3.19 Students' recommendations regarding the use of social media platforms as an additional supportive tool for learning

The students recommended the use of social media platforms as an additional supportive teaching tool. Their responses are presented in Table 6.16.

Table 6.16: Students' recommendations regarding the use of social media platforms as an additional supportive tool for learning (N = 696)

Recommendations	Frequency (n)	Percentage %
Accessibility of material and human resources	300	43.1
Engagement of both students and lecturers	99	14.2
Student portal type of a platform	53	7.6
In-service training to capacitate those in need of computer skills	42	6.0
Use of multiple teaching strategies	36	5.4
Guidelines re use of web for reliable content	31	4.4
No response	135	19.3
Total	696	100

Table 6.15 illustrates that the majority of respondents (43.1%; n = 300) recommended that there should be accessibility to material and human resources, 14.2% (n = 99) recommended engagement of both students and lecturers, 7.6% (n = 53) recommended a student portal type of platform, and 6% (n = 42) recommended that social media platform users be provided with in-service training to capacitate those in need of computer skills. The other 5.4% (n = 36) of respondents recommended the use of multiple teaching strategies during teaching and learning, and the minority of respondents (4.4%; n = 31) recommended guidelines on the use of the web for information searches and reliable sources; 19.3% (n = 135) provided no recommendation.

The students and lecturers might need skills training for this system to be effective. Even though the students were open to the idea of using social media platforms in teaching and learning, they wanted face-to-face teaching methods to remain available too. The students recommended that the posted content material must be reliable, honest, trustworthy and controlled.

6.4 DATA ANALYSIS PHASE 2.2: QUESTIONNAIRES FROM THE LECTURERS

The data for phase 2.2 were collected from 56 lecturers teaching in the three Public Nursing Colleges in Gauteng province. The data obtained from these respondents' questionnaires (see Annexure G2) were captured and analysed.

SECTION A

6.4.1 Demographic data (N = 56)

The respondents' demographic data included their age, gender, years of experience in nursing education institutions (NEIs), and highest educational qualification.

6.4.1.1 Age

The respondents were aged between 39 years and 60+ years.

Table 6.17: Age (N = 56)

Age	Frequency (n)	Percentage %
39 years and younger	19	33.9
40 years – 49 years	16	28.6
50 years – 54 years	9	16
55 years – 59 years	10	17.9
Over 60 years	2	3.6
Total	56	100

Table 6.17 shows that the majority of respondents (33.9%; n = 19) were 39 years of age and younger, 28.6% (n = 16) were between the age of 40 – 49 years, 16% (n = 9) were between the age of 50 – 54, 17.9% (n = 10) were aged between 55 – 59, and only 3.6% (n = 2) were over 60 years. The findings thus reflect that the majority of the lecturers were younger than 50 years of age.

6.4.1.2 Gender

Figure 6.5 indicates the respondents' gender distribution results.

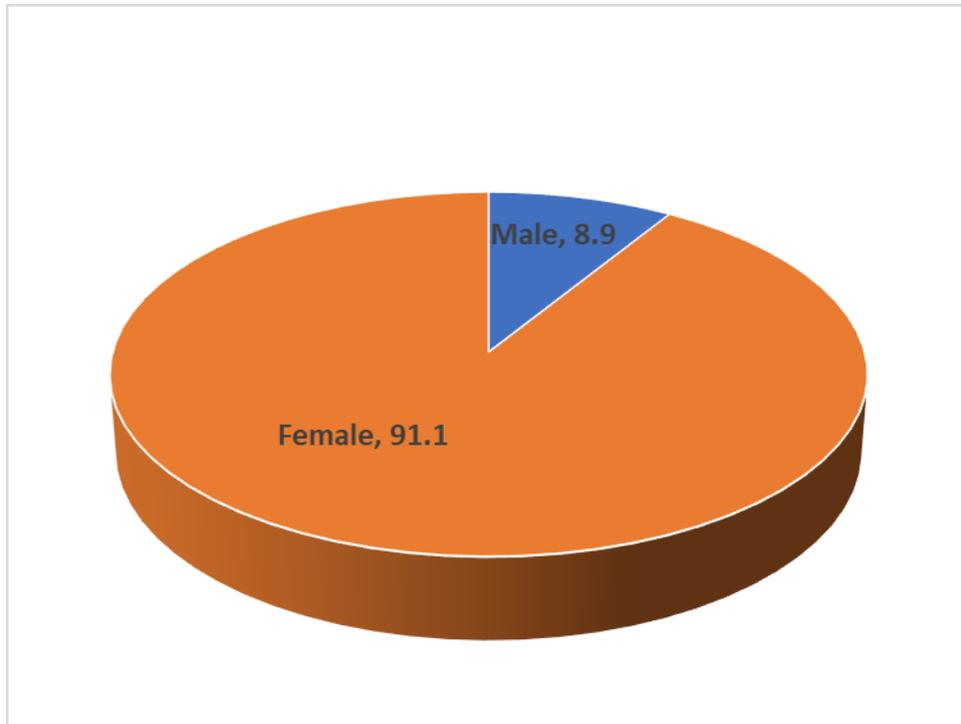


Figure 6.5: Gender (N = 56)

Figure 6.5 reveals that most of the respondents (91.1%; n = 51) were female, and only 8.9% (n = 5) were male. The gender distribution reflected a similar pattern to that of students in training in Gauteng province, where 34 024 (f = 93%) were reportedly female and 2 579 (f = 7%) were male (South African Nursing Council Statistics 2016).

6.4.1.3 Respondents' years of experience in nursing education institutions (NEIs)

Figure 6.6 indicates the respondents' years of experience in NEIs.

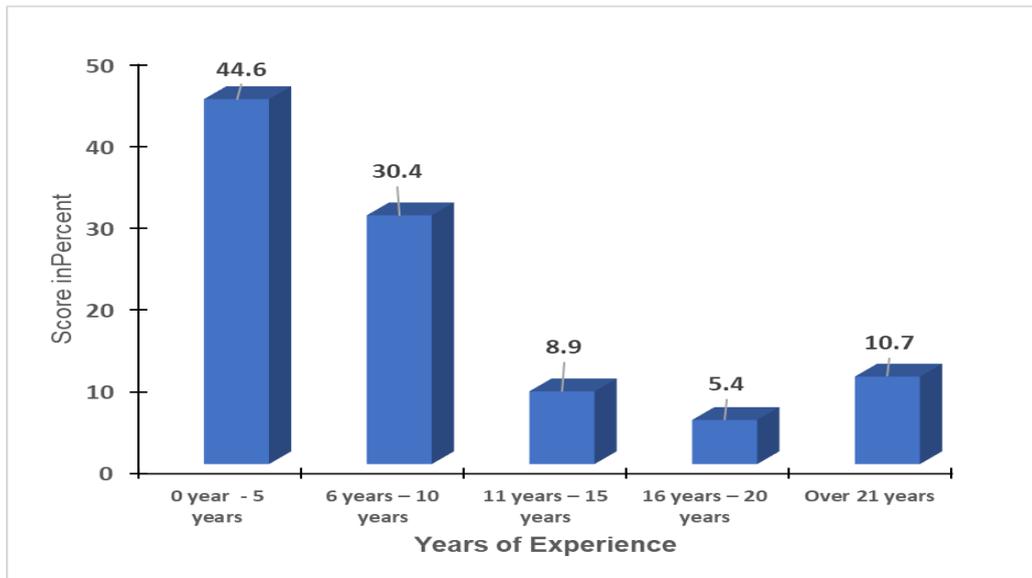


Figure 6.6: Years of experience in Nursing Education Institution (N = 56)

It was determined that the majority of the respondents (44.6%; n = 25) had been teaching for less than five years, 30.4% (n = 17) had between six- and ten-years' experience in teaching, 8.9% (n = 5) had been teaching for a period between 11 and 15 years, and 5.4% (n = 3) had been teaching for a period between 16 and 20 years. Only 10.7% (n = 6) had over 21 years' teaching experience. It is evident that the majority (44.6%) of the lecturers were in the range of zero to five years' experience in NEIs. These results reflect lecturers' suitability in adopting new technology in digital e-learning, since the respondents were a younger generation of lecturers.

6.4.1.4 Highest educational qualification

Figure 6.7 shows the respondents' highest educational qualifications.

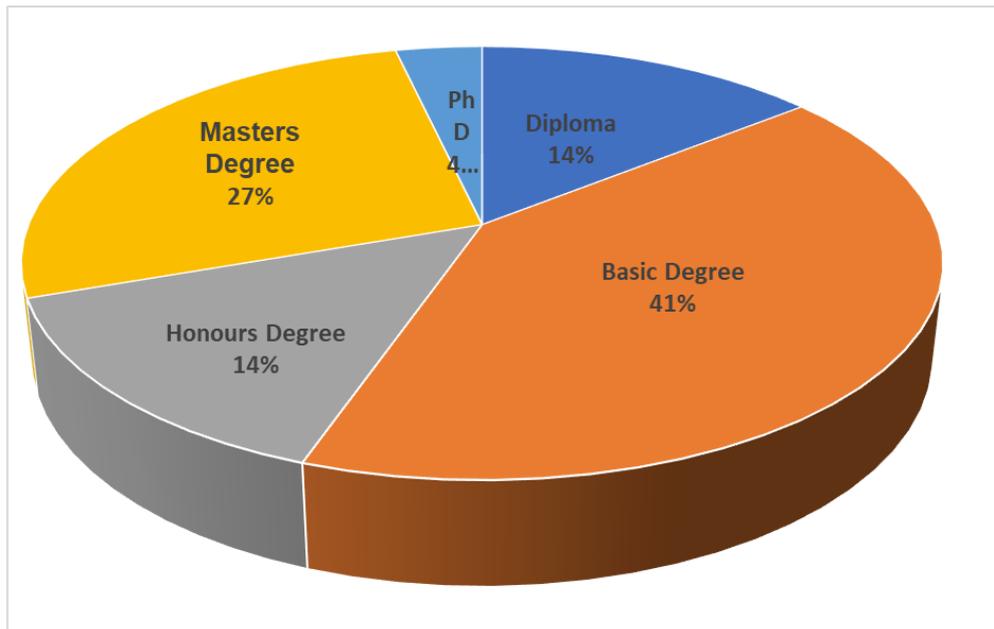


Figure 6.7: Highest educational qualification

Figure 6.7 shows that the minority of the respondents (14%; n = 8) had a diploma in nursing as their highest educational qualification, the majority of the respondents (41%; n = 23) had a basic nursing degree, 14% (n = 8) had an honours degree, 27% (n = 15) had a master's degree, and only 4% (n = 2) had a PhD in nursing. Most of the lecturers had a degree, which reflects a good human resource profile, and it might be easier for these lecturers to learn new ways of teaching in the 4IR.

6.4.2 The number of lecturers who own electronics

Table 6.18 indicates the different gadgets owned by respondents in this study.

Table 6.18: Ownership of electronics (N = 56)

Electronics	Frequency (n)	Percentage %
Smartphone	4	7.1
Tablet	1	1.8
Laptop	2	3.6
Smartphone/Tablet	2	3.6
Smartphone/Tablet/Laptop	8	14.3
Smartphone/Tablet/Computer	1	1.8

Electronics	Frequency (n)	Percentage %
Smartphone/Laptop	21	37.5
Smartphone/Laptop/Computer	5	8.9
Smartphone/Computer	4	7.1
Not Specified	8	14.3
Total	56	100.0

Table 6.18 reflects that 7.1% (n = 4) of the respondents owned smartphones, 1.8% (n = 1) owned a tablet, 3.6% (n = 2) owned laptops, 3.6% (n = 2) were in possession of smartphones and a tablet, 14.3% (n = 8) owned smartphones, a tablet and laptops, 1.8% (n = 1) owned a smartphone, tablet and computer. The majority of the respondents (37.5%; n = 21) owned smartphones and a laptop, 8.9% (n = 5) owned smartphones, a laptop and computer, 7.1% (n = 4) owned smartphones and computers, and only 14.3% (n = 8) did not specify the gadget they owned. It was evident that most lecturers owned more than one of the mentioned gadgets, which is a positive indication of their readiness to embrace the 4IR era. The results concur with a study conducted at Athabasca University on the use of social media platforms in higher education, which demonstrated that most people own more than one, functioning, electronic device (Anderson 2019:11).

6.4.3 Level of computer expertise

Figure 6.7 shows the respondents' level of knowledge and skills in relation to the use of ICT.

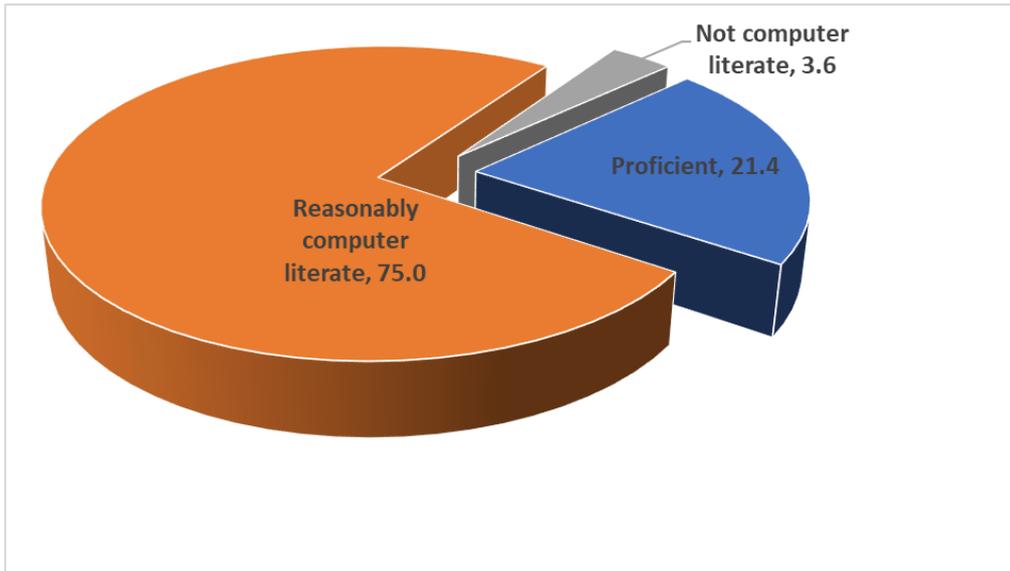


Figure 6.8: Respondents' level of computer expertise (N = 56)

Figure 6.8 illustrates that the majority of the respondents (75%; n = 42) were reasonably computer literate, 21.4% (n = 12) of the respondents were proficient in computer literacy, and the minority of the respondents (3.6%; n = 2) were not computer literate. The level of computer expertise is high among lecturers and might reflect their readiness to embrace digital e-learning. Computer literacy is essential in this era of the 4IR; most people are trying to upgrade their knowledge and skills in using ICT in order to fit in with the digital world (Spante et al 2018:5). It was evident that the respondents in this study were also upgrading their ICT skills.

6.4.4 Distribution of computer literacy skills

Table 6.19 presents the distribution of the respondents' acquired computer literacy skills.

Table 6.19: Distribution of the results of acquired computer literacy skills (N = 54)

Computer literacy skills	Frequency (n)	Percentage %
I completed a course in computer literacy	17	31.4
I partially completed a course in computer literacy	10	18.5
I taught myself to use a computer	20	37
Computer literacy skills	Frequency (n)	Percentage %
A friend taught me to use a computer	5	9.4
A family member taught me to use a computer	2	3.7
Total	54	100

Table 6.19 revealed that 31.4% (n = 17) of the respondents completed a computer literacy course, 18.5% (n = 10) partially completed a course in computer literacy, the majority of the respondents (37%; n = 20) taught themselves how to use a computer. A further 9.4% (n = 5) were taught by a friend how to operate a computer, and the minority of the respondents (3.7%; n = 2) were taught by a family member how to operate a computer. The results showed general interest among the lecturers to learn how to use computers.

6.4.5 Social media platform ranking

Table 6.20 presents the different social media platforms' rankings.

Table 6.20: The order of ranking of the social media platform (N = 56)

No	Social media platforms	Frequency (n)	Percentage %
1	WhatsApp	42	75.0
2	Google	16	28.6
3	YouTube	10	17.9
4	Twitter	6	10.7
5	Instagram	5	8.9
6	Zoom	3	5.4
7	Skype	2	3.6
8	Facebook	1	1.8
8	Blog	1	1.8

Table 6.20 shows that the majority (75%; n = 42) of the respondents ranked WhatsApp first on the list, 28.6% (n = 16) ranked Google second on the list, and 17.9% (n = 10) ranked YouTube third on the list of preferred social media platforms. Six (10.7%) respondents ranked Twitter at number four on the list, 8.9% (n = 5) placed Zoom at number five on the list of preferred social media platforms, 3.6% (n = 2) ranked Skype number seven, and both blogs and Facebook were ranked last on the list of preferred social media platforms. It is evident that WhatsApp was preferred by most (75%) respondents, likely due to its user-friendly mode of operation, followed by Google with 28.6% support, which could be related to its ability to store, search and retrieve information when needed. YouTube was ranked third as a source of storing and retrieving information as required. The results of this study differ from those of Hruska and Maresova (2020:7), who explored the use of social media platforms among adults. In their study, Facebook was ranked number one, followed by YouTube, Twitter, Instagram and Snapchat.

6.4.6 Main use of social media platforms

Table 6.21 presents the respondents' primary use of social media platforms.

Table 6.21: Main use of social media platforms (N = 56)

Main use of social media platforms	Frequency (n)	Percentage %
Working through educational-related packages	7	12.5
Working through social-related packages with other lecturers	5	8.9
Both	44	78.6
Total	56	100

As shown in Table 6.21, the majority of the respondents (78.6%; n = 44) indicated that social media platforms are used for both educational and social-related packages. The minority of the respondents (8.9%; n = 5) indicated that they use social media platforms for social packages, and only 12.5% (n = 7) indicated that they use social media platforms for educational-related packages only. It is therefore evident that social media platforms are used for both educational and social-related packages. These results are supported by a study that was conducted at the University of Hradec

Králové in the United States of America, on the use of social media platforms (Hruska & Maresova 2020:1). It reported that most learning institutions use social networks to improve teaching, and companies use these platforms to boost the sales of their brand.

6.4.7 The level of training taught by the lecturer in the Nursing College

Table 6.22 indicates the level of students taught by the respondents.

Table 6.22: Level of student nurses being taught (N = 56)

Level of student nurses being taught	Frequency (n)	Percentage %
First-year basic student nurse	14	25.0
Second-year basic student nurse	15	26.8
Third-year basic student nurse	18	32.1
Fourth-year basic student nurses	6	10.7
Post-basic diploma students	3	5.4
Total	56	100

Table 6.22 depicts that 25% (n = 14) of the respondents were teaching first-year basic student nurses, 26.8% (n = 15) were teaching second-year basic student nurses, the majority of the respondents (32.1%; n = 18) were teaching the third-year basic student nurses, 10.7% (n = 6) were teaching fourth-year basic student nurses, and the minority of the respondents (5.4%; n = 3) were teaching post-basic student nurses. Thus, most of the respondents were teaching basic student nurses.

SECTION B

6.4.8 Time spent on different social media platforms

Table 6.23 illustrates how much time respondents spent on different social media platforms.

Table 6.23: Time spent on different social media platforms (N = 56)

Social Media Platforms		Daily	Weekly	Monthly	Never	Frequency = n/ Percentage
1	WhatsApp	n = 53 (94.6%)	n = 0 (0%)	n = 0. (0%)	n = 3 (5.4%)	n = 56 (100%)
2	Facebook	n = 25 (44.6%)	n = 9 (16.0%)	n = 12 (21.4%)	n = 10 (17.9%)	n = 56 (100%)
3	Twitter	n = 10 (17.8%)	n = 5 (8.9%)	n = 5 (8.9%)	n = 36 (64.3%)	n = 56 (100%)
4	Blog	n = 4 (7.1%)	n = 1 (1.8%)	n = 5 (8.9%)	n = 46 (82.2%)	n = 56 (100%)
5	Google	n = 44 (78.6%)	n = 8 (14.3%)	n = 0 (0%)	n = 4 (7.1%)	n = 56 (100%)
6	YouTube	n = 15 (26.8%)	n = 22 (39.3%)	n = 7 (12.5%)	n = 12 (21.4%)	n = 56 (100%)
7	Skype /Video call	n = 5 (8.9%)	n = 17 (30.4%)	n = 10 (17.9%)	n = 24 (42.9%)	n = 56 (100%)
8	Instagram	n = 8 (14.3%)	n = 11 (19.6%)	n = 3 (5.4%)	n = 34 (60.7%)	n = 56 (100%)

Table 6.23 shows that the majority of the respondents (94.6%; n = 53) used WhatsApp daily and only 5.4% (n = 3) had never used WhatsApp. Moreover, 44.6% (n = 25) used Facebook daily, 16% (n = 9) used Facebook weekly, 21.4% (n = 12) used it monthly, and only 17.9% (n = 10) had never used Facebook. The results also revealed that 17.8% (n = 10) of the respondents used Twitter daily, 8.9% (n = 5) used it weekly, 8.9% (n = 5) used it monthly, and only 64.3% (n = 36) had never used Twitter. The minority of the respondents (7.1%; n = 4) used blogs daily, 1.8% (n = 1) blogged weekly, 8.9% (n = 5) used blogs monthly, and 82.2% (n = 46) had never used blogs.

