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KNOWLEDGE AND SKILLS OF NURSE EDUCATORS REGARDING CURRICULUM DEVELOPMENT IN NURSING EDUCATION INSTITUTIONS IN GAUTENG PROVINCE, SOUTH AFRICA

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DECLARATION

I, Mrs Mamokete Lydia Charlotte Digangoane, student number 20794402, declare that the dissertation entitled:

'Knowledge and skills of nurse educators regarding curriculum development in Nursing Education Institutions in Gauteng Province, South Africa'

Is my original work and that it has not been submitted for any degree or examination at any other institution. All the sources that I have used or quoted have been indicated and acknowledged by means of complete references in the text and in the reference list.

Signature: _____ Date: _____

MLC Digangoane **April 2023**

DEDICATION

This dissertation is dedicated to the Almighty God who steered my wisdom, provided me with good health to sustain me until completion, my family, colleagues and friends who inspired me throughout my academic journey.

Firstly, allow me to recognise my late parents, Reverend Shadrack Bini Borenagaborekwe Mofube and Mme Selina Hilda Mofube. My parents, you valued education and wanted me to have a degree. Today I made you proud. May your souls rest in peace.

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ABSTRACT

KNOWLEDGE AND SKILLS OF NURSE EDUCATORS REGARDING CURRICULUM DEVELOPMENT IN NURSING EDUCATION INSTITUTIONS IN GAUTENG PROVINCE, SOUTH AFRICA

Background:

In South Africa, nurse educators are trained at various higher education Institutions. The indispensable knowledge and skills of nurse educators should enable the development of a curriculum. Failure to demonstrate knowledge and skills may result in an unachievable curriculum that will impact negatively on the achievement of nursing qualifications.

Purpose:

To assess the knowledge and skills of nurse educators regarding curriculum development in nursing education institutions in Gauteng Province, South Africa.

Methodology:

A non-experimental, descriptive, quantitative study was conducted. Non-probability stratified random sampling was used to select respondents. A web-based self-administered questionnaire was shared with 320 Gauteng Province nurse educators and 82 (25.6%) responded. Collected data was analysed using the International Business Machine for Statistical Package for the Social Sciences, version 28. The exploratory factor analysis, the Cronbach alpha together with the Spearman's rho, the Independent-Samples, the Kruskal-Mann-Whitney U test; and the Kruskal-Wallis tests were done.

Findings:

The Gauteng Province nurse educators, who responded to the study, demonstrated that the feeling of inadequate training, the lack of confidence in proper communication and presentation skills, the development of study modules, the review skills, and the knowledge of managing finances and assets limited them.

Conclusion and recommendations:

Not all nurse educators in the Gauteng Province have the necessary knowledge and skills to develop curricula. The training institutions should prepare nurse educators adequately

for their role as the development of curriculum depends on the knowledge and skills of the developers.

Keywords:
Curriculum development, knowledge, nurse educator, nursing education institution, skills

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LIST OF ABBREVIATIONS

Abbreviation	Meaning
CHE	Council on Higher Education
CINAHL	Cumulative Index of Nursing and Allied Health Literature
DHET	Department of Higher Education and Training
HEQC	Higher Education Quality Committee
NEIs	Nursing Education Institutions
NE	Nurse Educator
PIICL	Participant Information and Informed Consent Leaflet
POPI Act	Protection of Personal Information Act
PhD	Doctor of Philosophy
SA	South Africa
SANC	South African Nursing Council
SAQA	South African Qualifications Authority

WHO	World Health Organization
WIL	Work Integrated Learning

KEY TERMS/CONCEPTS

CHAPTER ONE

ORIENTATION TO THE STUDY

1.1. INTRODUCTION

Chapter 1 will provide an overview of the study through an introduction, background, problem statement, significance of the study, aim and objectives, definition of key terms /concepts, paradigm, research method, ethical considerations, an overview of the dissertation and a summary.

1.2. BACKROUND

Curriculum development is explained as an action plan aiming to formulate the overall study program (Ard, Farmer, Beasley and Nunn-Ellison 2019:A5). In South Africa (SA) the Council on Higher Education (CHE) protects students against poor quality programs and maintains the credibility of qualifications to ensure that curricula for the training programs satisfy at least the minimum standards of quality (CHE 2004b:7). Forero, Adan, Perry and Majeed (2022:2) agree with the idea by emphasizing that curriculum has a great impact on the quality of the program to be approved.