Of the respondents, 78.6% (n = 44) used Google weekly, 14.3% (n = 8) used Google monthly, and only 7.1% (n = 4) had never used Google. Also, 26.8% (n = 15) respondents used YouTube daily, 39.3% (n = 22) used YouTube weekly, 12.5% (n = 7) used YouTube monthly, and only 21.4% (n = 12) had never used YouTube. Five (8.9%) respondents Skyped daily, 30.4% (n = 17) Skyped weekly, 17.9% (n = 10) Skyped monthly, and only 42.9% (n = 24) had never used Skype. Eight (14.3%)

respondents used Instagram daily, 19.6% (n = 11) used Instagram weekly, 5.4% (n = 3) used Instagram monthly, and 60.7% (n = 34) had never used Instagram. It was evident that WhatsApp was the most popular social media platform used daily by the respondents, and Instagram was the least used social media platform.

The results of this study differ from a survey on the use of social media platforms that was conducted across America in 2018 among social media platform users. It revealed that Facebook, YouTube, Twitter and Instagram were the most used social media platforms, while WhatsApp was only used by 2% of that population (Shearer & Matsa, 2018:9).

6.4.9 Number of hours spent daily on different social media platforms

Table 6.24 indicates the number of hours respondents spent daily on different social media platforms.

Table 6.24: Number of hours spent daily on different social media platforms (N = 56)

Social Media Platforms		12 Hours and more	9 Hours	6 Hours	3 Hours and less	Frequency = n/ Percentage
1	WhatsApp	n = 18 (32.1%)	n = 4 (7.1%)	n = 18 (32.1%)	n = 16 (28.6%)	n = 56 (100%)
2	Facebook	n = 9 (16.1%)	n = 2 (3.6%)	n = 7 (12.5%)	n = 38 (67.9%)	n = 56 (100%)
3	Twitter	n = 4 (7.1%)	n = 0 (0%)	n = 5 (8.9%)	n = 47 (83.9%)	n = 56 (100%)
4	Blog	n = 2 (3.6%)	n = 2 (3.6%)	n = 3 (5.4%)	n = 49 (87.5%)	n = 56 (100%)
5	Google	n = 10 (17.9%)	n = 5 (8.9%)	n = 18 (32.1%)	n = 23 (41.1%)	n = 56 (100%)
6	YouTube	n = 2 (3.6%)	n = 7 (12.5%)	n = 11 (19.6%)	n = 36 (64.3%)	n = 56 (100%)

Social Media Platforms		12 Hours and more	9 Hours	6 Hours	3 Hours and less	Frequency = n/ Percentage
7	Skype /Video call	n = 3 (5.4%)	n = 1 (1.8%)	n = 7 (12.5%)	n = 45 (80.4%)	n = 56 (100%)
8	Instagram	n = 3 (5.4%)	n = 1 (1.8%)	n = 6 (10.7%)	n = 46 (82.1%)	n = 56 (100%)

Table 6.24 shows that most of the respondents (32.1%; n = 18) spent 12 hours and more using WhatsApp daily, 7.1% (n = 4) used WhatsApp for 9 hours, 32.1% (n = 18) spent 6 hours a day on WhatsApp, and 28.6% (n = 16) spent 3 hours and less on WhatsApp daily. Of the respondents, 16.1% (n = 9) spent 12 and more hours on Facebook, 3.6% (n = 2) spent 9 hours, 12.5% (n = 7) spent 6 hours on Facebook daily, and 67.9% (n = 38) spent 3 hours and less daily on Facebook. Four (7.1%) respondents spent 12 hours and more on Twitter, 8.9% (n = 5) spent 6 hours on Twitter, and 83.9% (n = 47) had spent 3 hours and less on Twitter daily.

The minority of the respondents (3.6%; n = 2) spent 12 and more hours using blogs daily, 3.6% (n = 2) spent 9 hours using blogs, 5.4% (n = 3) spent 6 hours using blogs, and 87.5% (n = 49) had never used blogs. Ten (17.9%) respondents used Google for 12 hours and more, 8.9% (n = 5) use Google for 9 hours daily, 32.1% (n = 18) used Google for 6 hours per day, and 41.1% (n = 23) use Google 3 hours or less each day.

Also, 3.6% (n = 2) of the respondents used YouTube for more than 12 hours daily, 12.5% (n = 7) used YouTube for 9 hours, 19.6% (n = 11) used YouTube for 6 hours, and 64.3% (n = 36) used YouTube for less than 3 hours. Three (5.4%) respondents used Skype for more than 12 hours, 1.8% (n = 1) for 9 hours, 12.5% (n = 7) used Skype for 6 hours daily, and 80.4% (n = 45) used Skype for less than 3 hours. The results showed that 5.4% (n = 3) of respondents were on Instagram for more than 12 hours, 1.8% (n = 1) were on Instagram for 9 hours, 10.7% (n = 6) were on Instagram for 6 hours, and 82.1% (n = 46) were on Instagram for less than 3 hours daily.

The time respondents spent engaging in social media platforms daily seem to be in favour of WhatsApp, with 94.7% daily users, 32.1% of which were spending 12 hours and more daily on WhatsApp. Google was ranked second, with 78.6% daily users, and

17.9% spent 12 hours and more per day on Google. Facebook users stood at 44.6% daily, with 16.1% of users spending 12 hours and more daily. Even though WhatsApp was ranked lowest by Shearer and Matsa (Pew Research Centre 2018:09) in a survey conducted on the use across social media platforms, in this study it was found to be the most popular social media platform among respondents.

SECTION C

6.4.11 Respondents' preferred way of obtaining educational information: Perception measure for educational information

Respondents' preferred ways of obtaining educational information are presented in Table 6.25.

Table 6.25: Preferred way of obtaining educational information (N = 56)

Sources of educational information		Always	Sometimes	Seldom	Never	Frequency = n/ Percentage
1	Obtaining information from the textbooks	n = 37 (66.1%)	n = 12 (21.4%)	n = 3 (5.4%)	n = 4 (7.1%)	n = 56 (100%)
2	Obtaining information from the CD-ROM	n = 11 (19.6%)	n = 15 (26.8%)	n = 12 (21.4%)	n = 18 (32.1%)	n = 56 (100%)
3	Obtaining information from the e-books	n = 23 (41.1%)	n = 17 (30.4%)	n = 9 (16.1%)	n = 7 (12.5%)	n = 56 (100%)
4	Obtaining information from the audiotapes	n = 6 (10.7%)	n = 20 (35.7%)	n = 14 (25.0%)	n = 16 (28.6%)	n = 56 (100%)
5	Obtaining information from videotapes	n = 11 (19.6%)	n = 18 (32.1%)	n = 17 (30.4%)	n = 10 (17.9%)	n = 56 (100%)
6	Obtaining information from the internet/ Google	n = 40 (71.4%)	n = 13 (23.2%)	n = 2 (3.6%)	n = 1 (1.8%)	n = 56 (100%)

Sources of educational information		Always	Sometimes	Seldom	Never	Frequency = n/ Percentage
7	Participating in online chatting with other lecturers for educational purpose	n = 23 (41.1%)	n = 20 (35.7%)	n = 7 (12.5%)	n = 6 (10.7%)	n = 56 (100%)
8	Participating in video conferencing with students for educational purpose	n = 15 (26.8%)	n = 18 (32.1%)	n = 10 (17.9%)	n = 13 (23.2%)	n = 56 (100%)
9	Participating in video conferencing with other lecturers for educational purpose	n = 14 (25.0%)	n = 18 (32.1%)	n = 12 (21.4%)	n = 12 (21.4%)	n = 56 (100%)
10	Exchange information with students by using different social media platforms	n = 27 (48.2%)	n = 21 (37.5%)	n = 5 (8.9%)	n = 3 (5.4%)	n = 56 (100%)
11	Exchange educational information with lecturers by using different social media platforms	n = 23 (41.1%)	n = 19 (33.9%)	n = 8 (14.3%)	n = 6 (10.7%)	n = 56 (100%)

The results in Table 6.25 demonstrate that 66.1% (n = 37) of the respondents always used textbooks to obtain educational information, 21.4% (n = 12) obtained information from textbooks sometimes, 5.4% (n = 3) seldom obtained information from textbooks, and 7.1% (n = 4) never obtained information from textbooks. Eleven (19.6%) always obtained information from CR-ROM, 26.8% (n = 15) indicated that they sometimes obtained information from CD-ROM. Twelve (21.4%) indicated that they seldom used CD-ROM, and only 32.1% (n = 18) never used CD-ROM to obtain educational information.

Of the respondents, 41.1% (n = 23) always obtained information from e-books, 30.4% (n = 17) sometimes used e-books, 16.1% (n = 9) indicated that they seldom get information from e-books, and 12.5% (n = 7) never used e-books. The minority of the respondents (10.7%; n = 6) always obtained educational information from audiotapes, 35.7% (n = 20) indicated that they sometimes obtained information from audiotapes, 25% (n = 14) said they seldom obtained information from audiotapes, and 28.6% (n = 16) never used audiotapes. Eleven (19.6%) respondents indicated that they always get information from videotapes, 32.1% (n = 18) sometimes got information from videotapes, 30.4% (n = 17) seldom got information from videotapes, and 17.9% (n = 10) never obtained information from videotapes.

The majority of the respondents (71.4%; n = 40) always obtained information from the internet, 23.2% (n = 13) sometimes obtained information from the internet, 3.6% (n = 2) seldom obtained information from the internet, and 1.8% (n = 1) never obtained information from the internet. The results revealed that 41.1% (n = 23) always chatted online with other lecturers for educational purposes, 35.7% (n = 20) sometimes chatted online with colleagues, 12.5% (n = 7) seldom chatted online with other lecturers, and only 10.7% (n = 6) never chat online. In terms of video conferencing with students for educational purpose, 26.8% (n = 15) of the respondents always participated in video conferences with students, 32.1% (n = 18) sometimes participated in video conferences with students, 17.9% (n = 10) seldom participated in video conferences with students, and 23.2% (n = 13) never participated in video conferences with students. Meanwhile, 25% (n = 14) of the respondents indicated that they participated in video conferences with fellow lecturers, 32.1% (n = 18) sometimes participated in video conferences with other lecturers, 21.4% (n = 12) seldom participated in video conferences with lecturers, and another 21.4% (n = 12) never participated in video conference with other lecturers.

Of the respondents, 48.2% (n = 27) indicated that they always exchanged educational information with students using social media platforms, 37.5% (n = 21) sometimes exchanged information with students on social media platforms, 8.9% (n = 5) seldom exchanged information on social media platforms with students, and 5.4% (n = 3) had never exchanged information with students on social media platforms.

Moreover, 41.1% (n = 23) of the respondents always exchanged educational information with other lecturers on social media platforms, 33.9% (n = 19) indicated that they sometimes exchanged information on social media platforms with other lecturers, 14.3% (n = 8) seldom exchanged educational information on social media platforms with fellow lecturers, and 10.7% (n = 6) had never exchanged educational information with other lecturers on social media platforms.

These results showed that the use of textbooks was perceived as respondents' preferred source of educational information. Similarly, respondents in a study conducted with undergraduates at the University of California on "Online or Print: Which do students prefer?" (Mizrachi 2015:734) agreed that textbooks were their primary source of information.

SECTION D

6.4.12 Feasibility of the use of social media platforms in teaching and learning

Table 6.26 illustrates the social media platforms that might enhance teaching and learning, according to the respondents' responses.

Table 6.26: Social media platforms that might enhance learning (N = 56)

Use of social media platforms		Strongly agree	Agree	Disagree	Strongly disagree	Frequency = n/ Percentage
1	Enhancing my motivation to teach	n = 23 (41.1%)	n = 21 (37.5%)	n = 6 (10.7%)	n = 6 (10.7%)	n = 56 (100%)
2	Giving me a sense of being in control of my teaching	n = 23 (41.1%)	n = 20 (35.7%)	n = 8 (14.3%)	n = 5 (8.9%)	n = 56 (100%)
3	Enabling me to select the time for my study	n = 21 (37.5%)	n = 26 (46.4%)	n = 6 (10.7%)	n = 3 (5.4%)	n = 56 (100%)

Use of social media platforms		Strongly agree	Agree	Disagree	Strongly disagree	Frequency = n/ Percentage
4	Enabling me to establish my own pace of learning	n = 21 (37.5%)	n = 27 (48.2%)	n = 5 (8.9%)	n = 3 (5.4%)	n = 56 (100%)
5	Enabling me to discontinue studying when my concentration wavers	n = 23 (41.1%)	n = 22 (39.3%)	n = 10 (17.9%)	n = 1 (1.7%)	n = 56 (100%)
6	Enabling me to repeatedly study sections of the teaching material until I gain understanding	n = 27 (48.2%)	n = 20 (35.7%)	n = 6 (10.7%)	n = 3 (5.4%)	n = 56 (100%)
7	Giving me the freedom to make mistakes and learn from it	n = 25 (44.6%)	n = 24 (42.9%)	n = 5 (8.9%)	n = 2 (3.6%)	n = 56 (100%)
8	Decreasing pressure placed on me by institutional policies and procedures	n = 17 (30.4%)	n = 26 (46.4%)	n = 10 (17.8%)	n = 3 (5.4%)	n = 56 (100%)
9	Decreasing pressure placed on me by colleagues	n = 17 (33.9%)	n = 26 (42.9%)	n = 10 (19.6%)	n = 3 (5.4%)	n = 56 (100%)
10	Enabling me to access information	n = 37 (66%)	n = 16 (28.6%)	n = 1 (1.8%)	n = 3 (5.4%)	n = 56 (100%)
11	Enabling me to store and	n = 35 (62.5%)	n = 17 (30.3%)	n = 1 (1.8%)	n = 3 (5.4%)	n = 56 (100%)

Use of social media platforms		Strongly agree	Agree	Disagree	Strongly disagree	Frequency = n/ Percentage
	retrieve information					
12	Enabling me to develop my critical thinking skills	n = 34 (60.6%)	n = 17 (30.4%)	n = 2 (3.6%)	n = 3 (5.4%)	n = 56 (100%)
13	Enabling me to be actively involved in learning	n = 33 (58.9%)	n = 18 (32.1%)	n = 2 (3.6%)	n = 3 (5.4%)	n = 56 (100%)
14	Enabling me to become independent	n = 32 (57.1%)	n = 20 (35.7%)	n = 1 (1.8%)	n = 3 (5.4%)	n = 56 (100%)
15	Enable me and other lecturers to engage in collaborative teaching and learning	n = 22 (39.2%)	n = 28 (50.0%)	n = 3 (5.4%)	n = 3 (5.4%)	n = 56 (100%)
16	Enable me to keep up to date with current developments in health sciences	n = 29 (51.8%)	n = 23 (41%)	n = 1 (1.8%)	n = 3 (5.4%)	n = 56 (100%)
17	Making it exciting to discover new knowledge	n = 36 (64.2%)	n = 15 (26.8%)	n = 2 (3.6%)	n = 3 (5.4%)	n = 56 (100%)
18	Relieving the boredom which I previously experienced during use of traditional teaching method only	n = 19 (33.9%)	n = 24 (42.9%)	n = 7 (12.5%)	n = 6 (10.7%)	n = 56 (100%)

Use of social media platforms		Strongly agree	Agree	Disagree	Strongly disagree	Frequency = n/ Percentage
19	Enabling me to experience satisfaction during the teaching and learning process	n = 24 (42.9%)	n = 25 (44.6%)	n = 4 (7.1%)	n = 3 (5.4%)	n = 56 (100%)
20	Enabling me to develop my problem-solving skills	n = 29 (51.8%)	n = 19 (33.9%)	n = 5 (8.9%)	n = 3 (5.4%)	n = 56 (100%)

Table 6.26 shows that 41.1% (n = 23) of the respondents strongly agreed that the use of social media platforms in teaching enhanced their motivation to teach, 37.5% (n = 21) agreed, 10.7% (n = 6) disagreed, and 10.7% (n = 6) strongly disagreed. Twenty-three (41.1%) respondents agreed that the use of social media in teaching gives them a sense of being in control when teaching, 35.7% agreed, 14.3% (n = 8) disagreed, and 8.9% (n = 5) strongly disagreed that they get a sense of control over their teaching when using social media platforms.

The results of this study showed that 37.5% (n = 21) of the respondents strongly agreed that the use of social media platforms enabled them to select the best time to study, 46.4% (n = 26) agreed, 10.7% (n = 6) disagreed, and 5.4% (n = 3) strongly disagreed with this statement. Moreover, 37.5% (n = 21) strongly agreed that the use of social media platforms enabled them to pace their studies, 48.2% (n = 27) agreed, 8.9% (n = 5) disagreed, and 5.4% (n = 3) strongly disagreed.

Twenty-three (41.1%) respondents agreed that they are able to discontinue studying when their concentration wavers, 39.3% (n = 22) agreed, 17.9% (n = 10) disagreed, and only 1.7% (n = 1) strongly disagreed. The results showed that 48.2% (n = 27) of the respondents strongly agreed that they are able to repeat sections of their studies until it is understood when they use social media platforms for studying, 35.7% (n =

20) of the respondents agreed, 10.7% (n = 6) disagreed, and 5.4% (n = 3) strongly disagreed.

Of the respondents, 44.6% (n = 25) strongly agreed that they have the freedom to make mistakes and learn from those mistakes when using social media platforms for teaching and learning, 42.9% (n = 24) agreed, 8.9% (n = 5) disagreed, and only 3.6% (n = 2) strongly disagreed. Seventeen (30.4%) respondents strongly agreed that the use of social media decreases the pressure placed on them by institutional policies, 46.4% (n = 26) of the respondents agreed, 17.8% (n = 10) disagreed, and only 5.4% (n = 3) of the respondents strongly disagreed with this statement.

The results showed that 33.9% (n = 19) of the respondents strongly agreed, 42.9% (n = 26) agreed, 19.6% (n = 10) disagreed, and 5.4% (n = 3) strongly disagreed that the use of social media platforms reduced the pressure placed on them by colleagues. The majority of the respondents (66%; n = 37) agreed strongly that the use of social media enabled them to access information, 28.6% (n = 16) agreed, 1.8% (n = 1) disagreed that they are enabled to access information, and only 5.4% (n = 3) disagreed strongly.

The results revealed that 62.5% (n = 35) of the respondents strongly agreed that they were able to store and retrieve information from social media platforms, 30.3% (n = 17) agreed, 1.8% (n = 1) of the respondents disagreed, and 5.4% (n = 3) strongly disagreed. Also, 60.6% (n = 34) of the respondents strongly agreed that they are able to develop critical thinking skills when using social media platforms, 30.4% (n = 17) agreed, 3.6% (n = 2) disagreed, and 5.4% (n = 3) strongly disagreed.

Respectively, 58.9% (n = 33) of the respondents strongly agreed, 32.1% (n = 18) of the respondents agreed, 3.6% (n = 2) disagreed, and 5.4% (n = 3) strongly disagreed that the use of social media platforms in teaching enabled them to be actively involved in teaching and learning. Thirty-two (57.1%) respondents strongly agreed that the use of social media enabled them to become independent, 35.7% (n = 20) agreed, 1.8% (n = 1) disagreed, and 5.4% (n = 3) strongly disagreed.

The results revealed that 39.2% (n = 22) strongly agreed that they were able to collaborate with other lecturers in teaching, 50% (n = 28) of the respondents agreed, 5.4% (n = 3) of the respondents disagreed, and another 5.4% (n = 3) strongly disagreed with this statement. Moreover, 51.8% (n = 29) of the respondents strongly agreed that they are enabled by the use of social media platforms to keep up to date with current developments in health science, 41% (n = 23) of the respondents agreed, 1.8% (n = 1) disagreed, and 5.4% (n = 3) strongly disagreed.

Of the respondents, 64.2% (n = 36) strongly agreed that they discovered new knowledge when using social media platforms, 26.8% (n = 15) of the respondents agreed, 3.6% (n = 2) disagreed, and 5.4% (n = 3) strongly disagreed. The results showed that 33.9% (n = 19) strongly agreed that boredom is relieved when they use social media platforms, 42.9% (n = 24) agreed, 12.5% (n = 7) disagreed, and 10.7% (n = 6) strongly disagreed with them. Twenty-four (42.9%) respondents strongly agreed that they experienced satisfaction in teaching when social media platforms were used, 44.6% (n = 25) agreed, 7.1% (n = 4) disagreed, and 5.4% (n = 3) strongly disagreed.

The results showed that 51.8% (n = 29) of the respondents strongly agreed that they were able to develop problem-solving skills when using social media platforms, 33.9% (n = 19) of the respondents agreed, 8.9% (n = 5) of the respondents disagreed, and 5.4% (n = 3) strongly disagreed. It is evident that the use of social media platforms appears beneficial in education and training. The results of this study concur with the findings of a study conducted in Morocco, at the University in Rabat, that investigated the role of social media networks in enhancing students' learning. That study demonstrated that the use of social media promoted collaboration in educational matters between students and lecturers (Faizi & EL Fkihi 2018:152). Furthermore, it was reported that uploading audios, videos, images, and text documents were helpful to students' academic performance (Faizi & EL Fkihi 2018:153).

SECTION E

6.4.13 Challenges experienced with the use of social media platforms

Table 6.27 shows the challenges experienced by respondents when engaging in social media platforms.

Table 6.27: Challenges experienced with the use of social media platforms (N = 56)

Challenges		Strongly agree	Agree	Disagree	Strongly disagree	Frequency = n/ Percentage
1	I struggle to operate computer equipment	n = 5 (8.9%)	n = 9 (16.1%)	n = 24 (42.9%)	n = 18 (32.1%)	n = 56 (100%)
2	I struggle to operate on Blog	n = 15 (26.8%)	n = 10 (17.9%)	n = 19 (33.9%)	n = 12 (21.4%)	n = 56 (100%)
3	I struggle to operate on Facebook	n = 8 (14.3%)	n = 7 (12.5%)	n = 16 (28.6%)	n = 25 (44.6%)	n = 56 (100%)
4	I struggle to operate on Twitter	n = 10 (19.4%)	n = 8 (14.3%)	n = 18 (32.3%)	n = 20 (34%)	n = 56 (100%)
5	I struggle to operate on WhatsApp	n = 1 (1.8%)	n = 5 (8.9%)	n = 15 (26.8%)	n = 35 (62.5%)	n = 56 (100%)
6	I struggle to operate on Google	n = 1 (1.8%)	n = 4 (7.1%)	n = 14 (25.0%)	n = 37 (66.1%)	n = 56 (100%)
7	I struggle to operate on YouTube	n = 4 (7.1%)	n = 3 (5.4%)	n = 17 (30.4%)	n = 32 (57.1%)	n = 56 (100%)
8	I struggle to operate on Instagram	n = 6 (10.7%)	n = 8 (14.3%)	n = 19 (33.9%)	n = 23 (41.1%)	n = 56 (100%)
9	I struggle to operate on Skype/ Video call	n = 5 (8.9%)	n = 9 (16.1%)	n = 17 (30.4%)	n = 25 (44.6%)	n = 56 (100%)
10	I cannot afford the necessary computer equipment	n = 9 (16.1%)	n = 16 (28.6%)	n = 18 (32.1%)	n = 13 (23.2%)	n = 56 (100%)

Challenges		Strongly agree	Agree	Disagree	Strongly disagree	Frequency = n/ Percentage
11	I am hampered by the cost of data	n = 19 (33.9%)	n = 17 (30.4%)	n = 10 (17.9%)	n = 10 (17.9%)	n = 56 (100%)
12	I am hampered by slow network signal coverage	n = 17 (30.4%)	n = 22 (39.3%)	n = 10 (17.8%)	n = 7 (12.5%)	n = 56 (100%)
13	The use of social media platforms is not my preferred way of learning	n = 6 (10.7%)	n = 6 (10.7%)	n = 30 (53.6%)	n = 14 (25.0%)	n = 56 (100%)
14	I struggle to independently obtain information from social media platforms	n = 3 (5.3%)	n = 9 (16.1%)	n = 21 (37.5%)	n = 23 (41.1%)	n = 56 (100%)
15	I struggle to achieve my learning objectives from the social media platforms	n = 6 (10.7%)	n = 7 (12.5%)	n = 24 (42.8%)	n = 19 (34.0%)	n = 56 (100%)
16	I lose sight of my learning objectives because I focus too much on social matters	n = 3 (5.6%)	n = 6 (10.7%)	n = 26 (46.4%)	n = 21 (37.5%)	n = 56 (100%)

Table 6.27 reveals that 8.9% (n = 5) of the respondents strongly agreed that they struggled to operate computer equipment, 16.1% (n = 9) agreed, 42.9% (n = 24) of the respondents disagreed that they struggled to operate computer equipment, and 32.1% (n = 18) strongly disagreed. Fifteen (26.8%) respondents strongly agreed that they struggled to operate blogs, 17.9% (n = 10) of the respondents agreed, 33.9% (n = 19) disagreed, and 21.4% (n = 12) strongly disagreed.

Eight (14.3%) respondents strongly agreed that they struggled to use Facebook, 12.5% (n = 7) of the respondents agreed, 28.6% (n = 16) disagreed and 44.6% (n = 25) strongly disagreed that they struggled to use Facebook. The results showed that 19.4% (n = 10) of the respondents strongly agreed that they could not tweet, 14.3% (n = 8) of the respondents agreed, 32.3% (n = 18) disagreed, and 34% (n = 20) never posted a tweet.

The minority of the respondents (1.8%; n = 1) strongly agreed that they struggled to use WhatsApp, 8.9% (n = 5) of the respondents agreed, 26.8% (n = 15) disagreed, and 62.5% (n = 35) strongly disagreed. The results demonstrated that 1.8% (n = 1) of the respondents strongly agreed that they struggled to use Google, 7.1% (n = 4) of the respondents agreed, 25% (n = 14) disagreed, and 66.1% (n = 37) strongly disagreed. Four (7.1%) respondents strongly agreed that they struggled to use YouTube, 5.4% (n = 3) of the respondents agreed, 30.4% (n = 17) disagreed, and 57.1% (n = 32) strongly disagreed that they struggled to use YouTube.

Of the respondents, 10.7% (n = 6) strongly agreed that they struggled to use Instagram, 14.3% (n = 8) of the respondents agreed, 33.9% (n = 19) disagreed, and 41.1% (n = 23) strongly disagreed. It was found that 8.9% (n = 5) of the respondents strongly agreed that they struggled to use Skype, 16.1% (n = 9) agreed, 30.4% (n = 17) disagreed, and 44.6% (n = 25) strongly disagreed with this statement.

The results demonstrated that 16.1% (n = 9) of respondents strongly agreed that they struggled to afford the necessary computer equipment, 28.6% (n = 16) agreed, 32.1% (n = 18) disagreed, and 23.2% (n = 13) strongly disagreed that they struggled to afford computer equipment. The majority of the respondents (33.9%; n = 19) strongly agreed that they were hampered by the cost of data, 30.4% (n = 17) agreed, 17.9% (n = 10) disagreed, and 17.9% (n = 10) strongly disagreed. Also, 30.4% (n = 17) strongly agreed that they were hampered by slow network signal coverage, 39.3% (n = 22) of the respondents agreed, 17.8% (n = 10) disagreed, and 12.5% (n = 7) of the respondents strongly disagreed.

Six (10.7%) respondents strongly agreed that social media platforms are not their preferred way of learning, another 10.7% (n = 6) of the respondents agreed, 53.6% (n = 32) strongly disagreed, and 18.0% (n = 11) disagreed.

= 30) disagreed, and 25% (n = 14) strongly disagreed with this statement. The results indicated that 5.3% (n = 3) strongly agreed that they struggled to independently obtain information from social media platforms, 16.1% (n = 9) of the respondents agreed, 37.5% (n = 21) disagreed with them, and 41.1% (n = 23) strongly disagreed that they struggled to obtain information independently from social media platforms.

Moreover, 10.7% (n = 6) of the respondents strongly agreed that they struggled to achieve learning objectives from social media platforms, 12.5% (n = 7) of the respondents agreed, 42.8% (n = 24) disagreed, and only 34% (n = 19) strongly disagreed. Three (5.6%) respondents strongly agreed that they lost sight of learning objectives because they were distracted by social matters when using social media for learning, 10.7% (n = 6) of the respondents agreed, 46.4% (n = 26) disagreed, and 37.5% (n = 21) strongly disagreed.

It is evident that the respondents were in agreement that they struggled to afford data and computer equipment, the network signal coverage seemed to be a challenge to most of the respondents, and some of the lecturers agreed that they lose focus of learning objectives when using social media platforms. The results of this study concur with Faizi and EL Fkihi's (2018:153) findings on the benefits of using social networks in education. They similarly reported that students get distracted when using social media platforms for educational purposes (Faizi & EL Fkihi 2018:153).

SECTION F

6.4.14 Preferences of different teaching strategies

Table 6.28 shows respondents' preferred teaching strategies.

Table 6.28: Results of different teaching strategies (N = 56)

Study Methods	Frequency (n)	Percent %
I prefer the use of social media platforms as a teaching strategy.	10	17.9
I prefer traditional teaching strategies.	6	10.7

Study Methods	Frequency (n)	Percent %
I prefer both social media platforms and traditional teaching strategies.	40	71.4
Total	56	100.0

Table 6.28 shows that 17.9% (n = 10) of the respondents preferred the use of social media platforms as a teaching strategy. The minority of the respondents (10.7%; n = 6) were in favour of the traditional teaching strategy, while the majority (71.4%; n = 40) of respondents were in favour of both traditional and social media platform teaching strategies. The final results of this study are that the traditional method of teaching is preferred by lecturers, even though other ways of teaching are welcomed. Similarly, in a study on technology in education – conducted in Tamilnadu Teachers Education University in Karapakkam (Power 2020:2496) – respondents reported that the use of technology in teaching and learning enhances understanding, although students still preferred to have contact sessions with their lecturers.

SECTION G

6.4.15 Factors enhancing the successful implementation of digital e-learning.

The factors that might enhance the successful implementation of digital e-learning are presented in Table 6.29.

Table 6.29: Factors enhancing the successful implementation of digital e-learning (N = 56)

Factors		Strongly agree	Agree	Disagree	Strongly disagree	Frequency = n/ Percentage
1	Availability of resources	n = 39 (69.6%)	n = 15 (26.8%)	n = 2 (3.6%)	n = 0 (0%)	n = 56 (100%)
2	Ability of users to navigate effectively through digital technological world	n = 35 (62.5%)	n = 17 (30.4%)	n = 4 (7.1%)	n = 0 (0%)	n = 56 (100%)

	Factors	Strongly agree	Agree	Disagree	Strongly disagree	Frequency = n/ Percentage
3	Motivation to be techno-wise	n = 32 (57.1%)	n = 22 (39.3%)	n = 1 (1.8%)	n = 1 (1.8%)	n = 56 (100%)
4	Access to multimedia content	n = 32 (57.1%)	n = 21 (37.5%)	n = 3 (5.4%)	n = 0 (0%)	n = 56 (100%)
5	Use of collective knowledge	n = 36 (64.3%)	n = 17 (30.4%)	n = 3 (5.4%)	n = 0 (0%)	n = 56 (100%)
6	Rapid knowledge sharing	n = 36 (64.3%)	n = 19 (33.9%)	n = 1 (1.8%)	n = 0 (0%)	n = 56 (100%)
7	Control of learning process	n = 31 (55.4%)	n = 22 (39.3%)	n = 3 (5.4%)	n = 0 (0%)	n = 56 (100%)
8	Availability of learning material	n = 34 (60.7%)	n = 19 (33.9%)	n = 2 (3.6%)	n = 1 (1.8%)	n = 56 (100%)
9	Quality of content material	n = 29 (51.9%)	n = 25 (44.6)	n = 1 (1.8%)	n = 1 (1.8%)	n = 56 (100%)
10	Easy to use intuitive	n = 29 (51.8%)	n = 24 (42.9%)	n = 2 (3.6%)	n = 1 (1.8%)	n = 56 (100%)
11	Reliability of resources and content knowledge	n = 27 (48.2%)	n = 28 (50.0%)	n = 1 (1.8%)	n = 0 (0%)	n = 56 (100%)
12	Offers a variety of activities	n = 29 (51.8%)	n = 23 (41.1%)	n = 4 (7.1%)	n = 0 (0%)	n = 56 (100%)
13	Encourages interaction between students	n = 28 (50.0%)	n = 24 (42.9%)	n = 3 (5.4%)	n = 1 (1.8%)	n = 56 (100%)
14	Formative evaluations and feedback are available	n = 27 (48.2%)	n = 24 (42.9%)	n = 4 (7.1%)	n = 1 (1.8%)	n = 56 (100%)
15	Risk management guidelines are clearly stipulated	n = 23 (41.1%)	n = 17 (30.4%)	n = 14 (25.0%)	n = 2 (3.6%)	n = 56 (100%)
16	Student and lecturers support: e.g.	n = 22 (39.3%)	n = 17 (30.4%)	n = 11 (19.6%)	n = 6 (10.7%)	n = 56 (100%)

Factors		Strongly agree	Agree	Disagree	Strongly disagree	Frequency = n/ Percentage
	Finance, Skills development, etc.					
17	Faculty support e.g. Policies	n = 27 (48.2%)	n = 18 (32.1%)	n = 6 (10.7%)	n = 5 (8.9%)	n = 56 (100%)

Table 6.29 reveals that the majority of the respondents (69.6%; n = 39) strongly agreed that the availability of resources is a factor in the successful implementation of digital e-learning, 26.8% (n = 15) agreed, 3.6% (n = 2) disagreed, and no one who strongly disagreed that the availability of resources is a factor in the successful implementation of digital e-learning. The results showed that 62.5% (n = 35) of the respondents strongly agreed that users' ability to navigate on the computer is a notable fact that will enhance the successful use of digital e-learning. Seventeen (30.4%) respondents agreed, 7.1% (n = 4) of the respondents disagreed, and no one strongly disagreed with this statement.

Moreover, 57.1% (n = 32) of the respondents strongly agreed that the motivation to be techno-wise is needed for the successful use of technology in teaching, 39.3% (n = 22) agreed, 1.8% (n = 1) disagreed, and no one strongly disagreed with this stance. Of the respondents, 57.1% (n = 32) strongly agreed that access to multimedia content is a factor in the successful implementation of digital e-learning, 37.5% (n = 21) of the respondent agreed, 5.4% (n = 3) of the respondents disagreed, and no one strongly disagreed. It was also determined that 64.3% (n = 36) of respondents strongly agreed that the use of collective knowledge is a factor in the successful use of e-learning, 30.4% (n = 17) of the respondents agreed, 5.4% (n = 3) of the respondents disagreed, and no one disagreed strongly.

The results showed that 64.3% (n = 36) of respondents strongly agreed that when knowledge is shared rapidly, it enhances the successful use of digital e-learning, 33.9% (n = 19) of the respondents agreed, 1.8% (n = 1) disagreed, and no one disagreed strongly with this statement. Thirty-one (55.4%) respondents strongly agreed that the success of the implementation of digital e-learning is based on

controlling the learning process, 39.3% (n = 22) of the respondents agreed, 5.4% (n = 3) disagreed, and no respondent strongly disagreed.

The results revealed that 60.7% (n = 34) of the respondents strongly agreed that learning material should be available in order for e-learning to be successful, 33.9% (n = 19) agreed, 3.6% (n = 2) disagreed, and 1.8% (n = 1) strongly disagreed. Most respondents (51.9%; n = 29) strongly agreed that the quality of content enhances the successful use of digital e-learning, 44.6% (n = 25) agreed, 1.8% (n = 1) disagreed, and another 1.8% (n = 1) strongly disagreed.

Twenty-nine (51.8%) respondents strongly agreed that since it is easy to use e-learning, it enhances its success during implementation; 42.9% (n = 24) agreed with this claim, 3.6% (n = 2) disagreed, and only 1.8% (n = 1) strongly disagreed. The respondents (48.2%; n = 27) also strongly agreed that the reliability of resources and content knowledge enhance the successful implementation of e-learning, 50% (n = 28) of the respondents agreed, 1.8% (n = 1) disagreed, and none of the respondents strongly disagreed that the success of e-learning depends on the reliability of resources.

The fact that the possibility of offering a variety of activities enhances the success of the use of e-learning was supported by 51.8% (n = 29) of the respondents, 41.1% (n = 23) agreed, 7.1% (n = 4) disagreed, and none of the respondents strongly disagreed. The results showed that 50% (n = 28) of the respondents strongly agreed that interaction between students enhances the success of the use of e-learning, 42.9% (n = 24) of the respondents agreed, 5.4% (n = 3) disagreed, and only 1.8% (n = 1) strongly disagreed with this statement.

Some respondents (48.2%; n = 27) strongly agreed that formative evaluations and feedback availability enhances the successful use of digital e-learning, 42.9% (n = 24) of the respondents agreed, 7.1% (n = 4) disagreed, and 1.8% (n = 1) strongly disagreed. Moreover, 41.1% (n = 23) strongly agreed that clearly stated risk management guidelines enhance the successful implementation of digital e-learning, 30.4% (n = 17) of the respondents agreed, 25% (n = 14) disagreed, and 3.6% (n = 2) strongly disagreed.

Twenty-two (39.3%) respondents strongly agreed that students and lecturers must be financially supported to promote the use of digital e-learning, 30.4% (n = 17) of the respondents agreed, 19.6% (n = 11) disagreed, and only 10.6% (n = 6) strongly disagreed. Also, 48.2% (n = 27) of the respondents strongly agreed that faculty support structures like policies enhance the successful use of digital e-learning, 32.1% (n = 18) agreed, 7% (n = 6) disagreed, and only 8.9% (n = 5) strongly disagreed.

It is clear that all the mentioned factors are considered very important, as assessed by the respondents. The findings by Anderson's (2019:13) study on the use of social media in higher education in New York reflected that technology could be used in teaching and learning if correctly planned and supported with clear guidelines. This supports the results of this study, and carefully planned and structured digital e-learning might enhance teaching and learning in the Nursing Colleges.

SECTION H

6.4.16 Lecturers' perceptions regarding the possibility of implementing social media platforms that will integrate theory and practice in nursing

The lecturers' responses are presented in Table 6.30.

Table 6.30: Lecturers' perceptions regarding the possibility of implementing social media platforms that will integrate theory and practice in nursing (N = 56)

Perceptions	Frequency (n)	Percentage %
Inadequate material and human resources	25	44.6
Incompetency level on computer skills	17	30.3
Perceptions	Frequency (n)	Percentage %
Good idea to be initiated	8	14.4
Make use of students' portal system	6	10.7
Total	56	100

Table 6.30 shows that the majority of the respondents (44.6%; n = 25) perceived that there are inadequate resources to implement social media platforms in teaching and learning, 30.3% (n = 17) perceived incompetency in computer skills to impact negatively on the use of social media platforms, 14.4% (n = 8) perceived the use of social media platforms as a good idea, and the minority of the respondents (10.7%; n = 6) suggested a student portal system to be implemented in the Nursing Colleges. According to the lecturers, it was evident that the initiative to use social media in teaching is a good idea, however, due to a lack of resources and computer skills, it might be challenging to implement this approach in their Nursing Colleges. The results of this study share the same sentiments as a study conducted in Zambia on the use of social media in education; it found that the use of social media is a good idea as it promotes student-centred blended-learning approaches (Mwalimu, Mulauzi & Mwiinga 2017:6).

6.4.17 Lecturers' perceptions of policies to guide the use of social media platforms in teaching and learning

In every institution where there are groups of people, behavioural conduct should be guided to ensure uniformity and working towards a common goal. The respondents' perceptions of possible policies to inform teaching and learning are presented in Table 6.31.

Table 6.31: Lecturers' perceptions of policies to guide the use of social media platforms in teaching and learning (N = 56)

Policies	Frequency (n)	Percentage %
Disclaimer / Code of conduct	36	64
Access	8	15
Safety	8	15
Assessment	2	3
Policies	Frequency (n)	Percentage %
Rules / respect	2	3
Total	56	100

Table 6.31 illustrates that the majority of the respondents (64%; n = 36) recommended a policy on a code of conduct and disclaimer, 15% (n = 8) recommended a policy that relates to access to resources as necessary, 15% (n = 8) suggested a policy on safety matters, 3% (n = 2) identified assessment policies should be in place, and 3% (n = 2) suggested rules that talk to respect among users.

The results implied that there is a need for a clear code of conduct that will guide users on basic conduct rules, self-management rules, and engagement rules. An access policy is crucial as it will guide content and interaction measures. The Protection of People Information (POPI) Act (No 4 of 2013) will have to be implemented to ensure safety and privacy measures. Lecturers suggested that acts guiding teaching and learning should be considered and applied, which included teaching and learning acts and assessment policies. The results are similar to the findings of a study conducted in Italy by Van Den Beemt, Thurlings and Willems (2020:49), which revealed that policies to guide the use of social media should be included in the curriculum to inform assessment and people's behaviours.

6.4.18 Challenges with regard to the use of social media platforms in teaching and learning

Table 6.32 presents the results on possible challenges.

Table 6.32: Challenges with the use of social media platforms in teaching and learning (N = 56)

Challenges	Frequency (n)	Percentage %
Lack of resources	39	70
Lack of skills	12	21
Self-management	4	7
Safety	1	2
Total	56	100

Table 6.32 indicates that the majority of the respondents (70%; n = 39) identified lack of resources as a challenge to the use of social media platforms in teaching and learning, 21% (n = 12) identified a lack of skills as a challenge, 7% (n = 4) identified the inability to manage oneself as a challenge that might impede the use of social

media platforms, and 2% (n =1) perceived a lack of safety of information as a challenge. It shows that a lack of resources (network to connect the signal, data to connect online, compatible gadgets to connect to the digital world) is the biggest challenge foreseen by the respondents. Moreover, a clear lack of skills was noted by both lecturers and students. Some lecturers believed that some of their colleagues are not willing to learn the required computer skills. Self-management was another challenge as both students and lecturers might easily get distracted by other activities on social media platforms. The results are similar to the findings of a study conducted in Zambia on the use of social media platforms in teaching and learning; a lack of resources, poor network connectivity and an ability to afford the cost of internet data bundles were reported (Mwalimu et al 2017:7).

6.4.19 Lecturers’ recommendations regarding the use of social media platforms as an additional supportive tool for learning

Table 6.33 shows lecturers’ recommendations regarding the use of social media platforms in the Public Nursing Colleges under study.

Table 6.33: Lecturers’ recommendations regarding the use of social media platforms as an additional supportive tool for learning (N = 56)

Recommendations	Frequency (n)	Percentage %
Access to the resources	31	56
Training workshops	11	19
Interaction between lecturers and students	7	12
Multiple teaching strategies	4	7
Others: Policies/rules	3	6
Total	56	100

Table 6.33 shows that the majority of the respondents (56%; n = 31) recommended the accessibility of resources for all users, 19% (n = 11) recommended training workshops to empower users, and 12% (n = 7) recommended guidelines that inform interactions between lecturers and students. Another 7% (n = 4) recommended multiple teaching strategies should be used during teaching and learning, while the

minority of the respondents (6%; n = 3) recommended that there should be policies and rules to guide the users of social media platforms in teaching and learning. It is clear that social media platforms' use will only be successful if lecturers and students are provided with the necessary equipment, have access to its use, interact and engage on the social media platforms. The biggest challenge was related to the lack of equipment, data, Wi-Fi and laptops, or even computers. Training on the use of digital equipment should be conducted and mandatory. Respondents also recommended compulsory interaction among users.