Nurse Educators (NEs) are qualified professionals who play an integral role in curriculum development and are responsible for the facilitation of education and preparation of nurses to achieve nursing qualifications. Nursing Education Institutions (NEIs) are primarily the platforms for the delivery of training programs for the achievement of the qualifications. These training institutions are expected by the South African Nursing Council (SANC) in terms of the Nursing Act (Act No.33 of 2005) to be accredited/approved to offer the nursing programs (Ndawo 2016:3). Each training program requires its own curriculum in line with the SANC, under the Regulation 118 of 1987, as amended (Ndawo 2019:6).

A curriculum is described by Ard, et al (2019:A3) as the program of study that is inclusive of the skills, knowledge, learning outcomes, learning activities, and evaluation methods. Literature highlight the importance of incorporating the meso, micro, and macro levels in curriculum development, to enable developing a focused curriculum that will consider all possible teaching and learning environmental challenges (Zuyderduin, Pienaar and Bereda-

Thakhathi 2016:246; Ndawo 2016:2; Morreira 2019:165). The inclusion of various levels of development is supported by Forero, et al (2022:3) by emphasising the futuristic approach of designing curricula rather than just focusing on the present.

Part of the roles of NEs is to plan for training programs, thus they are expected to participate in curriculum development activities despite its development being broad, complex, and time-consuming (Munna 2022:245; Forero, et al 2022:2). Matlakala and Maritz (2019:2), and Schneiderhan, Guetterman and Dobson (2019:1) explain that NEs need to use their abilities such as extensive reading, understanding of contemporary theories, analysing the published guidelines, engaging in consultative processes with all the stakeholders, and using their academic writing skills in developing comprehensive educational programs and innovative teaching and learning strategies. They need to make premeditated decisions to effectively implement strategies for the development of the curriculum. The World Health Organization (WHO) emphasizes the integration of the cognitive, psychomotor, and affective domains of learning with the competency of teaching and learning to facilitate the development of comprehensive educational programs (WHO 2016:10).

Education opens the doorway to intellectual growth. The training programs enable student nurses to achieve quality education and social accountability (Armstrong and Rispel 2015:2). Nwokeocha (2019:1) emphasises that it is the teacher who plays a major role in designing an excellent educational program that can contribute to intellectual growth. To achieve a successful process of developing a curriculum, Forero, et al (2022:3) emphasise that teachers with diverse experiences and perspectives on the level of educational programs and research should participate in curriculum development. Their experience and perspectives will assist in the support of knowledge and skills required for developing a curriculum as few scientific literatures were found reporting the recommendations and guidelines needed to create new or revised academic programs that can meet both current and future needs in the health science (Forero, et al 2022:3).

1.3. PROBLEM STATEMENT

Nurse Educators (NEs) are trained at various higher education Institutions (HEIs). Their training equips them among other things with knowledge and skills to develop a curriculum for a nursing program and implement effective evaluation methods. According to the WHO,

the training of NEs aims at the development of the competencies that shape and transform the nursing practice as a whole (WHO 2016:10). The SANC recognizes nursing education as an additional qualification. This qualification is esteemed as a specialty in line with Regulation 118 of 1987, as amended (Ndawo 2019:6; SANC 1987).

The South African education system is continuously reforming therefore the planning; implementation and management of changes in the curriculum are among the forefront of policymakers. The higher education sector introduced new guidelines for the NE and training programs since 2013. In response, the South African Minister of the Department of Health (DOH), Dr. PA Motsoaledi, released the South Africa's 2012/13 - 2016/17 Strategic Plan for Nursing Education, Training and Practice which proposed that nursing education should be regarded as 'HEI' in line with the Higher Education Act (Act 101 of 1997) so to restructure nursing curricula for the new national nursing qualifications (DOH 2013:21). Since then the NEIs had the opportunity to develop curricula to align with the changes and the new national guidelines. Rasebotsa (2017:1) states that "change is not a choice". The researcher further highlighted the areas of change in the education sectors being the "Outcome Based Education (OBE), the Revised National Curriculum Statement, the Curriculum and the Assessment Policy Statement."