The following sections discuss the results from both students' and lecturers' questionnaires and compare the similarities and differences.

6.5 COMPARISON BETWEEN STUDENTS' AND LECTURERS' RESPONSES

A comparison of the responses was undertaken using the two-sample Wilcoxon rank-sum (Mann-Whitney) test. This is an equivalent non-parametric procedure used in comparing two non-normal samples. The Wilcoxon rank-sum test, also known as the Mann-Whitney two-sample statistic (Wilcoxon 1945:167; Mann & Whitney 1947:123), tests the hypothesis that two independent samples (that is, unmatched data) are from populations with the same distribution. Table 6.34 presents the results comparing the different ways of obtaining educational information, according to students' and lecturers' perceptions.

6.5.1 Comparison regarding educational information as perceived by students and lecturers

The results of different ways to obtain educational information as perceived by students and lecturers are presented in Table 6.34.

Table 6.34: Comparison of educational information as perceived by students and lecturers

Sources of educational information		z-score	prop	Significant (sig)
1	Obtaining information from the textbooks	2.833	0.008	Significant
2	Obtaining information from the CD-ROM	-2.89	0.004	Significant
3	Obtaining information from the e-books	-1.830	0.066	Not Significant
4	Obtaining information from the audiotapes	1.556	0.12	Not Significant
5	Obtaining information from videotapes	3.228	0.001	Significant
6	Obtaining information from the internet/Google	-1.220	0.22	Not Significant
7	Participating in online chatting with other lecturers for educational purpose	0.326	0.74	Not Significant
8	Participating in video conferencing with students for educational purpose	-1.046	0.29	Not Significant
9	Participating in video conferencing with other lecturers for educational purpose	-0.622	0.53	Not Significant
10	Exchange information with students by using different social media platforms	1.336	0.18	Not Significant
11	Exchange educational information with lecturers by using different social media platforms	0.789	0.43	Not Significant

Table 6.34 shows that the perceptions among students and lecturers differed in three noticeable areas. These include information from **textbooks**, **CD-ROM** and **videotapes**. However, their perceptions were similar in the other ways of obtaining educational information. These included e-books, audiotapes, Google, online chatting, video conferencing, and the use of social media platforms. The exchange of educational information between students and lecturers, as well as among students themselves, was not significant.

6.5.2 Comparison of responses regarding social media platforms and learning

The comparison of social media platforms and learning, as perceived by students and lecturers, is presented in Table 6.35.

Table 6.35: Comparison of social media platforms and learning

Use of social media platforms benefitted me by		z-score	prop	Significant (sig)
1	Enhancing my motivation to teach	-0.290	0.77	Not Significant
2	Giving me a sense of being in control of my teaching	-0.280	0.77	Not Significant
3	Enabling me to select the time for my study	0.025	0.98	Not Significant
4	Enabling me to establish my own pace of teaching	-0.019	0.98	Not Significant
5	Enabling me to discontinue studying when my concentration wavers	1.435	0.15	Not Significant
6	Enabling me to repeatedly study sections of the teaching material until I gain understanding	0.005	1.00	Not Significant
7	Giving me the freedom to make mistakes and learn from it	1.754	0.08	Not Significant
8	Decreasing pressure placed on me by institutional policies and procedures	1.013	0.32	Not Significant
9	Decreasing pressure placed on me by colleagues	1.350	0.18	Not Significant
10	Enabling me to access information	0.967	0.34	Not Significant
11	Enabling me to store and retrieve information	0.138	0.89	Not Significant
12	Enabling me to develop my critical thinking skills	2.583	0.01	Significant
13	Enabling me to be actively involved in learning	3.040	0.00	Significant
14	Enabling me to become independent	1.642	0.10	Not Significant
15	Enable me and other lecturers to engage in collaborative teaching and learning	0.898	0.36	Not Significant
16	Enable me to keep up to date with current developments in health sciences	1.366	0.17	Not Significant
17	Making it exciting to discover new knowledge	2.600	0.01	Significant

Use of social media platforms benefitted me by		z-score	prop	Significant (sig)
18	Relieving the boredom which I previously experienced during the use of traditional teaching method only	1.152	0.25	Not Significant
19	Enabling me to experience satisfaction during the teaching and learning process	2.473	0.01	Significant
20	Enabling me to develop my problem-solving skills	2.129	0.03	Significant

Table 6.35 shows similar responses among students and lecturers on whether social media platforms enhance teaching. Their responses are similar in most items listed in Table 6.35, but differed in the highlighted areas: **Critical thinking skills, active involvement in learning, discovery of new knowledge, satisfaction during teaching and learning, and problem-solving skills.**

6.5.3 Comparison of challenges experienced when using social media platforms

The results of anticipated challenges when using social media platforms are presented in Table 6.36.

Table 6.36: Comparison of challenges experienced when using social media platforms

Challenges		z-score	prop	Significant
1	I struggle to operate computer equipment	-0.183	0.86	Not Significant
2	I struggle to operate blogs	-0.009	0.99	Not Significant
3	I struggle to operate on Facebook	1.633	0.10	Not Significant
4	I struggle to operate on Twitter	1.315	0.19	Not Significant
5	I struggle to operate on WhatsApp	0.493	0.62	Not Significant
6	I struggle to operate on Google	-0.099	0.93	Not Significant
7	I struggle to operate on YouTube	0.852	0.40	Not Significant
8	I struggle to operate on Instagram	0.508	0.612	Not Significant
9	I struggle to operate on Skype/ Video call	-0.819	0.41	Not Significant

Challenges		z-score	prop	Significant
10	I cannot afford the necessary computer equipment	-2.143	0.03	Significant
11	I am hampered by the cost of data	-3.787	0.00	Significant
12	I am hampered by slow network signal coverage	-2.114	0.04	Significant
13	The use of social media platforms is not my preferred way of learning	-3.014	0.00	Significant
14	I struggle to independently obtain information from social media platforms	-1.888	0.06	Not Significant
15	I struggle to achieve my learning objectives from the social media platforms	-2.338	0.02	Significant
16	I lose sight of my learning objectives because I focus too much on social matters	-4.479	0.00	Significant

Table 6.36 shows the students' perceived challenges differed significant from the lecturers' in terms of the **cost of data**, **slow network**, **preferred way of learning**, **success in achieving learning objectives**, and **losing sight of learning objectives** and focusing too much on social matters. These results demonstrated that both the students and lecturers anticipated possible challenges related to the use of social media platforms in teaching and learning.

6.5.4 Comparison of preferred study methods

The results showed no evidence of differences in the responses between students' and lecturers' perceptions with regard to their preferences of **different study methods**. From the responses, both groups expressed a preference for both traditional lecture methods and the use of social media platforms.

6.5.5 Factors enhancing the successful implementation of digital e-learning

The z-score is $z = 1.728$ with a probability of 0.08, implying there is no evidence to suggest differences. This is demonstrated in Table 6.37.

Table 6.37: Comparison of factors enhancing the successful implementation of digital e-learning

Factors		z-score	prop	Significant
1	Availability of resources	0.587	0.56	Not Significant
2	Ability of users to navigate effectively through the digital technological world	1.183	0.23	Not Significant
3	Motivation to be techno-wise	1.787	0.07	Not Significant
4	Access to multimedia content	1.719	0.09	Not Significant
5	Use of collective knowledge	2.537	0.01	Significant
6	Rapid knowledge sharing	2.998	0.00	Significant
7	Control of the learning process	1.968	0.05	Significant
8	Availability of learning material	1.208	0.24	Not Significant
9	Quality of content material	0.854	0.38	Not Significant
10	Easy to use intuitive	1.621	0.10	Not Significant
11	Reliability of resources and content knowledge	1.610	0.11	Not Significant
12	Offers a variety of activities	1.796	0.07	Not Significant
13	Encourages interaction between students	1.852	0.06	Not Significant
14	Formative evaluations and feedback are available	2.072	0.04	Significant
15	Risk management guidelines are clearly stipulated	0.872	0.37	Not Significant
16	Student and lecturer support ; e.g. finance, skills development, etc.	-0.261	0.79	Not Significant
17	Faculty support, e.g. Policies	1.731	0.08	Not Significant

Table 6.37 shows that the students and lecturers agreed on most of the factors, but they differed significantly with respect to **collective knowledge, rapid knowledge of sharing, control of the learning process, and availability of formative evaluations and feedback**, respectively.

6.5.6 Computer expertise between students and lecturers

The comparison of respondents' level of computer expertise, according to the students and lecturers, is shown in Figure 6.9.

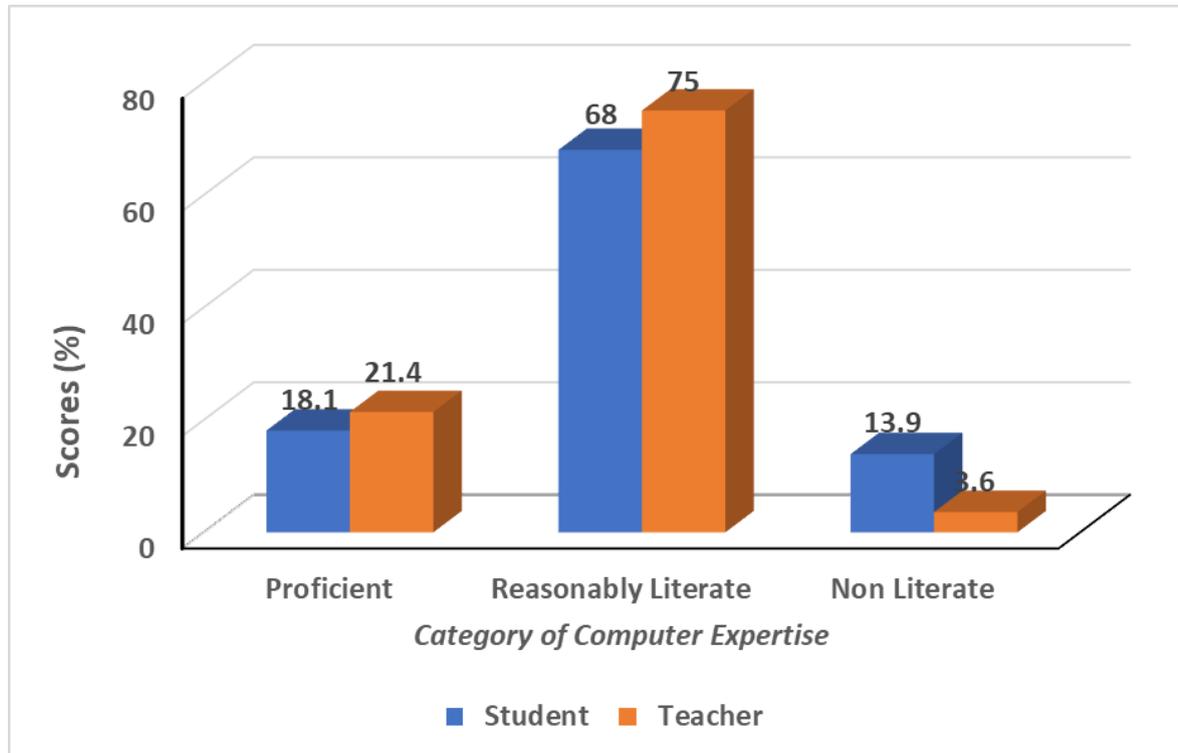


Figure 6.9: Computer expertise between students and lecturers

Figure 6.9 shows a relative similarity in the groups' responses with respect to proficiency in computer literacy.

6.5.7 Comparison of the ranking order of social media platforms

The results showing the ranking of different social media platforms between students and lecturers are presented in Table 6.38.

Table 6.38: Comparison of the ranking order of social media platforms

Social media platforms		Students	Lecturers
No	Platforms	[%] [Ranks]	[%] [Ranks]
1	WhatsApp	47.3 [1 st]	75.0 [1 st]
2	Facebook	4.9 [4 th]	1.8 [8 th]
3	Twitter	3.7 [7 th]	10.7 [4 th]
4	Blog	7.6 [3 rd]	1.8 [8 th]
5	Instagram	2.2 [9 th]	8.9 [5 th]
6	Skype	4.0 [6 th]	3.6 [7 th]
7	Google	33.8 [2 nd]	28.6 [2 nd]
8	YouTube	4.6 [5 th]	17.9 [3 rd]
9	Portal system, emails, Telegram, Zoom	2.6 [8 th]	5.4 [6 th]

Table 6.38 shows the respondents' ranking order of social media platforms. In the first and second positions, WhatsApp and Google were chosen by both students and lecturers, pointing to its use in communication and searching for information. Results showed that 47.3% of the students rated the WhatsApp application first, while 75% of the lecturers did the same. Instagram ranked lowest among students, while Facebook/blogs ranked lowest among lecturers.

6.5.8 Comparison of hours spent on different social media platforms

The number of hours spent on social media platforms according to the lecturers and the students is presented in Table 6.39.

Table 6.39: Comparison number of hours spent on different social media platforms

Social Media Platforms		z-score	prop	Significant
1	WhatsApp	3.561	0.00	Significant
2	Facebook	2.09	0.03	Significant
3	Twitter	0.836	0.40	Not Significant
4	Blog	-2.058	0.05	Significant
5	Google	0.408	0.68	Not Significant
6	YouTube	2.294	0.02	Significant

Social Media Platforms		z-score	prop	Significant
7	Skype /Video call	-0.843	0.40	Not Significant
8	Instagram	1.492	0.13	Not Significant

The results in Table 6.39 show that there were noticeable differences in lecturers' and students' frequency of using **WhatsApp, Facebook, blogs** and **YouTube**, respectively.

6.5.9 Perceptions of the possibility of implementing social media platforms that will integrate theory and practice

This section discusses the respondents' perceptions of using social media platforms in teaching and learning, policies to guide the system, possible challenges and recommendations. The students and the lectures were in agreement on the current lack of resources and computer skills. Both groups perceived this type of approach to teaching and learning as a good initiative and convenient for both students and lecturers. All respondents believed that a policy or a code of conduct and disclaimer, a policy on the quality of content posted on social media platforms, and strict control measures of such information is necessary. They all agreed that rules of engagement and active participation must be clearly stated and strengthened to ensure that all users take part during activities. The respondents perceived access to the different technological resources and support by management as a crucial aspect to the successful implementation of social media platforms in teaching and learning. The students emphasised the importance of a standardised language policy, and the lecturers raised the necessity for teaching and learning policies, as well as an assessment policy.

In terms of the foreseen challenges, both the students and the lecturers perceived a lack of resources as a major challenge; the lack of computer skills and the destructive nature of social media platforms were also potentially problematic. Some of the lecturers viewed most of the social media platforms as being ideal for younger generations, and they were not willing to take up the challenge of learning to teach lessons differently.

Recommendations were made by both lecturers and students to implement social media platforms in teaching and learning. They recommended that the Nursing College Management provide them with the necessary equipment, conduct in-service training on the use of digital technology for all users to start at the same level of understanding, and ensure there are policies to inform the use of social media platforms in teaching and learning. Moreover, they stated that social media platforms should be carefully selected to serve the teaching and learning purpose, the quality of content posted should be strictly monitored and controlled, and the traditional lecture teaching strategy should not be entirely replaced.

6.6 CONCLUSION

This chapter presented the quantitative data analysis findings, interpretation and discussion. The findings were discussed in relation to the literature review. It was found that the students and the lecturers knew and understood different types of social media platforms, and they had used them for various reasons in their lives. The results revealed that both the students and the lecturers were willing to use social media platforms in teaching and learning, and neither group wanted to let go of the traditional lecture teaching strategy. Despite the foreseen challenges, they recommended that, with careful planning and support from the Department of Health and Department of Higher Education, the use of social media platforms could be a good initiative.

Chapter 7 presents the integration of the qualitative findings and the results of the quantitative approach. The findings of this study informed the conceptual teaching and learning model that is developed in Chapter 7.

CHAPTER 7

PHASE 3: INTEGRATION OF THE FINDINGS AND DEVELOPMENT OF A MODEL

7.1 INTRODUCTION

Chapter 6 discussed the quantitative data analysis of this study. This chapter addresses the integration of the qualitative findings and the quantitative results of this study in order to develop a conceptual teaching and learning model using social media platforms that will integrate nursing theory and practice.

The following items are discussed:

- Interpretation of the main results of phases 1 and 2;
- Discussion of the results of phases 1 and 2;
- Joint display of the outcomes of this study.

7.2 PURPOSE OF THE STUDY

The purpose of this study was to develop a conceptual teaching and learning model, using social media platforms that will integrate nursing theory and practice.

7.3 INTERPRETATION OF THE MAIN RESULTS

Data for phase 1.1 were collected from first- and second-year student nurses from three Public Nursing Colleges in Gauteng province. Data were collected from September 2019 to October 2019 (49 days). Data for phase 1.2 were collected from lecturers in the same Nursing Colleges. A total of 34 participants (20 students and 14 lecturers) were interviewed to provide data that were analysed to provide the findings of phase 1.

7.3.1 Interpretation of the main results for phase 1.1: Student nurses

The concept 'social media platforms' appeared clearly understood among students. The students agreed that a conceptual teaching and learning model using social media platforms embedded in a digital e-learning system, which will integrate nursing theory and practice, might be used as an additional teaching tool. The most commonly used social media platforms in their context are WhatsApp, Facebook and Twitter. According to the participants, the roll-out of a conceptual teaching and learning model using social media platforms embedded in a digital e-learning system as a supportive tool for studying could be a positive move towards the digitalisation of teaching and learning. However, they were concerned about the accessibility of the technological equipment involved in making social media platforms effective as a teaching and learning tool, which could be a challenge. Their other concern was older generations of lecturers' and students' ability to navigate social media platforms in teaching and learning.

The students acknowledged that the Department of Health is in the process of developing infrastructure (installing optic Wi-Fi cables and audio-visuals in class venues), but their Nursing Colleges are not ready to roll-out a conceptual teaching and learning model using that will integrate nursing theory and practice. They argued that the computer laboratories are too small to accommodate the number of students in their Nursing Colleges. The ICT personnel still need advanced training on their own before they can capacitate any other person on the use of digital equipment. The other concern was the internet connection cables as they get easily overloaded during lessons when more users log into the system at once. This was perceived as a challenge that might compromise the quality of education and training as other students might be disadvantaged.

The students believed that even though some of the lecturers are aware of different social media platforms that are available, they are not very familiar with platforms like Instagram. They described Instagram as a platform for those who enjoy bragging about their achievements, and they argued that it could not be used for academic purposes. Blogs was the one social media platform that was not popular among the

students; the students felt that blogs could not be used for teaching and learning purposes as it is owned and controlled by an individual.

The participants explained:

P3: *“Like, using, especially WhatsApp or like recording the lecture and then posting it is also another way of studying on our own without interruptions, you can revisit the lesson and you get to capture and understand the content more. It will work but data needs to be considered and made available. Gadgets must be available. Then everything will work. Students spend a lot of time on social media already, they might as well learn from there too.”*

The participant gave an example of the different uses of WhatsApp as an additional tool for teaching and learning. The participant highlighted the possibility of having learning content posted on WhatsApp chat groups, which will allow the students to read and listen to the learning content repeatedly until the content is understood. This study's findings support those of a study conducted in India on the effectivity of e-learning through WhatsApp as a teaching tool. It reported that 90% of students agreed that the interaction between students and lecturers increased, and sharing of learning material increased even though general academic performance was not influenced by the use of WhatsApp as an additional teaching tool (Gon & Raweker 2015:23).

P1: *“I personally think each platform created had a purpose, like Facebook to connect us, Twitter for jokes, Instagram for bragging. That is where we post our new clothes, handbag, Brazilian - that is where we brag. So, Instagram, there's no time for study, so you won't even have to type something that is school-related people aren't going to comment, they're not even going to view the photo. We want to see the recent fashion clothes not information about school.”*

The participant mentioned the different types of social media platforms and the different ways of using them. The participant seemed to have not perceived the use of social media platforms to be ideal for teaching and learning.

P3: *“WhatsApp groups; the same purpose the YouTube channel will serve; you can still upload that video on WhatsApp. They can still download it on WhatsApp. Some students might think downloading on WhatsApp takes lesser data than YouTube. It’s also dependent on which social media platform our students spend more of their time on. It’s better to use the one they use the most. You can upload on various platforms.”*

The participants suggested that the chosen social media platforms should be those that the students and the lecturers are familiar with and can operate. These findings concur with the results of a study exploring the role of social media in collaborative learning in Saudi Arabia; it revealed that, with use of different social media platforms, students and lecturers are able to share educational information from different angles (Ansari & Khan 2020:12).

The following section outlines the researcher’s interpretation of the main findings of the interviews conducted with the lecturers.

7.3.2 Interpretation of the main results for phase 1.2: Lectures

The lecturers agreed with the students, as discussed in Section 7.3.1. The lecturers mentioned other digital equipment and platforms like interactive boards and podcasts, which the students did not mention. The lecturers shared that if teaching and learning have to be digitalised, interactive boards may be used as they are multifunctional and innovative. Google was mentioned even though they questioned the authenticity of the information posted on it as some websites like Wikipedia are not controlled. Lecturers still recommended the use of textbooks and wanted the students to use prescribed books.

The researcher’s interpretation was based on the following quotation:

P10: *“For an example, most of these higher learning institutions they’ve got their Facebook pages whereby they can communicate to a big number of students in 1 second, whereby if we were still using the old methods we would have not been able to reach those numbers – social media advantage is that you can communicate with a big number of people within a short space of time hence I believe it should be used*

in teaching and learning because it can be facilitated in a faster way than the previous methods.”

The participant was emphasising the importance of using social media platforms, and time and venue are not meant to be a concern. The participants indicated that it is easy to send communications to a large group of people at any time through the use of social media platforms. Similarly, in Saudi Arabia, students perceived the use of Facebook in the teaching and learning environment as a good idea that allowed collaboration between students, and students and their lecturers (Ansari & Khan 2020:8).

P11: *“And moreover, if we have implemented social media platforms in teaching; I agree with my colleagues we need to control it; we cannot totally rely on that because we need to actually support the posted information by providing contact sessions in the classrooms, so it should not be the replacement of contact sessions in the classroom.”*

The participant welcomed the idea of using social media platforms in teaching and learning. However, the participant suggested that the use of social media platforms in teaching should be controlled strictly. It was suggested that even though the use of social media platforms in teaching should be promoted, these must not replace the traditional lecture teaching strategies.

P11: *“YouTube can load up your slides. It could come as a process of series, particularly if you want to engage the students in terms of also having a feel of their understanding. Because now, if you pose the questions; it could also be something like a debate that they can all be engaged, you can divide the group into sub groups and pose a question for them to debate. Then you can also be able to assess their level of understanding.”*

The participant seemed to have a greater interest in the use of YouTube. The participant explained different ways of using the YouTube channel to benefit students and lecturers. The participant seemed to be interested in the way YouTube use could enable students to be independent and take the lead in their studies. The findings of

this study concur with the results of a study conducted at the University of Minnesota on scholars' YouTube channel use; content analysis revealed that YouTube is good for teaching and learning purposes in the sense that it allows users to create their own content, improve connectedness, networking and collaboration (Martinho, Pinto & Kuznetsova 2012:79).

P7: *“Okay, I would like to ask you, those that have internet and have time to connected to Facebook, there are ways where it can be controlled where you put your lesson in fiscal, I've used it. I've used that accessing some learning content using Facebook, and it was quite useful.”*

The participant shared their perceptions of using Facebook for learning and the importance of the information shared on Facebook. The participant wanted to assure other participants that Facebook is a safe social media platform to be used in teaching and learning contexts. Similarly, a study conducted in Germany, on the use of social media in higher education by Zachos et al (2018:211), revealed that social media platforms may be used in teaching and learning, but strict control measures should be in place to protect authors' intellectual information.

7.3.3 Interpretation of the main results for phase 2.1: Student nurses

Data for phase 2.1 were collected from first and second-year student nurses enrolled in 2018, 2019 and 2020 in three Public Nursing Colleges from May 2020 to July 2020. Data for phase 2.2 were collected from lecturers in the same Nursing Colleges. A total of 752 respondents completed the questionnaire developed by the researcher; 696 were students, and 56 were lectures. All the information from the questionnaires was electronically captured and analysed by a qualified registered statistician.

The results revealed that 80.6% (n = 561) of the respondents always obtained educational information from textbooks, while 28.2% (n = 196) of respondents used e-books. In terms of other sources, 63.6% (n = 443) of the respondents searched for information from the internet, 32.3% (n = 225) watched videotapes, 19% (n = 132) got educational information from audiotapes and 4.3% (n = 30) obtained educational information from CD-ROM.

In the 4IR, human behaviour has changed, and people are using social media platforms to either communicate, search for information, socialise with other people or even conduct business online. Concerning educational matters, 58.2% (n = 406) of the respondents used social media platforms to share educational issues with peers, and 43.2% (n = 301) of the respondents claimed to share information with their lecturers using social media platforms. Social media platforms like video conferencing were used by 38.2% (n = 266) of the respondents. Most of the respondents were using WhatsApp and video calls to communicate and share educational information with fellow students and their lecturers. Google was used by 74.4% (n = 518) of the respondents daily, while Facebook was used by 51.7% (n = 360) of the respondents, and 38.2% (n = 266) of the respondents reported daily use of YouTube as their source of information.

7.3.4 Interpretation of the main results for phase 2.2: Lecturers

The lecturers' feedback demonstrated that 71.4% (n = 23) of the respondents primarily used Google to obtain educational information, while 66.1% (n = 21) of the respondents used textbooks. Most of the respondents (32.1%; n = 18) spent 12 hours and more using WhatsApp daily, followed by 17.9% (n = 10) using Google and 16.1% (n = 9) using Facebook for 12 hours daily. Respondents engaged in social media platforms such as WhatsApp, with 94.7% (n = 53) daily users, and 32.1% (n = 18) spent 12 hours and more daily on WhatsApp. Google was ranked second with 78.6% (n = 44) daily users, and 17.9% (n = 10) spent 12 hours and more per day on Google. Facebook had 44.6% (n = 25) daily users, and 16.1% (n = 9) of users spent 12 hours and more daily on the platform. The respondents' acknowledged use of social media platforms is a positive start for e-learning use among lecturers.

7.4 DISCUSSION OF THE SUMMARY OF MAIN RESULTS OF PHASES 1 AND 2

Most of the students and the lecturers seemed to like the idea of introducing new teaching strategies. It would appear the respondents were in favour of social media platforms that could easily be accessed by all students and lecturers. They also wanted a system that is well regulated and monitored by the lecturers.

It was evident that the students and the lecturers seemed to be in favour of social media platforms like WhatsApp, YouTube, Facebook and Skype. They reported they would be happy to have the learning content recorded, which will enable them to listen to the presentations repeatedly. They would also prefer to have visual learning content.

The lecturers and the students would like to have support from management in terms of necessary resources to allow the implementation of social media platforms in teaching and learning. They wanted management to empower the students and the lecturers who are unable to operate social media platforms, by providing them with workshops.

The results of this study concur with the findings of the study conducted by Power (2020:2497), which revealed that technology can be used effectively to supplement instructions by providing instructional variety, making abstract concepts concrete, and by stimulating interest among students. Terms like 'audio-visual education', 'audio-visual instructions' and 'audio-visual devices' were used to represent the variety of media employed to supplement instruction.

Several challenges were identified by the students and the lecturers. These challenges included:

- Lack of resources in terms of networks, electricity to keep the electronic devices charged, lack of smartphones, laptops, computers or tablets, were the biggest challenges students faced.
- Lack of computer literacy skills to engage in digital social media platforms might render the use of social media platforms in teaching and learning ineffective.
- The students who were familiar with the use of social media platforms feared losing concentration while studying and being distracted by other activities on these platforms. Therefore, it will be vital to choose appropriate social media platforms for use in teaching and learning.
- The lecturers might need training on the use of computers and social media platforms.

- There was a significant need for resources such as data and tools of the trade, like laptops.
- The portal system for students' use will have to be interactive, as videos were preferred by students.

The findings of this study support those of a study conducted about online teaching and learning using social media platforms embedded in a digital e-learning system that integrated nursing theory and practice. That study revealed that social media platforms have managed to transform young peoples' lives while becoming one of the most important means of communication and entertainment (Zachos et al 2018:1). Meanwhile, the educational community is concerned about the use of social media platforms that continuously decrease students' interest in the educational processes and affect their academic performance, leading to dropouts (Zachos et al 2018:2).

7.5 JOINT DISPLAY OF THE OUTCOMES OF THIS STUDY

The joint display model is a structural model used to integrate and synthesise the qualitative and quantitative data at the analysis and interpretation level (Creswell & Clark 2018:94). The joint display model for this study is outlined in Table 7.1.

Table 7.1: Joint display from an exploratory sequential design that maps qualitative codes to quantitative items

Dimensions on objectives of the study		Codes	Items
1	Amount of time spent on different social media platforms	Existing knowledge of communication platforms and advantages thereof	- WhatsApp: 94.7% - 97% - Google: 74.4% - 78.6% - YouTube: 26.8% - 38.2% - Facebook: 44.6% - 51.7%
2	Sources for obtaining educational information	Existing views related to the implementation of social media	- Textbooks: 87.5% - 97%

Dimensions on objectives of the study		Codes	Items
		platforms in education and training	<ul style="list-style-type: none"> - E-books: 64.7% - 71.5% - Internet: 91.6% - 96.6% - Online chatting: 76.8% - 79.9% - Videotapes: 51.7% - 76.1% - Audiotapes: 46.4% - 54.5% - Video conference: 52.1% - 58.9% - CD-ROM: 29.7% - 46.7%
3	Factors enhancing the successful implementation of digital e-learning	Preferred types of social media platforms	<ul style="list-style-type: none"> - Access Information: 90.5% - 94.6% - Store information: 91.5% - 92.8% - Discovery of new information: 85.5% - 91% - Critical thinking: 91%

Dimensions on objectives of the study		Codes	Items
4	Feasibility of implementing social media platforms in teaching and learning	Readiness to implement social media platforms	<ul style="list-style-type: none"> - Availability of resources: 92.4% - 96.4% - Digital technology world: 91.3% - 92.9% - Availability of learning material: 92.9% - 94.6% - Quality of content material: 90.4% - 96.5%
5	Possible challenges to the use of social media platforms in teaching and learning	Barriers to the implementation of social media platforms in teaching and learning	<ul style="list-style-type: none"> - Inability to operate computerised equipment: 25% - 26% - Inability to afford digital equipment: 44.7% - 58.9% - Inability to afford data: 64.3% - 84.5% - Inadequate network signal: 69.7% - 79.1%

7.5.1 Amount of time spent on different social media platforms

From the findings of this study, it was evident that the participants knew a lot about different social media platforms. The participants used one or more social media platforms in their lives, either for educational, personal or social purposes. In their views, WhatsApp, Google, YouTube and Facebook were used daily for a minimum of 12 hours or more. The work of Thorndike proved that learning takes place when people behave in a certain way, and people today – young and old – are glued to their digital

gadgets (Aliakbari et al 2015:1). The researcher used this theory to explore basic student nurses' and lecturers' perceptions of the viability of implementing social media platforms in teaching and learning in Public Nursing Colleges.

7.5.2 Sources for obtaining educational information

Literature revealed that the use of multimedia platforms in teaching and learning might benefit the users by stimulating their senses, aiding with comprehension, improving meaningful learning, retaining knowledge, and activating participation (Bruce & Klopper 2017:294). Similarly, in this study, the respondents perceived textbooks, e-books, the internet and audio-visuals as their main sources of educational information; they did not rely on a single source of information. The results of this study are supported by the findings of Thorndike's learning theory of trial and error in nursing education, where skills' competencies are achieved when student nurses practice procedures on mannequins (Aliakbari et al 2015:4). In the 21st century, the digital world provides mannequins able to communicate and respond like real human beings. These digital mannequins allow student nurses to acquire clinical learning competencies before getting in contact with real patients.

7.5.3 Factors enhancing the successful implementation of digital e-learning

The participants in this study were of the view that social media platforms might assist them in accessing, storing and retrieving information and discovering new knowledge. These findings are supported by Piaget's cognitive development in teaching and learning, claiming that children learn best by doing and actively exploring activities. Learning should be student-centred, and the teacher should facilitate learning (McLeod 2018:6). Thus, the fact that over 90% of the students perceived some of the social media platforms as information hubs shows that the students are able to take the initiative to search for new information on their own.

The results of this study are in line with those of a study in e-learning by Mayer and Moreno (2015:2). The authors revealed that students were able to generate between 67% - 75% new information to allow for problem-solving after their exposure to multimedia teaching and learning. The five principles in the e-learning theory reflect

that individual differences must be considered during teaching and learning; there must be coherence among group members; split-attention focusses on different teaching strategies; contiguity is required; along with multiple presentations. Participants similarly perceived that different ways of searching for, storing and sharing information are crucial aspects in their teaching and learning processes.

7.5.4 Feasibility of implementing social media platforms in teaching and learning

The participants perceived the feasibility of the successful implementation of digital e-learning is dependent on the availability of resources, which included digital technology, the availability of learning material, and the quality of the educational content posted in digital spaces. Vygotsky believed that a supported learning environment provides better learning outcomes than non-supported learning situations (Vygotsky 1978:81). Vygotsky claimed that students play an active role in learning and that role shifting must occur to allow collaboration between students and teachers (Vygotsky 1978:81). His view is in line with the strategic plan for a positive teaching environment (Motsoaledi 2017:19). The South African Department of Health also believes teaching should be student-focused. Students must be independent and search for academic information. They must be active participants in their learning process and not passive recipients of knowledge (Vygotsky 1978:88). The findings of this study are in line with Lev Vygotsky's theory, only if the teaching and learning environment are supported with human and material resources, which will enable students to be at the centre of their studies.

7.5.5 Possible challenges to the use of social media platforms in teaching and learning

Despite all good intentions and positive initiatives, the participants were concerned about the possibility of some users not knowing how to operate computer-related equipment. They were also concerned about their inability to afford the data and buy electronic equipment. Moreover, slow network signal coverage in parts of their residential areas, and poor electricity supply could hamper the effectiveness of implementing social media platforms in teaching and learning. Meanwhile, the Council

on Higher Education is still to develop a higher education policy at both national and institutional level to incorporate emerging ICT into teaching and learning to improve teaching and learning (Bruce & Klopper 2017:306); it is thus clear that several challenges still pose an obstacle to this positive initiative.

The next section of this chapter describes a conceptual teaching and learning model using social media platforms embedded in a digital e-learning system that will integrate nursing theory and practice. The model is based on the findings and results of this study's qualitative and quantitative approaches, respectively. The developed conceptual teaching and learning model might be used to pilot distance online teaching and learning in NEIs.

7.6 DEVELOPMENT OF A CONCEPTUAL TEACHING AND LEARNING MODEL USING SOCIAL MEDIA PLATFORMS EMBEDDED IN A DIGITAL E-LEARNING SYSTEM, THAT WILL INTEGRATE NURSING THEORY AND PRACTICE

This study used an exploratory, sequential, mixed-method design. It is a three-phased mixed-methods design where the researcher started with the collection and analysis of qualitative data, followed by a developmental phase of translating the qualitative findings into a tool that was tested quantitatively. The aim of the exploratory sequential design was for the results of the qualitative method to inform the quantitative method (Creswell & Clark 2018:84).

A conceptual model is an analytical tool with several variations and contexts, and it can be applied in different situations where an overall picture is required (Adom & Hussen 2018:438). In this study, the conceptual model for teaching and learning was informed by the triangulation of the findings and the results from the qualitative and quantitative findings, respectively.

The researcher used Lev Vygotsky's theory on constructivism to align the conceptual model of teaching and learning in the 21st century. As stated, Vygotsky believes a supported learning environment provides better learning outcomes than non-supported learning situations (Vygotsky 1978:85). Based on the participants'

perceptions, it was evident that even though they are open to new teaching strategies, they would not want to do away with the traditional lecture method. They believed that social media platforms should be used as an additional supportive tool in teaching and learning.

The title of the developed conceptual model using social media platforms that will integrate nursing theory and practice in teaching and learning is: Chat, Learn and Teach Online: CLaTO. The model is shown in Figure 7.1, integrating the qualitative findings and the quantitative results of this study.

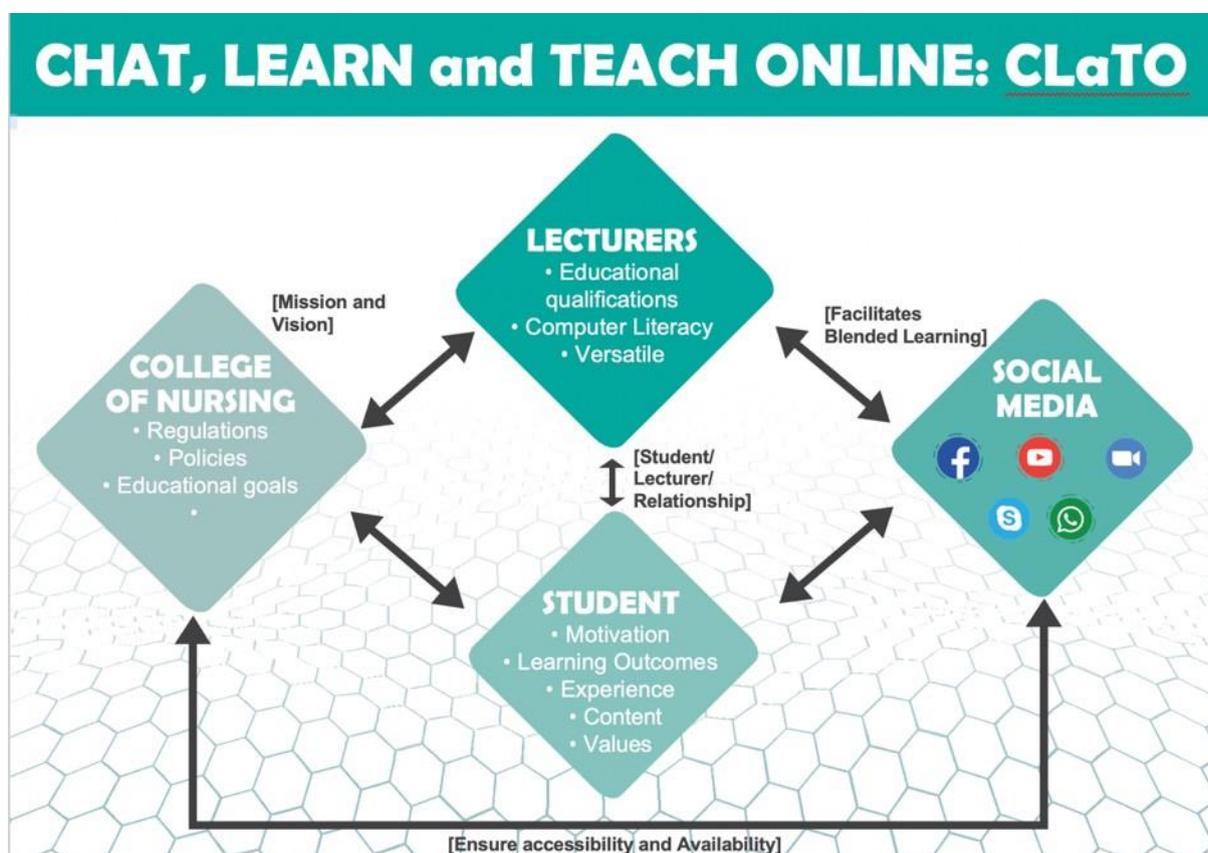


Figure 7.1: Conceptual teaching and learning model using social media platforms that will integrate nursing theory and practice (Author’s model)

7.6.1 Nursing Colleges: Regulations, policies and educational goals

The Nursing College is responsible for ensuring access to equipment for the lecturers and students, and ensuring clear regulations and policies to direct the use of social

media platforms in teaching and learning for the lecturers and students. The lecturers must provide quality education and training for the students within the accredited curriculum. The results of this study support those presented by Rochefort (2020:225) on regulating social media platforms; it was revealed that in order to ensure the quality of information, data contamination should be prevented. The implementation of these regulations, policies and educational goals will promote blended learning. Even though the Nursing Colleges are not yet accredited for online distance teaching, the model will be tested in one of the three Nursing Colleges, since blended-teaching strategies are pursued. Based on the challenges created by the COVID-19 pandemic, this model might be an ideal contingency plan that will allow the continuity of quality education without compromising the standard of nursing education.

7.6.2 Lecturers: Educational qualifications, computer literacy and versatility

The students and lecturers must develop an interactive relationship through information sharing, and they both have a responsibility to abide by the Nursing Colleges' regulations and policies to attain their educational goals. They must conduct themselves in line with the mission and vision of the Nursing Colleges when using social media platforms. The lecturers must be willing to change and learn new teaching strategies. The findings of this study concur with the results of a study conducted in southern Africa on the innovative use of social media in teaching. It revealed that teachers must realise teaching extends beyond the visible walls of the educational institution as it is connected to digital resources (Rwodzi et al 2020:702). The lecturers must attend in-service training to enhance their computer literacy skills and learn to operate on the chosen social media platforms. The lecturers have a responsibility to monitor and control the content posted on the approved social media platforms. The lecturers also have a responsibility to be accessible when necessary to engage with the students and their peers to share educational information.

7.6.3 Students: Motivation, learning outcomes, experience, content and values

This model places the students at the centre of the model as the pivot of the model. The findings of this study support those by Rwodzi et al (2020:701), who revealed that

teachers are responsible for shifting the teaching approach to place the student at the centre of the activities in their studies. The students must have sufficient human and material resources to enhance access to social media platforms in order to achieve their learning outcomes. The learning outcomes are part of the learning content, which should be made available online ahead of block periods to stimulate students' motivation to learn. The chosen social media platforms should mainly be used to communicate academic matters that will benefit the students and the lecturers. The learning content must be aligned with the curriculum to ensure the students reach all stipulated learning outcomes. The learning content must include activities that are student-centred to allow the students to take the initiative to learn.

The learning content must ensure self-evaluation activities are included to allow the students to evaluate their own understanding. The content posted on social media platforms must cover both theory and practical aspects of nursing. The learning content must also be strictly monitored and controlled by the lecturers to avoid contaminating the academic information. Similarly, Rochefort (2020:226) explored social media regulations and revealed the importance of having rules and regulations that will guide the use of social media platforms in teaching and learning. This measure will prevent contamination of academic information that is posted online.