Curriculum development is a process and not an event (Ard, et al 2019:A5). Further, Ard, et al (2019:A5) elaborate that the teacher depends on the organization, the state and national approval to achieve the purpose of a program whether new or revised and this differs according to organizations. The process includes activities such as, the planning of the activities which among others comprise of initial compilation of a curriculum, or revisions thereof, extensive literature reviews and editing before finalizing the compilation. Mohanasundaram (2018:S4) supports the act of professional editing by stating that it is a means to achieve appropriate usage of language, consistency and readability in the flow of a curriculum.

Other aspects such as monitoring and evaluation progress, submission to relevant controlling bodies, time planning and management, financial and human resources, meetings for formal discussions, permissions, approvals, appointments with internal and external structures are equally necessary (Mohanasundaram 2018:S5).

General information issues like an institutional mission, internal standards, policy guidelines, frameworks, and international considerations are incorporated (CHE 2004b:7).

The development of a curriculum is a lengthy process, however; the process is part of best practices for developing a quality program that is to be approved by the SANC and the CHE for fitness for its purpose (CHE 2004a:8; Mwanza, Moyo, and Maphosa 2019:365). Curriculum developers need knowledge of the program requirements and the approval processes (McCoy and Anema 2018:4). In the SA nursing education sector, the NEs in the public NEIs are guided by their respective Departments of Health and the universities and the private sector depend on their institutional management to determine a curriculum for a mentoring program to be congruent to achieve the mission and thus be approved. It is in this context a curriculum development team is recommended in order to bring both subject matter and educational methods expertise to the project (Mohanasundaram 2018:S4).

During the period of 2013-2018, the researcher participated in one of the curricula development processes as part of the team of NEs in the Gauteng Province NEIs. The aim was to develop a quality curriculum so as to contribute to quality education. Throughout the process, the researcher observed delays from indecisiveness in reaching conclusions as many differing viewpoints, suggestions, and approaches were made leading to slowed progress in developing a curriculum. One of the contributing factors to indecisiveness was that different NEs attended follow-up meetings. Though there were several orientations, consultations, workshops, presentations and trainings offered by the curriculum advisors over and above the guidelines and legal frameworks provided, new attendees did not always have the knowledge from the previous presentations and deliberations. Inconsistencies in attendance seemed to affect the previous decisions and thus hamper progress in making new decisions and deductions.

Adding to this, the inability to demonstrate knowledge of the program requirements in the curriculum development process as well as knowledge of the approval process and the internalization factors, may affect student's academic confidence and achievement of qualifications as reported in the study done in the United Kingdom (Munna 2022:244). Bvumbwe and Mtshali (2018:2) attract interest to the reality that loss of abilities in curriculum development will yield a static and rigid curriculum, which will produce poorly inter-professionally prepared nurse graduates. Similarly, Govender (2018:S1) indicates that

efforts to implement new curricula are problematic and many initiatives to accomplish the objectives fail to be effectively implemented.

It is therefore within reason that failure of the NEs to demonstrate knowledge and skills regarding developing quality curricula will result in unachievable curricula that will impact negatively on the quality of education and the preparation of student nurses towards achieving their qualifications.

Based on the observation, the researcher developed an interest and thus undertook a study to assess the knowledge and skills of NEs regarding curriculum development in Gauteng Province, South Africa.

1.4. SIGNIFICANCE OF THE STUDY

Durak, Cankaya, Yunkul and Misirli (2018:129) emphasize that the significance of a study is more important for the related field of study and its contribution to the literature. This study may play a significant role within the NE profession by contributing to various areas of teaching and training such as: NE, the nursing policy, nursing practice as well as the nursing research.

The findings of this study might encourage NEIs to systematically improve knowledge and skills to better develop curricula that meet the requirements of the South African Qualifications Act No. 58 of 1995. The student training output might also be improved as professionally developed programs that are supported by the knowledge and skills are being offered.

The nursing profession will be provided with the information that may influence policies for continuous training in curriculum development thereby stimulating the understanding of the knowledge and skills required for curricula development. The findings may also increase the review of the support given to NEs on curriculum development. The gaps identified in knowledge and skills will be used to recommend training. Furthermore; from the findings recommendations will be formulated which can also be used as a baseline for other similar studies on curriculum development.

1.5. RESEARCH QUESTION

What are the knowledge and skills of NEs regarding the development of a curriculum for a nursing program?

1.6. AIM AND OBJECTIVES

The aim of this study was to assess the knowledge and skills of NEs regarding curriculum development in NEIs in Gauteng Province, South Africa.