The students are supposed to acquire nursing experience by sharing practical nursing exposure and learning online, with either peers or lecturers from other Nursing Colleges. The lecturers must be able to create learning opportunities that benefit the students' collaboration with other students based on their experiences. The more the students socialise in the nursing profession, the more nursing experience they gain, especially in the clinical setting. By interacting with other members of the health system, students will be able to construct their own knowledge and understanding of nursing care.

The students should value and promote the quality of their education by learning to share only educational content on the approved social media platforms. The shared learning content must be interactive in nature to allow active mass participation by the students and lecturers in that context. The students must abide by the rules and regulations outlined by the Nursing College. The students must be willing to participate

in online teaching and learning, and they must be prepared to attend support classes for those who are not yet conversant with online learning strategies. The students must be willing to take the lead in learning, and make their own choices in the learning process. Moreover, students must value mutual respect, and appreciate the convenience and flexible nature of online learning, where they are able to engage in school-related work at a time most suitable to them. Similarly, a study conducted on what learners value in online education – conducted in Dubai – revealed that students value convenience, flexibility, career advancement, financial support and university reputation (Toufaily, Zalan & Lee 2018:31).

7.6.4 Social media: Facebook, WhatsApp, YouTube and Skype

Different social media platforms were discussed based on their popularity, as indicated by the students and lecturers. Appropriate social media platforms for teaching and learning that were identified in the results of this study are YouTube, WhatsApp, Skype or video conferencing and Facebook. Zachos et al (2018:197) also revealed Facebook and Google as the most popular social network sites used among their participants. YouTube was chosen by both the students and the lecturers for its ability to allow the posting of videos and narratives. PowerPoint presentations can be posted on YouTube, and it is also easy for lecturers and students to post videos on skills practice to enhance the practical component of teaching and learning. WhatsApp is multifunctional and can be used for communication between students and lecturers, it is easy to use, and students and lecturers are able to form different WhatsApp groups for different nursing courses. Skype and video conferences could also be used to conduct distant learning and any form of meetings. It is a good social media platform to allow the students and the lecturers to see one another during their interactions. Facebook was liked because it allows one to design a Facebook page for the Nursing College, which could be used by everyone in the Nursing College for different purposes. It could be used to post Nursing College events, students' and lecturers' projects, and market the Nursing College itself.

7.7 CONCLUSION

This chapter discussed the integration of the qualitative findings and quantitative results obtained in this study. This integration informed the development of a conceptual teaching and learning model using social media platforms embedded in a digital e-learning system that will integrate nursing theory and practice. Chapter 8 concludes the study, briefly describes its limitations, and makes recommendations for practice and further research.

CHAPTER 8

DISCUSSION, RECOMMENDATIONS, LIMITATIONS AND CONCLUSION

8.1 INTRODUCTION

The previous chapter discussed the integration of the findings from the qualitative approach and the results from the quantitative approach, so the researcher could develop a conceptual teaching and learning model. This chapter summarises and discusses the recommendations, limitations and conclusions of this study.

This study was conducted in three Public Nursing Colleges in Gauteng province to:

- explore student nurses' and lecturers' perceptions regarding the possibility of implementing social media in teaching and learning, to integrate theory and practice;
- describe the feasibility of the successful implementation of social media in teaching and learning at Public Nursing Colleges;
- identify and describe recommendations regarding the use of social media as an additional supportive tool for teaching and learning, both in theory and practice;
- develop a conceptual teaching and learning model, using social media platforms, to integrate nursing theory and practice.

The research findings and recommendations are addressed and discussed in this chapter. The researcher presents the recommendations based on the summary of the findings, and additional recommendations are made for further research.

Lecturers in the basic and post-basic nursing programmes of the three Public Nursing Colleges, and student nurses in the basic nursing programme of the same Nursing Colleges, participated in this study. The student nurses were targeted because they have already been introduced to the use of e-learning during their secondary education. The lecturers were targeted because they are expected to teach the student nurses. In phase 1 of this study, focus group interviews were conducted with

the student nurses in the basic nursing programme and their lecturers. A total of 34 participants were interviewed; 20 student nurses, and 14 lecturers. The participants were asked about their knowledge of different social media platforms, the uses thereof, and their perception about implementing social media platforms in teaching and learning.

In phase 2, a questionnaire was used to obtain data from basic student nurses and lecturers. A total of 752 respondents completed the questionnaires; 696 basic student nurses and 56 lecturers. The questionnaires were used to collect data on respondents' perceptions of the use of social media platforms in teaching and learning, the number of hours they spent on social media platforms, the types of gadgets they owned, their level of computer expertise, the sources of their educational information, and the possible challenges associated with the use of social media platforms.

8.2 SUMMARY OF THE RESEARCH RESULTS AND RELATED RECOMMENDATIONS

8.2.1 Requirements for the successful implementation of social media platforms in teaching and learning

The following factors were highlighted as requirements for the successful implementation of social media platforms in teaching and learning in Public Nursing Colleges. Other factors that have not been mentioned in this study may also be required for the successful implementation of social media platforms in teaching and learning. These factors could be identified if a similar study were to be conducted in another environment. It is recommended that further research be conducted but broader-based, involve other Nursing Colleges, and all students in the Gauteng province and other stakeholders, so that the results can be compared with those obtained in this study.

8.2.1.1 Access to resources

The analysis of the qualitative and quantitative data identified that a lack of resources was a concern. For every project to be implemented successfully, equipment must be available, and the users of that equipment must be knowledgeable and act within

prescribed policies, rules and regulations. There must be collaborative interaction and engagement between the users and their institutions.

The resources in the context of this study refer to infrastructure, digital equipment and human capacity. The lecturers and students recommended that the Nursing College Management must ensure the availability of such resources if this initiative of implementing social media platforms in teaching and learning is to be successful. The results of this study revealed that 70% (n = 39) of the lecturers and 43.1% (n = 300) of the student nurses recommended that the successful implementation of social media platforms in teaching and learning depends on the availability of resources. The researcher concurs that the Nursing College Management must ensure the availability of resources. The human capacity in this context refers to ICT personnel, students, lecturers and librarians.

The ICT personnel must be knowledgeable in the use of digital equipment so that they are able to assist the lecturers and the students who are technologically unskilled. The Nursing College Management must ensure that the number of ICT personnel is adequate to allow prompt assistance when needed. The students and the lecturers must be willing to learn to use digital equipment, and those who need skills training must be provided with workshops to maximise their computer literacy skills. The number of available librarians should be adequate to assist students and lecturers when a need arises in that regard. The librarians themselves must be techno-wise in order to assist students and lecturers in the use of digital equipment to access educational information online.

a) Recommendations for infrastructure

Other resources include infrastructure.

The student nurses and the lecturers were concerned about the size of their computer laboratories as they are not big enough to accommodate a large group of students at a time. The following quotes were mentioned by the participants in their own words:

P3: *“In terms of technology, I also agree with my colleagues. My only concern is, the infrastructure like where we are seated now. If we were to put students in groups and having to make use of technology in the classroom. That could be a great challenge so having to provide situations where they can sit around the table and using one gadget that’s more of where my concern is, because most of the venues are more of lecture halls, as opposed to making provision where you can move around, and monitor the usage whilst using whatever gadget it is.”*

The capacity of the computer laboratory was a concern. In the participants’ views, the current venue will not be able to accommodate a lot of students based on the number of available computers:

P4: *“We do have a computer lab where by student can be able to access those platforms. I’m not sure about the numbers but it has a lot of computers, where it can accommodate a lot of student. I know that they are done with the fibre installation, although I have tried to access it but I’m not able as yet but we are in the process of getting it in place. I’m sure the rest will follow.”*

The Nursing College Management must ensure adequate computer laboratories to accommodate a reasonable number of students at a time. The learning classrooms must offer a seating arrangement that allows group discussion, interaction and collaboration during working sessions without compromising the teaching and learning standards. The Nursing College Management should also extend the computer laboratories’ hours beyond the normal Nursing College working hours of 07:00 – 16:00 Monday to Thursday and 07:00 – 13:00 on Fridays. The computer laboratories should be accessible at least from 07:00 – 22:00 on weekdays and from 08:00 – 18:00 on weekends. This schedule will allow more time for students and lecturers who reside outside the city and experiences poor network signal coverage to have ample time to access online information. The current network cables should be upgraded, and fibre lines should be installed that can handle a large amount of connectivity.

Wi-Fi and data bundles must be available for both student nurses and lecturers to access learning content while they are on and off campuses. These recommendations are similar to the findings of a study conducted in Zambia on the use of social media

platforms in teaching and learning. That study reported a lack of resources, poor network connectivity, and an inability to afford the cost of data bundles as aspects that hinder the successful implementation of social media platforms in teaching and learning (Mwalimu et al 2017:7). Thus, in order to avoid such hindrances, sufficient resources must be in place to enhance the successful implementation of social media platforms in teaching and learning.

b) Recommendations for digital equipment

The following were participants' perceptions of the feasibility of successful implementation of social media platforms in teaching and learning through digital e-learning:

P6: *"There was a time where we tried to log into a certain website during our lesson and because we have different cell phones, the cell phones have different models, so some of our cell phones couldn't connect to the website and almost half of the class, couldn't connect to the website. So they had to take us to the computer lab. And when we went to the computer lab, we were many, the computers were not able to accommodate all of us. So, we didn't really get to see what they saw on the website, because when we got there, some of us didn't get space into the, computer lab. When we tried to log in with our phones we couldn't log in and she was saying that sometimes the Wi-Fi get overloaded."*

P8: *"I agree with participant 1 however as an institution, we are not there yet. For example, we don't have a well-equipped computer lab for training. Our computer lab has about 20 - 30 computers and if you look at our student population, that lab doesn't even cover half of the students. Not deviating from the question, not everyone was computer literate by the time they joined the Nursing College."*

P4: *"I also think our Nursing College is not ready technology wise, I think we are still behind, for example the Wi-Fi was installed this year. So I think we are still behind because I think in order for us to move onto creating a social media platform, first we need to create a student portal. We need to be technology wise; we need to implement more technology into the system. The social media platform that would suit the nature*

of the lecturers and students, remember there's also a generation gap. There are some lecturers who are much older than us, who don't really understand technology. So, it would have to be something that would accommodate both generations. So, I don't think the Nursing College is ready we still need the student portal."

The researcher's recommendations are that the Nursing College Management should ensure that all the student nurses and lecturers are in possession of a laptop, computer or tablet. The Nursing College can subscribe to any of the mobile companies to supply monthly data bundles to students and lecturers to use for academic purposes outside the Nursing College premises to ensure that all the students are able to access online academic studies. There must be Wi-Fi in the Nursing College premises for student nurses and the lecturers to use for online engagement in teaching and learning matters and search for academic information. A student portal system should be available where the student nurses are assured of their privacy and confidentiality on matters related to their academic progress as social media platforms are open to a large number of users.

c) Recommendations for human capacity

The effectiveness of the existing service was questionable based on the participants' experiences. It was reported that ICT personnel were unable to render simple services like sending emails to students. The recommendations on human capacity are based on the views of the participants, as quoted below:

P6: *"I totally agree, the ICT department, should be totally changed. And it should take people with a broad knowledge of ICT systems. And the other thing that I will suggest is: Go and benchmark at, for instance, University of Pretoria with their click up system."*

P7: *"When you go back to the ICT department. You can imagine the lecturers are struggling with assistance from time to time. These guys are only three. The lecturers themselves are not clued up with ICT, computer literacy. So both the lecturers and ICT personnel should go for upgrading lessons. We have to meet the standards of the world. We have to be well conversant with the outside world, how to do things, quick and easy to save time, we can't be having a lecturer that is struggling with a program;*

when we have so many students to assess and so many students that will also want to consult. And you also need to be able to help them. So, we lecturers must meet the standard.”

The researcher recommends that the lecturers and student nurses whose computer skills are below standard must have an opportunity to attend in-service training to learn how to use the chosen social media platforms. The current ICT personnel must upgrade their own computer literacy skills so they can assist the students and lecturers who might be struggling to navigate their paths in the digital world. There must be an increase in the total number of available ICT personnel to match an ideal ratio of ICT technicians to students, especially during assessment and contact teaching sessions, to prevent possible delays related to technical issues. The ICT personnel must be adequately skilled in both hardware and software skills to ensure the prompt fixing of digital equipment when needed. Their knowledge of the implemented software will promote the digital program’s smooth running during use by students and lecturers.

d) Recommendations for training workshops

The results of this study revealed that 51.7% of students spent 12 hours and more daily on WhatsApp, 14.9% of students spent 12 hours and more on Google daily, and 17.2% of students spent 12 hours and more daily on Facebook. These findings are similar to those of a study on the rise of social media platform use by Ortiz-Ospina (2019:4). That study revealed that young people in 2016 spent an average of 6 hours per day on media (digital images, videos, web pages and social media platforms) from their mobile phones, and 4 hours were spent on their desktops.

The results in Table 6.3 showed that 42.7% (n = 292) of the respondents ranked WhatsApp as the preferred type of social media platform, followed by 28.4% (n = 198) who preferred Google, and 7.5% (n = 53) preferred YouTube. Facebook was ranked at number four (4.7%; n = 34) on the list.

The research findings also reflected that 10.5% (n = 73) of student nurses did not have any form of computer literacy. Only 19.3% (n = 134) of the respondents completed a course in computer literacy, 14.5% (n = 101) of the respondents partially completed a

course in computer literacy, 35.6% (n = 248) of the respondents taught themselves some computer skills, 6.5% (n = 46) of the respondents were taught by their friends, and 13.5% (n = 94) were taught by their family members how to use a computer.

Among the lecturers, 31.4% (n = 17) completed a computer literacy course, 18.5% (n = 10) partially completed a course in computer literacy, and 37% (n = 20) taught themselves how to use a computer. Another 9.4% (n = 5) were taught by a friend how to operate a computer, and only 3.7% (n = 2) were taught by a family member how to operate a computer. The results showed a general interest among the lecturers to learn how to use computers. Thus, the researcher recommends skills development for students and lecturers to enhance their computer literacy skills.

The recommendations for training workshops are based on feedback from the participants in terms of the successful implementations of social media platforms in teaching and learning:

P8: *“I think I made this point, on benchmark. There is a module in computer, that is introduction to computer same way as English literacy, because capacitation cannot be enough. If you talking about a computer because even myself, if you have capacitated me it is just that you will be giving me highlights and I won't have deep knowledge, so it is advisable to have at all Nursing Colleges a module in computer at first-year level the same way as they do also in the English language.”*

The researcher recommends that student nurses and lecturers should be capacitated on the effective use of WhatsApp, Google, YouTube and Facebook. The student nurses and lecturers must be trained on different search engines on Google to avoid unreliable information posted on social media platforms. The Nursing College Management must assign librarians to provide in-service training to the student nurses and lecturers on the use of recommended websites to search for academic information. The student nurses and lecturers must be informed about the available policies and regulations of their Nursing Colleges that control and support their skills development. These will ensure that the standard of teaching and learning is not compromised by a lack of computer literacy skills.

8.2.2.2 Interaction between lecturers and students

The researcher recommends that the Nursing College rules and regulations highlight the importance of lecturers' and students' continued interaction. The recommendation is based on the findings, where 83.9% (n = 584) of the students strongly agreed and agreed that the use of digital e-learning encourages interaction among students. The results showed that 50% (n = 28) of the lecturers strongly agreed that interaction between students enhances the success of the use of e-learning, 42.9% (n = 24) of the respondents agreed, 5.4% (n = 3) disagreed, and only 1.8% (n = 1) strongly disagreed.

a) Recommendations on interaction between lecturers and students

The implementation of social media platforms as additional supportive tools for teaching and learning in theory and practice will only be successful if the student nurses and the lecturers work together.

Active engagement in deliberations and information sharing should be at the centre of teaching and learning processes. The student nurses and lecturers must be mindful of punctuality and self-discipline when using online strategies. This will prevent possible collapses of the system, which could be related to unhygienic behavioural standards among users who fail to comply with the set rules of engagement in group activities. Student nurses and lecturers must primarily interact based on academic matters related to teaching and learning. Interaction should focus on information sharing on experiences in theoretical and practical nursing education-related matters. The nursing experiences could be used as scenarios to stimulate critical thinking among the students and lecturers.

8.2.2.3 Multiple teaching strategies

The results of this study revealed that 68.1% (n = 474) of the students and 71.4% (n = 40) of the lecturers suggested the use of multiple teaching strategies. The student nurses and lecturers welcomed the use of social media platforms as an additional teaching strategy to be used together with face-to-face contact teaching methods.

Zachos et al (2018:9) similarly found that their respondents believed the use of technology in teaching and learning enhances understanding, although the students still preferred to have contact sessions with lecturers.

a) Recommendations on multiple teaching strategies

The participants identified social media platforms that could be used as additional supportive tools in the teaching and learning of theory and practice. They shared:

P2: *“WhatsApp we have a WhatsApp group. And what is nice, I have one for the students and I have one for the operational managers, so that they don’t play any one of us, but whatever I post to the students or information that I give them is also posted to their operational managers and I must say, these, you know it improves the communication, and the cooperation; the operational managers that I’m working with are really supportive.”*

P6: *“Facebook page, but you create a blog. And then you can have your topic for discussion, and you will have your followers that you will also monitor and it’s easy for you as a blog owner or developer to control who has access to your page. And the students can ask questions and you can respond as well.”*

P10: *“I concur with my core participants, we could be looking at Skype, where the lecturer can be talking directly on a screen with the students. Then the lecturer is able to address the students, not necessarily in a classroom because the lecturer can Skype from home. And the students will still be able to access the information, or even make contact with the lecturer if there’s any questions to pose they will be able to pose a question to the lecturer. When it comes to the e - Books, probably goes in line with e-learning. The WhatsApp system might also be working. However, it all comes down to accessibility of data. If you’re on the grounds of the Nursing College because we have Wi-Fi available, it’s easy to use because you are connected.”*

P11: *“YouTube can load up your slides any other participant in the group. It could come as a process of series, particularly if you want to engage the students in terms of also having a feel of their understanding and their level of maturity as well. Because*

now, if you pose the questions; it could also be something like a debate that they can all be engaged, you can divide the group into sub groups and pose a question for them to debate. Then you can also be able to assess their level of understanding.”

The researcher's recommendation is for social media platforms to be used as an additional teaching strategy; they should not become the primary teaching strategy. There must be a careful selection of appropriate social media platforms that would be ideal for teaching and learning, as they were included in the developed conceptual model for teaching and learning (refer to Figure 7.1).

8.2.2.4 Governing policies, rules and regulations

The results of this study revealed that 64% (n = 36) of the lecturers recommended a code of conduct and disclaimer, 15% (n = 8) recommended a policy that relates to access to resources as necessary, 15% (n = 8) suggested a policy on safety matters, 3% (n = 2) identified assessment policies should be in place, and only 3% (n = 2) suggested rules that address respect among users. The results revealed that 36.3% (n = 252) of the students perceived a code of conduct as a vital policy to guide the use of social media platforms in teaching, 24.2% (n = 169) perceived a policy that addresses access to resources as being critical, and 13.5% (n = 94) mentioned the importance of interacting with lecturers to modify behaviour on social media platforms. Moreover, 8.7% (n = 61) mentioned a policy that addresses time management, 4.8% (n = 34) perceived a policy that relates to mutual respect among social media users as being important, and 12.3% (n = 86) of the respondents did not respond to this question. The results are similar to the findings of a study by Van Den Beemt et al (2020:49), which revealed that policies to guide the use of social media should be included in the curriculum to inform assessments and people's behaviours.

a) Recommendations on code of conduct for lecturers and students

Based on the results of this study, the researcher recommends a code of conduct, the protection of people's information, rules of engagement, access to resources, a language policy, and assessment, teaching and learning policies. A code of ethics comprises a series of statements about the behaviour of an individual in a particular

setting (Bruce & Klopper 2017:494). In nursing, the code of conduct is prescribed by the SANC to inform the daily activities in a health institution. The lecturers must demonstrate high standards of professionalism and moral behaviour at all times, even when they interact online. The lecturers must ensure dignity, integrity, respect, responsibility, commitment, justice and fairness in their engagement with others.

The student nurses must share the same values as their lecturers, focus on their academic activities, demonstrate responsibility towards academic studies, communication and research work. There must be no infringement on the rights of others, there must be no discrimination and harassment of any form, and there must be no breach of confidentiality or abuse of power at any levels.

POPI Act (No 4 of 2013)

The Nursing College must prevent the contamination of posted information by other social media platform users and have strong control measures to ensure its users' information is protected. The Nursing College must provide clear guidelines related to the POPI Act (No 4 of 2013) for its users to ensure the correct use and protection of their intellectual property. The ICT personnel must assist the Nursing College Management in this regard to develop a strong cybersecurity structure.

Rules of engagement guidelines

The Nursing College Management should provide guidelines that relate to active participation among the students, lecturers and other stakeholders involved in the teaching and learning of students. The rules of engagement must hold the vision and mission of the Nursing College as its standard to protect its image on social media platforms. Professionalism among the users must be the focal point of the guidelines in this regard. The researcher recommends that Nursing College Management develop a binding contract that must be signed by all social media platform users in the Nursing College. The binding contract must stipulate all expectations and sanctions related to social media platform users who fail to comply with the contract.

Access to resources

It is the Nursing College's responsibility to ensure students and lecturers are provided with the necessary tools to engage in new ways of teaching and learning. The

equipment includes laptops, tablets or computers. The researcher further recommends that the Nursing Colleges provide the students and lecturers with data for use outside the Nursing College premises. The Nursing College must install strong Wi-Fi networks in the Nursing College that will not fail when overloaded during class activities. The researcher recommends that the Nursing College supports the students and lecturers who cannot use computer-related equipment.

Language policy

The researcher recommends that the Nursing Colleges ensure clear guidelines that relate to their language policy. The researcher recommends that the medium of instruction should be clearly stated in the guidelines, and possible disciplinary measures for those who fail to comply with the guidelines must be outlined.

Assessment, teaching and learning policies

The researcher recommends that the Nursing College Management provide clear guidelines that address the online teaching and learning assessment aspect. The researcher recommends that the importance of time management and the disciplinary measures against those who disobey the rules and regulations of assessment, teaching and learning principles be highlighted.

A study conducted in New York higher education about policy and social media use in teaching and learning similarly revealed that such policies must be integrated into other policies like honour codes and codes of conduct. These must be frequently revisited since applications and the use of social media evolves quickly (Pomerantz et al 2015:12).

8.3 FURTHER RECOMMENDATIONS

The researcher has recommendations that are related to this study. They are discussed as follows:

8.3.1 Recommendations for policy-makers

Policy-makers include all government officials in the Department of Health and the Department of Higher Education who are responsible for aspects related to educating and training student nurses. These groups include the directors, deputy directors, managers and assistant managers in the two departments.

The recommendation is that the policy-makers look at the possibility of including distant teaching and learning in the form of social media platforms, as recommended in the conceptual teaching and learning model (refer to Figure 7.1). The outbreak of COVID-19 taught the nation some lessons about the inequalities of education and training in South Africa. Some institutions were able to continue with lessons during hard lockdown periods, whereas others could not continue because of a lack of resources. The national health strategic plan for nursing education and practice outlined the need to prepare future nurses to deal with problems by searching for solutions. Digital competence is thus a vital skill, and NEIs must respond to the inevitable need for digital transformation by leveraging digital content, technologies and practices to engage and interact with student

8.3.2 Recommendations to management

The Nursing College Management must ensure that they provide digital equipment to the student nurses and lecturers in the form of a tablet, laptops or computers. The management must ensure that student nurses and lecturers are connected to the internet at all times to continue their academic activities. The Nursing College Management should support all those who are computer illiterate to maximise their potential to use digital equipment for academic purposes.

The recommendations are in line with the findings of a study from Sweden. The Swedish National Agency for Education revealed that digital competence could be divided into developing a critical and responsible approach in teaching and learning, understanding digital tools and social media platforms, and solving problems and translating ideas into actions. Management should engage with the Nursing College principals, vice-principals, and heads of departments, which must include academic

and support staff like ICT, librarian, and finance department. The senior lecturers, as the coordinators of different courses, must be actively involved in planning for the possibility of rolling out new approaches to teaching and learning.

8.3.3 Recommendations to social media providers

In the context of this study, the preferred social media platforms were WhatsApp, YouTube, Skype, Zoom and Google. The researcher recommends that the Nursing College Management looks at the possibility of making these social media platforms compulsory during all teaching and learning. The Nursing College Management must apply to the Council on Higher Education and the SANC as the quality assurers of nursing education and training to be accredited for the use of digital e-learning approaches. These recommendations support the recommendations made by the national health strategic plan for nursing education and practice, which outlined the need to align nursing education and practice to the evolution of the 4IR by going digital in teaching and learning

8.3.4 Recommendations to nursing education institutions (NEIs)

The researcher recommends that Nursing College Management must test the developed conceptual teaching and learning model (refer to Figure 7.1). The Nursing Colleges' management must look at the possibility of rolling out a student portal system or learner management system in the Nursing Colleges to allow digital teaching and learning. Digital learning is a way of supporting an integrated approach to the use of ICT in the Nursing Colleges' administrative work and teaching and learning approaches. In Sweden it was found that through the use of ICT, new ways of teaching and learning are dynamically integrated and promote teachers' ability to enhance teaching quality and efficiency. In this context, NEIs referred to the Public Nursing Colleges in Gauteng province, South Africa. The Nursing Colleges may benchmark against universities in this regard to align their policies with what is already working.

8.3.5 Recommendations to nursing practice

The nursing practice officials are the directors, deputy directors, managers and assistant managers in all clinical teaching departments of hospitals and primary health care facilities. The researcher recommends that they develop a positive teaching environment for student nurses. They must have practical teaching venues where student nurses can use digital technology to learn new ways of providing nursing care. This recommendation is supported by the recommendations by the national strategic plan for nursing education and practice, which stipulated that practical facilities must develop clinical education and teaching units to support the education and training of student nurses.

8.3.6 Recommendations for future research

The researcher recommends that scholars conduct further research on the possibility of implementing social media platforms in teaching and learning in all Public Nursing Colleges. This study did not include post-basic students, and only one province was studied. Furthermore, a recommendation is made for scholars to further explore this context and assess if the same results can be found in a different context.

8.4 CONTRIBUTION OF THE STUDY

The purpose of this study was to develop a conceptual teaching and learning model, using social media platforms that will integrate nursing theory and practice. The findings of this study contribute to existing knowledge on the use of social media platforms in teaching and learning. This study explored the feasibility of implementing social media platforms in teaching and learning in three Public Nursing Colleges in Gauteng province, South Africa. The results might be used by policy-makers in the field of NEIs, practical facility managers, as well as government officials in the Department of Higher Education and the Department of Health. The COVID-19 pandemic revealed significant inequalities in the country's education system, requiring urgent attention if it is to be standardised and improved. The developed conceptual teaching and learning model might be used to pilot distant online teaching and learning in NEIs.

8.5 LIMITATIONS OF THIS STUDY

This study was limited to three Public Nursing Colleges thus, the outcome cannot be generalised to Nursing Colleges in the rest of the country. However, the researcher aimed to obtain relevant evidence of the extent of the feasibility of implementing social media platforms in teaching and learning in three Public Nursing Colleges in Gauteng province. Possible challenges and necessary policies, rules and regulations were addressed as part of this study, and should be considered when the findings are used to support studies for similar contexts. Therefore, these findings might support motivations for the use of social media platforms in teaching and learning in Public Nursing Colleges as a form of introducing distance learning in basic nursing studies.

8.6 CONCLUDING REMARKS

This study's outcome reflects that the inclusion of social media platforms as supportive teaching tools would only work if the noted challenges are addressed. The following factors are necessary for the successful implementation of social media platforms in teaching and learning: Access to resources, training workshops, interaction between lecturers and students, multiple teaching strategies and rules, regulations and policies to govern the system. A conceptual teaching and learning model was developed, and will be tested after this study is approved by the examiners. The conceptual teaching and learning model could be adopted once it is deemed efficient and approved by the Nursing College Management. The model was developed based on the outcomes of this study.

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Annexure A: Ethical clearance certificate



**RESEARCH ETHICS COMMITTEE: DEPARTMENT OF HEALTH STUDIES
REC-012714-039 (NHERC)**

7 November 2018

Dear Onica Mankebe Ndwambi

Decision: Ethics Approval

HS HDC/884/2018

Student: Onica Mankebe Ndwambi

Student No.: 30864836

Supervisor: Prof KA Maboe

Qualification D Litt et Phil

Joint Supervisor: -

Name: Onica Mankebe Ndwambi

Proposal Implementation of digital e-learning system in basic nursing studies at public Nursing Colleges in the Gauteng Province

Qualification: DPCHS04

Risk Level: Low Risk

Thank you for the application for research ethics approval from the Research Ethics Committee: Department of Health Studies, for the above mentioned research. Final approval is granted from 7 November 2018 to 7 November 2023

The application was reviewed in compliance with the Unisa Policy on Research Ethics by the Research Ethics Committee: Department of Health Studies on 7 November 2018

The proposed research may now commence with the proviso that:

- 1) The researcher/s will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.*
- 2) Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the Research Ethics Review Committee, Department of Health Studies. An amended application could be requested if there are substantial changes from the existing proposal, especially if those changes affect any of the study-related risks for the research participants.*



University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

3) *The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.*

4) *You are required to submit an annual report by 30 January of each year that the study is active. Reports should be submitted to the administrator HSREC@unisa.ac.za. Should the reports not be forthcoming the ethical permission might be revoked until such time as the reports are presented.*

Note:

The reference numbers [top middle and right corner of this communiqué] should be clearly indicated on all forms of communication [e.g. Webmail, E-mail messages, letters] with the intended research participants, as well as with the Research Ethics Committee: Department of Health Studies.

Kind regards,



Prof JE Maritz
CHAIRPERSON
maritje@unisa.ac.za



Prof A Phillips
DEAN OF COLLEGE OF HUMAN SCIENCES



University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

**Annexure B: Request and permission to conduct the research
from Gauteng Province Department of Health**

PO Box 11135
Suiderberg
Pretoria
0055

mankebendwambi@gmail.com
Tel: 012 319 5633/ Cell: 082 392 1950
August 2018

Gauteng Provincial Health Research Department
Chairperson
Private bag X085
Marshalltown
2107

Dear Madam / Sir

RE: Permission to conduct a survey on lecturers and student nurses in the three mentioned Public Nursing Colleges.

My name is Onica Ndwambi studying for my PhD at the University of South Africa. Furthermore, I am a lecturer at SG Lourens Nursing College. I am doing the study on the **implementation of social media platforms for teaching and learning in basic nursing studies**. The purpose of this study is to develop a conceptual teaching and learning model using social media embedded in digital e - learning system, which will integrate nursing theory and practice.

The significance of this study will be, to enhance an integration of theory and clinical practice in basic nursing studies. There might be possible improvement on comprehension during teaching and learning processes. In that regard, this might lead to good academic performances of the student nurses. The other implication could be that the Nursing College administrators might save costs in the long run.

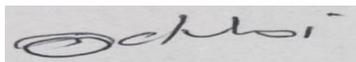
Kindly note that confidentiality and anonymity will be maintained. Information provided and the findings will be reported in a dissertation, be published in an accredited journal and presented at the conference.

I will not commence with the data collection until I have received ethical approval from the Departmental Higher Degrees Committee (UNISA) and I will also provide you with a copy of the ethical certificate before commencement of the study if my request is granted.

For your perusal, please find attached the questionnaire and the interview guide that will be used for data collection.

Should you require any further information kindly contact my supervisor Prof KA Maboee at Department of Health Studies, University of South Africa, telephone:+27(0)12 4292393 or email: maboeka@unisa.ac.za and Prof J Maritz from Research and Ethics Committee at the Department of Health studies at the University of South Africa +27(0)12 429 6534, email: maritje@unisa.ac.za

Thanks in anticipation.



Researcher's signature

01 August 2018

Date



GAUTENG PROVINCE

HEALTH
REPUBLIC OF SOUTH AFRICA

OUTCOME OF PROVINCIAL PROTOCOL REVIEW COMMITTEE (PPRC)

Researcher's Name (PI)	Onica Mankebe Ndwambi
Organization / Institution	SG Lourens Nursing College
Research Title	Implementation of digital e-learning system in basic nursing studies at public nursing colleges in the Gauteng Province
Contact number	012 429 3111
Protocol number	GP_201811_055
Sites	CHBAH Nursing college, Ann Latsky Nursing College and SG Lourens Nursing College

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

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

Permission granted

Permission denied


Dr Bridget Ikalafeng
Deputy Director
Research and EPI

Date: 07/03/2019

Annexure C1: Request and permission to conduct research at C1

Dear Sir/Madame

I, **Onica Ndwambi** am doing research with University of South Africa, in the Department of Health towards PhD degree at the University of South Africa.

The title of this study is: the **implementation of social media platforms for teaching and learning in basic nursing studies** at Public Nursing Colleges in Gauteng province

The purpose of this study is to is to develop a conceptual teaching and learning model using social media embedded in digital e-learning system, which will integrate nursing theory and practice.

The findings will benefit the lecturers and the student nurses with the possible improvement on comprehension during teaching and learning processes. In that regard, this might lead to good academic performances of the student nurses and possible reduction in administrative costs. The public who will become the recipients of quality nursing care might benefit as well because there might be improvement in the quality of nursing care delivered, customer satisfaction and less litigations.

Should you have concerns about the way in which the research has been conducted, you may contact:

Supervisor: Prof KA Maboe

Tel: +2712 429 2393

Email: maboeka@unisa.ac.za

Chair of the University of South Africa, Department of Health Studies, Research

Ethics Committee: Prof JE Maritz

Tel: +2712 429 6534

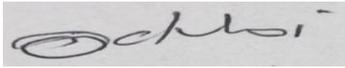
Email: maritje@unisa.ac.za

Thank you for taking time to read this information sheet and for participating in this study.

Thank you.

Yours sincerely

11 April 2019

A rectangular box containing a handwritten signature in black ink. The signature is cursive and appears to be "S. M. S." or similar.

**Permission to access information/ Files / Data base at
SG Lourens Nursing College**

TO: Ms MP Tjale (Chief Executive Officer)

FROM: Ms OM Ndwambi (Investigator)

.....
SG Lourens Nursing College

.....
Unisa Student

Re: Permission to do research at SG Lourens Nursing College.

TITLE OF STUDY is: Viability of the implementation of digital e – learning system in basic nursing studies at Public Nursing Colleges in Gauteng province.

This request is lodged with you in terms of the requirements of the Promotion of Access to Information Act. No. 2 of 2000.

I am a researcher / student at the Department of Nursing Science at the University of South Africa.

The researcher requests access to the following information: Conduction of focus group interviews and completion of a questionnaires by lecturers and students.

I intend to publish the findings of the study in a professional journal and/ or to present them at professional meetings like symposia, congresses, or other meetings of such a nature.

I intend to protect the personal identity of the students and lectures by assigning each individual a random code number.

I undertake not to proceed with the study until I have received an approval from Gauteng Department of Health. Approval from the Faculty of Health Sciences Research Ethics Committee, University of South Africa is already granted on 07 November 2018. Preliminary approval was obtained from Tshwane Research Committee on 11 January 2019.

Yours sincerely

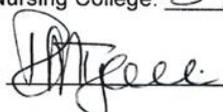


Signature of the Principal Investigator

**Permission to do the research study at this Nursing College and to access
the information as requested, is hereby approved.**

Title and name of Chief Executive Officer: Ms MP Tjale

Name of Nursing College: SG Lourens Nursing College

Signature: 

Date: 20/6/2019



Annexure C2: Request and permission to conduct research at C2

Dear Sir/Madame

I, **Onica Ndwambi** am doing research with University of South Africa, in the Department of Health towards PhD degree at the University of South Africa.

The title of this study is the **implementation of social media platforms for teaching and learning in basic nursing studies** at Public Nursing Colleges in Gauteng province.

The purpose of this study is to develop a conceptual teaching and learning model using social media embedded in digital e - learning system, which will integrate nursing theory and practice.

The findings will benefit the lecturers and the student nurses with the possible improvement on comprehension during teaching and learning processes. In that regard, this might lead to good academic performances of the student nurses and possible reduction in administrative costs. The public who will become the recipients of quality nursing care might benefit as well because there might be improvement in the quality of nursing care delivered, customer satisfaction and less litigations.

Should you have concerns about the way in which the research has been conducted, you may contact:

Supervisor:

Tel: +2712 429 2393

Email: maboeka@unisa.ac.za

Chair of the University of South Africa, Department of Health Studies, Research

Ethics Committee: Prof JE Maritz

Tel: +2712 429 6534

Email: maritje@unisa.ac.za

Thank you for taking time to read this information sheet and for participating in this study.

Thank you.

Yours sincerely

11 April 2019

A rectangular box containing a handwritten signature in black ink. The signature is cursive and appears to read "S. M. J."



Enquiries: Ms. SS Bokaba
Email: Stellah.bokaba@gauteng.gov.za
Fax: 086-443-7935
Date: 09 July 2019
Ref. No: 3/6/5/1.

SUBJECT: APPROVAL FOR DATA COLLECTION

TO: Ms. Ndwambi

FROM: SS Bokaba (Acting Academic Head\Research committee chairperson)

The Ann Latsky Nursing College Research Committee hereby acknowledge receipt of your written request and the approval letter from the GDoH to conduct your research at Ann Latsky Nursing College.

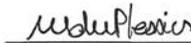
You are welcome to contact Ms. Bokaba to assist you with the arrangements.



MS. SS Bokaba (Research Chairperson).

09/07/2019
Date





Ms. M du Plessis (Acting Principal).

09/07/2019.
Date



Annexure C3: Request and permission to conduct research at C3

Dear Sir/Madame

I, **Onica Ndwambi** am doing research with University of South Africa, in the Department of Health towards PhD degree at the University of South Africa.

The title of this study is the **implementation of social media platforms for teaching and learning in basic nursing studies** at Public Nursing Colleges in Gauteng province.

The purpose of this study is to develop a conceptual teaching and learning model using social media embedded in digital e - learning system, which will integrate nursing theory and practice.

The findings will benefit the lecturers and the student nurses with the possible improvement on comprehension during teaching and learning processes. In that regard, this might lead to good academic performances of the student nurses and possible reduction in administrative costs. The public who will become the recipients of quality nursing care might benefit as well because there might be improvement in the quality of nursing care delivered, customer satisfaction and less litigations.

Should you have concerns about the way in which the research has been conducted, you may contact:

Supervisor: Prof KA Maboe

Tel: +2712 429 2393

Email: maboeka@unisa.ac.za

Chair of the University of South Africa, Department of Health Studies, Research

Ethics Committee: Prof JE Maritz

Tel: +2712 429 6534

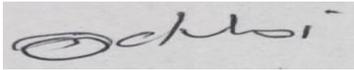
Email: maritje@unisa.ac.za

Thank you for taking time to read this information sheet and for participating in this study.

Thank you.

Yours sincerely

11 April 2019

A rectangular box containing a handwritten signature in black ink. The signature is cursive and appears to be "Chlori".



GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

Chris Hani Baragwanath Nursing College
P/B X05
Bertsham

Enquiries: Mrs. T. Makgopela
Tel. 0112473300

E- mail:

tebogomakgopela5@gmail.com

Date: 2019/08/23

Name: Ms. Ndwambi Onica Makebe
Student No. 30864836
Ethics reference no: HSHDC/884/2018
Address: UNISA

Dear Ms. Ndwambi Onica Mankebe

**RE - APPLICATION TO CONDUCT A RESEARCH PROJECT AT CHRIS HANI
BARAGWANATH NURSING COLLEGE**

Your letter dated August 2018 refers. Permission has been granted for you to conduct a research project titled: **Implementation of digital e-learning system in basic nursing studies at public Nursing Colleges in a Gauteng Province**

Chris Hani Baragwanath Nursing College requests that you participate in the college research days for the purpose of presenting the different stages of your research project. You are also requested to inform the college of the name of the journal where the completed research project will be published. The college will appreciate it if you would donate a copy of the completed research project document to Chris Hani Baragwanath Nursing College Library.

Regards

Ms. T Makgopela: Chairperson of the Research Committee

2019/08/23
Date

Recommended:

Ms. J. Gassiep: Vice Principal

26/08/2019
Date

Approved

Ms. N Ntsele: Principal Chris Hani Baragwanath Nursing College

26/08/2019
Date

Annexure D: Informed consent to participate in the study

CONSENT TO PARTICIPATE IN THIS STUDY

I, _____(participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

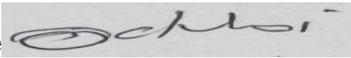
I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I have received a signed copy of the informed consent agreement.

Participant Name & Surname.....(please print)

Participant Signature..... Date.....

Researcher's Name & Surname: Onica Ndwambi

Researcher's signature  . Date: 06.02.2021

Annexure E: Information leaflet (flyer)

PO Box 11135

Suiderberg

Pretoria

0055

mankebwambi@gmail.com

Tel: 012 3195633/ Cell:

0823921950

August 2018

Dear Respondents / Participants

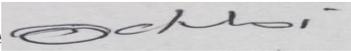
My name is Onica Ndwambi studying for my PhD at the University of South Africa. Furthermore, I am a lecturer at SG Lourens Nursing College. I am doing the study on the **implementation of social media platforms for teaching and learning in basic nursing studies at Public Nursing Colleges in Gauteng province.**

The purpose of this study is to develop a conceptual teaching and learning model using social media platforms through digital e - learning system, which will integrate nursing theory and practice.

The significance of this study will be, to enhance an integration of theory and clinical practice in basic nursing studies. The other implication could be that the Nursing College administrators might save costs in the long run.

Kindly note that confidentiality and anonymity will be maintained. Information provided and the findings will be reported in a dissertation, be published in an accredited journal and presented at the conference.

Thanks in anticipation.

Researcher's signature  . Date: 06.02.2021

Annexure F: Interview guide

Topic: the **implementation of social media platforms for teaching and learning in basic nursing studies** at Public Nursing Colleges in Gauteng province.

Grand Tour question: What is your understanding of social media platforms?

1. Explain your perceptions regarding implementation of social media platforms in teaching and learning?
2. Discuss the feasibility and implementation of social media platforms in teaching and learning in this Nursing College?
3. Highlight the types of social media platforms that can be recommended as additional supportive tools for learning and teaching both theory and practice?
4. Motivate your answer.

Annexure G1: Questionnaire for students

Dear respondent

Thank you for agreeing to participate in this study. Please complete this questionnaire as honest as you can.

Instructions:

1. Please answer all the questions by indicating with an (X) next to your answer.

Example: Do you like to study?

<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
---	-----------------------------

2. Please answer according to your own opinion.
3. Please fill in the questionnaire alone, no group discussion allowed.
4. Please return the completed questionnaire in the box provided.

SECTION A: DEMOGRAPHIC DATA

1. How **old** are you?

18years – 20years	1
21years – 25years	2
26years – 30years	3
31years – 35years	4
Over 36 years	5

2. Indicate your **gender?**

Male	Female	Other

3. When did you pass **grade 12?**

1year ago	1
2 years ago	2
3 years ago	3
4 years ago	4
Over 5 years	5

4. Which of these **electronics** do you own?

	YES	NO
Smartphone		
Tablet		
Laptop		
Computer		

5. What is your **level** of computer expertise?

Proficient	1
Reasonably computer literate	2
Not computer literate	3

6. If you responded in item 5 that you are proficient or reasonably computer literate, indicate how you **most** obtained your computer skills

I completed a course in computer literacy	1
I partially completed a course in computer literacy	2
I taught myself to use a computer	3
A friend taught me to use a computer	4
A family member taught me to use a computer	5

7. Rank in order of importance the use of social media platforms utilized, where 1 is mostly important and 9 is least important.

No	Platforms	Rank
1	WhatsApp	
2	Facebook	
3	Twitter	
4	Blog	
5	Instagram	
6	Skype	
7	Google	
8	YouTube	
9	Other (If other then specify the social media platform)	

8. Indicate the **main** use of social media platforms

Working through educational related packages	1
Working through social related packages with others	2
Both	3

9. Indicate the **level** of your study

First year basic student nurse	1
Second year basic student nurse	2

SECTION B: TIME SPENT ON DIFFERENT SOCIAL MEDIA PLATFORMS

B1: Indicate the **frequency** to which you spent on different types of social media platforms by marking the box with an x

Social Media Platforms		Daily (4)	Weekly (3)	Monthly (2)	Never (1)
1	WhatsApp				
2	Facebook				
3	Twitter				
4	Blog				
5	Google				
6	YouTube				
7	Skype /Video call				
8	Instagram				

B2: Indicate the amount of **hours** spent on different types of social media platforms by marking the box with an x.

Social Media Platforms		12 Hours and more (4)	9 Hours (3)	6 Hours (2)	3 Hours and less (1)
1	WhatsApp				
2	Facebook				
3	Twitter				
4	Blog				
5	Google				
6	YouTube				
7	Skype /Video call				
8	Instagram				

SECTION C: SECTION C: HOW WOULD YOU PREFER TO OBTAIN EDUCATIONAL INFORMATION (Perception Measure for Educational Info)?

Different ways to obtain educational information. Mark the appropriate box with an x

Ways to which you would prefer to obtain educational information		Always (4)	Sometimes (3)	Least (2)	Never (1)
1	Obtaining information from the text books				
2	Obtaining information from the CD-ROM				
3	Obtaining information from the e - books				
4	Obtaining information from the audio tapes				
5	Obtaining information from video tapes				
6	Obtaining information from the internet and google				
7	Participating in online chatting with other students for educational purpose				
8	Participating in video conferencing with other students for educational purpose				
9	Participating in video conferencing with lecturers for educational purpose				
10	Exchange information with other students by using different social media platforms				
11	Exchange educational information with lecturers by using different social media platforms				

SECTION D: FEASIBILITY OF THE USE OF SOCIAL MEDIA PLATFORMS IN LEARNING

Indicate how social media platforms will enhance your learning by marking the appropriate box with an x

Use of social media platforms benefited me by		Strongly agree 1	Agree 2	Disagree 3	Strongly disagree 4
1	Enhancing my motivation to learn				
2	Giving me a sense of being in control of my own learning				
3	Enabling me to select the time for my study				
4.	Enabling me to establish my own pace of learning				
5.	Enabling me to discontinue learning when my concentration wavers				
6.	Enabling me to repeatedly study sections of the learning material until I gain understanding				
7.	Giving me the freedom to make mistakes and learn from it				
8.	Decreasing pressure placed on me by other students				
9.	Decreasing pressure placed on me by lecturers				
10	Enabling me to access information				
11	Enabling me to store and retrieve information				
12	Enabling me to develop my critical thinking skills				
13	Enabling me to be actively involved in learning				
14	Enabling me to become an independent student				
15	Enable me and other students to engage in collaborative learning				
16	Enable me to keep up to date with current developments in health sciences				
17	Making it exciting to discover new knowledge				
18	Relieving the boredom which I previously experienced during exposure to traditional teaching				

19	Enabling me to experience satisfaction during the learning process				
20	Enabling me to develop my problem solving skills				

SECTION E: CHALLENGES EXPERIENCED WHEN USING SOCIAL MEDIA PLATFORMS

Problems experienced with the use of social media platforms. Mark the appropriate box with an x

Social media platforms challenged me by		Strongly agree 1	Agree 2	Disagree 3	Strongly disagree 4
1	I struggle to operate computer equipment				
2	I struggle to operate on Blog				
3	I struggle to operate on Facebook				
4.	I struggle to operate on Twitter				
5.	I struggle to operate on WhatsApp				
6.	I struggle to operate on Google				
7.	I struggle to operate on YouTube				
8.	I struggle to operate on Instagram				
9.	I struggle to operate on Skype/ Video call				
10.	I cannot afford the necessary computer equipment				
11.	I am hampered by the cost of data				
12.	I am hampered by slow network signal coverage				
13.	The use of social media platforms is not my preferred way of learning				
14	I struggle to independently obtain information from social media platforms				
15	I struggle to achieve my learning objectives from the social media platforms				
16	I lose sight of my learning objectives because I focus too much on social matters				

SECTION F: PREFERENCES ON DIFFERENT STUDY METHODS

Indicate your preference

I prefer use of social media platforms as a teaching strategy	1
I prefer traditional teaching strategies	2
I prefer both	3

SECTION G: FACTORS ENHANCING SUCCESSFUL IMPLEMENTATION OF DIGITAL e - LEARNING

Factors that enhance successful implementation of digital e - learning		Strongly agree 1	Agree 2	Disagree 3	Strongly disagree 4
1	Availability of resources				
2	Ability of users to navigate effectively through digital technological world				
3	Motivation to be techno wise				
4.	Access to multimedia content				
5.	Use of collective knowledge				
6.	Rapid knowledge sharing				
7.	Control of learning process				
8.	Availability of learning material				
9.	Quality of content material				
10.	Easy to use intuitive				
11.	Reliability of resources and content knowledge				
12.	Offers a variety of activities				
13.	Encourages interaction between students				
14	Formative evaluations and feedback are available				
15	Risk management guidelines are clearly stipulated				

16	Student and lecturers support: e.g. Finance, Skills development, etc.				
17	Faculty support e.g. Policies				

SECTION H: VIEWS / OPINIONS ON INTRODUCTION OF ONLINE TEACHING AND LEARNING

1. List at least **four (4) perceptions** regarding the possibility of the implementation of social media platforms, which will integrate theory and practice in your Nursing College for teaching and learning.

- 1.1-----
- 1.2-----
- 1.3-----
- 1.4-----
- 1.5-----
- 1.6-----

2. List at least **four (4) policies** that will guide you to use social media platforms in teaching and learning Nursing College.

- 2.1-----
- 2.2-----
- 2.3-----
- 2.4-----
- 2.5-----
- 2.6-----

3. Identify **challenges** with regard to implementation of social media platforms in teaching and learning.

- 3.1-----
- 3.2-----
- 3.3-----
- 3.4-----

4. Give **recommendations** regarding the use of social media as an additional supportive tool for learning and teaching both theory and practice.

- 4.1-----
- 4.2-----
- 4.3-----
- 4.4-----

THANK YOU FOR TAKING YOUR TIME TO COMPLETE THIS QUESTIONNAIRE

Annexure G2: Questionnaire for lecturers

Dear respondent

Thank you for agreeing to participate in this study. Please complete this questionnaire as honest as you can.

Instructions:

1. Please answer all the questions by indicating with an (X) next to your answer.

Example: Do you like to study?

<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
---	-----------------------------

2. Please answer according to your own opinion.
3. Please fill in the questionnaire alone, no group discussion allowed.
4. Please return the completed questionnaire in the box provided.

SECTION A: DEMOGRAPHIC DATA

1. How **old** are you?

39years and younger	1
40years – 49years	2
50years – 54years	3
55years – 59years	4
Over 60 years	5

2. Indicate your **gender**

Male	Female	Other

3. Years of experience in **Nursing Education Institution**

0 year - 5 years	1
6 years – 10 years	2
11 years – 15 years	3
16 years – 20 years	4
Over 21 years	5

4. **Highest** Educational Qualification Achieved

Diploma	1
Basic Degree	2
Honours Degree	3
Masters Degree	4
PhD	5

5. Which of these **electronics** do you own?

	YES	NO
Smartphone		
Tablet		
Laptop		
Computer		

6. What is your **level** of computer expertise?

Proficient	1
Reasonably computer literate	2
Not computer literate	3

7. If you responded in item 6 that you are proficient or reasonably computer literate, indicate how you **mostly** obtained your computer skills

I completed a course in computer literacy	1
I partially completed a course in computer literacy	2
I taught myself to use a computer	3
A friend taught me to use a computer	4
A family member taught me to use a computer	5

8. Rank in order of importance the use of social medial platforms utilized, where 1 is mostly important and 9 is least important.

No	Platforms	Rank
1	WhatsApp	
2	Facebook	
3	Twitter	
4	Blog	
5	Instagram	
6	Skype	
7	Google	
8	YouTube	
9	Other (If Other; then Specify the social media platform type)	

9. Indicate the **main** use of social media platforms

Working through educational related packages	1
Working through social related packages with others students	2
Both	3

10. Indicate the **level** of student nurses you are teaching

First year basic student nurse	1
Second year basic student nurse	2
Third year basic student nurse	3
Fourth year basic student nurses	4
Post basic Diploma Students	5

SECTION B: TIME SPENT ON DIFFERENT SOCIAL MEDIA PLATFORMS

B1: Indicate the **frequency** to which you spent time on different types of social media platforms by marking the box with an x.

Social Media Platforms		Daily (4)	Weekly (3)	Monthly (2)	Never (1)
1	WhatsApp				
2	Facebook				
3	Twitter				
4	Blog				
5	Google				
6	YouTube				
7	Skype /Video call				
8	Instagram				

B2: Indicate the amount of **hours** spent on different types of social media platforms by marking the box with an x.

Social Media Platforms		12 Hours and more (4)	9 Hours (3)	6 Hours (2)	3 Hours and less (1)
1	WhatsApp				
2	Facebook				
3	Twitter				
4	Blog				
5	Google				
6	YouTube				
7	Skype /Video call				
8	Instagram				

SECTION C: HOW WOULD YOU PREFER TO OBTAIN EDUCATIONAL INFORMATION (Perception Measure for Educational Info)?

Different ways to obtain educational information. Mark the appropriate box with an x

Ways to which you would prefer to obtain educational information		Always (4)	Sometimes (3)	Least (2)	Never (1)
1	Obtaining information from the text books				
2	Obtaining information from the CD-ROM				
3	Obtaining information from the e - books				
4	Obtaining information from the audio tapes				
5	Obtaining information from video tapes				
6	Obtaining information from the internet/ google				
7	Participating in online chatting with other lecturers for educational purpose				
8	Participating in video conferencing with students for educational purpose				
9	Participating in video conferencing with other lecturers for educational purpose				
10	Exchange information with students by using different social media platforms				
11	Exchange educational information with lecturers by using different social media platforms				

SECTION D: FEASIBILITY OF THE USE OF SOCIAL MEDIA PLATFORMS IN TEACHING AND LEARNING

Indicate how social media platforms enhanced your learning by marking the appropriate box with an x

Use of social media platforms benefited me by		Strongly agree 1	Agree 2	Disagree 3	Strongly disagree 4
1	Enhancing my motivation to teach				
2	Giving me a sense of being in control of my teaching				
3	Enabling me to select the time for my study				
4.	Enabling me to establish my own pace of teaching				
5.	Enabling me to discontinue studying when my concentration wavers				
6.	Enabling me to repeatedly study sections of the teaching material until I gain understanding				
7.	Giving me the freedom to make mistakes and learn from it				
8.	Decreasing pressure placed on me by institutional policies and procedures				
9.	Decreasing pressure placed on me by colleagues				
10	Enabling me to access information				
11	Enabling me to store and retrieve information				
12	Enabling me to develop my critical thinking skills				
13	Enabling me to be actively involved in learning				
14	Enabling me to become independent				
15	Enable me and other lecturers to engage in collaborative teaching and learning				
16	Enable me to keep up to date with current developments in health sciences				

17	Making it exciting to discover new knowledge				
18	Relieving the boredom which I previously experienced during use of traditional teaching method only				
19	Enabling me to experience satisfaction during the teaching and learning process				
20	Enabling me to develop my problem solving skills				

SECTION E: CHALLENGES EXPERIENCED WHEN USING SOCIAL MEDIA PLATFORMS

Problems experienced with the use of social media platforms. Mark the appropriate box with an x

Social media platforms challenged me by		Strongly agree 1	Agree 2	Disagree 3	Strongly disagree 4
1	I struggle to operate computer equipment				
2	I struggle to operate on Blog				
3	I struggle to operate on Facebook				
4.	I struggle to operate on Twitter				
5.	I struggle to operate on WhatsApp				
6.	I struggle to operate on Google				
7.	I struggle to operate on YouTube				
8.	I struggle to operate on Instagram				
9.	I struggle to operate on Skype/ Video call				
10.	I cannot afford the necessary computer equipment				
11.	I am hampered by the cost of data				
12.	I am hampered by slow network signal coverage				
13.	The use of social media platforms is not my preferred way of learning				
14	I struggle to independently obtain information from social media platforms				
15	I struggle to achieve my learning objectives from the social media platforms				
16	I lose sight of my learning objectives because I focus too much on social matters				

SECTION F: PREFERENCES ON DIFFERENT STUDY METHODS

Indicate your preference

I prefer use of social media platforms as a teaching strategy	1
I prefer traditional teaching strategies	2
I prefer both	3

SECTION G: FACTORS ENHANCING SUCCESSFUL IMPLEMENTATION OF DIGITAL e - LEARNING

Factors enhancing successful implementation of digital e - learning		Strongly agree 1	Agree 2	Disagree 3	Strongly disagree 4
1	Availability of resources				
2	Ability of users to navigate effectively through digital technological world				
3	Motivation to be techno wise				
4.	Access to multimedia content				
5.	Use of collective knowledge				
6.	Rapid knowledge sharing				
7.	Control of learning process				
8.	Availability of learning material				
9.	Quality of content material				
10.	Easy to use intuitive				
11.	Reliability of resources and content knowledge				
12.	Offers a variety of activities				
13.	Encourages interaction between students				
14	Formative evaluations and feedback are available				
15	Risk management guidelines are clearly stipulated				

16	Student and lecturers support: e.g. Finance, Skills development, etc.				
17	Faculty support e.g. Policies				

SECTION H: VIEWS / OPINIONS ON INTRODUCTION OF ONLINE TEACHING AND LEARNING

1. List at least four (4) perceptions regarding the possibility of the implementation of social media platforms, which will integrate theory and practice in your Nursing College for teaching and learning.

- 1.1-----
- 1.2-----
- 1.3-----
- 1.4-----
- 1.5-----
- 1.6-----

2. List at least **four (4) policies** that will guide you to use social media platforms in teaching and learning Nursing College.

- 2.1-----
- 2.2-----
- 2.3-----
- 2.4-----
- 2.5-----
- 2.6-----

3. Identify **challenges** with regard to implementation of social media platforms in teaching and learning.

- 3.1-----
- 3.2-----
- 3.3-----
- 3.5-----

4. Give **recommendations** regarding the use of social media as an additional supportive tool for learning and teaching both theory and practice.

- 4.1-----
- 4.2-----
- 4.3-----
- 4.4-----

THANK YOU FOR TAKING YOUR TIME TO COMPLETE THIS QUESTIONNAIRE

Annexure H: Consent to use audio digital recorder

CONSENT TO USE AUDIO DIGITAL RECORDER DURING THE INTERVIEW

I, _____(participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

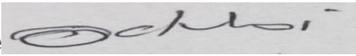
I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I have received a signed copy of the informed consent agreement.

Participant Name & Surname.....(please print)

Participant Signature..... Date.....

Researcher's Name & Surname: Onica Ndwambi

Researcher's signature  . Date: 06.02.2021

Annexure I: Researcher's confidentiality binding form

Confidentiality Agreement

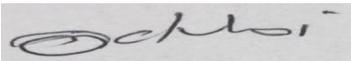
Title of Research the implementation of social media platforms for teaching and learning in basic nursing studies at Public Nursing Colleges in Gauteng province.

Researcher: Onica Mankebe Ndwambi

Student Number: 30864836

As a student researcher, I understand that I may have access to confidential information about study sites and participants. By signing this statement, I am indicating my understanding of my responsibilities to maintain confidentiality and agree to the following:

- I understand that names and any other identifying information about study sites and participants are completely confidential.
- I agree not to divulge, publish, or otherwise make known to unauthorized persons or to the public any information obtained in the course of this research project that could identify the persons who participated in the study.
- I understand that all information about study sites or participants obtained or accessed by me in the course of my work is confidential. I agree not to divulge or otherwise make known to unauthorized persons any of this information, unless specifically authorized to do so by approved protocol or by the local authority acting in response to applicable law or court order, or public health or clinical need.
- I understand that I am not to read information about study sites or participants, or any other confidential documents, nor ask questions of study participants for my own personal information but only to the extent and for performing my assigned duties on this research project.
- I agree to notify the local authority immediately should I become aware of an actual breach of confidentiality or a situation, which could potentially result in a breach, whether this be on my part or on the part of another person.

Signature	Date	Printed name
	06.02.2021	OM Ndwambi
Signature of investigator	Date	Printed

**Annexure J: Letter of proof of co-coding from co-coder
Qualitative data analysis**

PhD Study

OF

NDWAMBI OM

THIS IS TO CERTIFY THAT:

Professor Tebogo M. Mothiba has co-coded the following qualitative data:

Unstructured one-to-one interviews

For the study:

The implementation of social media platforms for teaching and learning in basic nursing studies at Public Nursing Colleges in Gauteng province

I declare that the candidate and I have reached consensus on the major themes reflected by the data. I further declare that adequate data saturation was achieved as evidenced by repeating themes.

Prof TM Mothiba

JULY 2020



TM Mothiba (PhD)

Annexure K: Letter of proof from statistician

13/03/2020

Letter of Attestation of Statistical Assistance.

TO WHOM IT MAY CONCERN.

I, **SAS Olorunju, a Specialist Biostatistician**, attest that I assisted the Candidate Mrs. Onica Mankebe Ndwambi (30864836) in the processing of her Research Data titled **“Viability of the implementation of social media platforms in teaching and learning in basic nursing studies: A feasibility study at Public Nursing Colleges in Gauteng province”**

I confirm that all analyses related to this research was undertaken by me and that I am a qualified biostatistician of over 35 years' experience. I have taught, mentored and supervised several Post-graduates in Research Methods in several establishments in South Africa since 2004. These include University of Pretoria, Tshwane University of Technology, Wits University and University of Northwest in Mafikeng particularly in the School of Nursing and just retired from South African Medical Research Council as a Specialist Biostatistician.

Analysis of Data.

Analysis presents Cronbach Reliability adequacy of her research tool using the questionnaire to evaluate the internal consistency. Thereafter, summary statistics providing frequencies and proportions of her results generally and by sub-domains was presented in tables. This will be done for both Students and Staff questionnaire to be administered to achieve the objectives. The objectives are

- To explore the perceptions of student nurses and the lecturers, with regard to the possibility of the implementation of social media by using digital e – learning system, which will integrate theory and practice.
- To determine the feasibility for the successful implementation of digital e – learning system.
- To identify and describe the recommendations regarding the use of social media as an additional supportive tool for learning and teaching both theory and practice.
- To develop a conceptual teaching and learning model using social media embedded in digital e - learning system, which will integrate nursing theory and practice.
- To test the developed teaching and learning model in one of the Nursing Colleges under study.

Software to be Used: Excel 2016 to capture the data from the questionnaire:

Stata 16: For Statistical Analyses.

SAS Olorunju, PhD
Specialist Biostatistician/Research Mentor



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Waterkloof Glen, 0181.
Pretoria.

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Annexure L: Letter from language editor

Between lines editing

Leatitia Romero
Professional Copy Editor, Translator and Proofreader
(BA HONS)

Cell: 083 236 4536
leatitiaromero@gmail.com
www.betweenlinesediting.co.za

21 March 2021

To whom it may concern:

I hereby confirm that I have edited the thesis entitled: "VIABILITY OF THE IMPLEMENTATION OF SOCIAL MEDIA PLATFORMS IN TEACHING AND LEARNING IN BASIC NURSING STUDIES: A FEASIBILITY STUDY AT PUBLIC NURSING COLLEGES IN GAUTENG PROVINCE". Any amendments introduced by the author hereafter are not covered by this confirmation. The author ultimately decided whether to accept or decline any recommendations made by the editor, and it remains the author's responsibility at all times to confirm the accuracy and originality of the completed work.



Leatitia Romero

Affiliations

PEG: Professional Editors Group (ROM001)
EASA: English Academy of South Africa
SATI: South African Translators' Institute (1003002)
SfEP: Society for Editors and Proofreaders (15687)
REASA: Research Ethics Committee Association of Southern Africa (104)

Annexure M: Gauteng Province Map