The study objectives were:

- To assess the knowledge of NEs in the Gauteng Province regarding the development of a curriculum.
- To assess the skills of NEs in the Gauteng Province regarding the development of a curriculum.
- To test for association between demographic variables and knowledge and skills of participating NEs.

1.7. DEFINITION OF KEY TERMS / CONCEPTS

1.7.1. Knowledge

Knowledge is defined by Bolisani and Bratianu (2018:5) as “a justified true belief…” and further supported the explanation with what is known, believed in, and what can be practically applied. In this study, ‘knowledge’ means familiarity with a subject, critical understanding and insight, awareness, certainty, and the ability to apply the comprehended facts appropriately during curriculum development.

1.7.2. Skills

Ali and Akayuure (2016:220) describe skills as naturally learned capabilities that enable task performance. In this study, ‘skills’ refer to communication, organizational, leadership, research, academic writing, and document compilation skills in the development of a curriculum.

1.7.3. Nurse educator (NE)

A nurse educator is referred to as a practitioner who possesses a relevant qualification in nursing education after complying with all the training requirements and is registered with the SANC following the Nursing Act under Regulation 118 of 1987, as amended (SANC 1987). In this study, a 'NE' refers to as a practitioner, who achieved the nursing education qualification, and possesses knowledge of teaching, training, and evaluation. Furthermore; this practitioner is a professional who is employed at an NEI and is registered with the SANC as a NE.

1.7.4. Curriculum

Ard, et al (2019:A3) describes the curriculum as a well-known schooling and nursing courses; together with the skills, knowledge, studying outcomes, studying activities, and assessment methods. Matlakala and Maritz (2019:1) define curriculum as "the whole set of learning experiences constituting a particular qualification or module; and it includes key aspects of teaching and learning such as content, rationale, and the underlying philosophy, process, the structure of the learning process and how the learning will be demonstrated in creative ways." In this study, 'curriculum' refers to all the teaching, training, and evaluations that are planned to guide the training and education of nursing students.

1.7.5. Curriculum development

Ard, et al (2019:A5) refer to curriculum development as "a plan of action to determine the overall program of the study which includes all prerequisite and co-requisite for general education courses that are required to complete a program." In this study, 'curriculum development' describes a process of compiling a teaching and training curriculum for a specific program.

1.7.6. Nursing Education Institutions (NEIs)

Nursing Education Institutions (NEIs) are post-secondary educational institutions offering basic and post-basic nursing programs, to achieve nursing qualifications. The training institutions are either public, such as the Department of Health government-owned nursing schools and colleges, or privately owned such as owned by individuals or hospital groups privately owned by groups of doctors. The universities and technology-based universities

are HEIs, however; within them, they have nursing departments that train nurses and are referred to as NEIs (Matlakala 2017:3). In this study, 'NEI' refers to an accredited training facility that is offering higher education programs for the training of nursing students.

1.8. PARADIGM

Paradigm is referred to by Brink, Van der Walt and Van Rensburg (2018:23) as "a manner of observing a natural phenomenon that encompass a set of philosophical assumptions guiding one's technique of inquiry." The current study followed a positivist paradigm. Positivism is a systematic way of doing research whereby the observable facts are significantly emphasized. These observable facts make the foundation of truth that forms the understanding of the relationship of the phenomenon in the study and the environment. Through conducting a quantitative study, the researcher believed that the collection of statistical data will enable the understanding of knowledge and skills of NEs regarding curriculum development.

1.8.1. Assumptions

Polit and Beck (2017:42) indicate that assumptions are a reality that is accepted based on faith or assumed to be true without proof nor being scientifically tested and are driven by natural causes and subsequent effects. Nurse Educators (NEs) like any other human beings, react and respond in different ways to the same situation, develop understanding or misinterpret facts, become creative, and attach different meanings to their individual encounters. The ability to demonstrate knowledge and skills regarding curriculum development can be influenced by other factors such as: (i) personality, (ii) physical factors, (iii) intellectual factors, (iv) learning factors, (v) mental factors, (vi) social and environmental factors of which the study was not currently focusing on. As NEs engage with information relating to curriculum, the researcher believed that reality becomes deliberate. The researcher seeks to undertake a structured, and predetermined descriptive study based on a critical theory approach which Brink, et al (2018:23) describe as an approach that emphasizes the need to discover unseen processes. Careful and systematic data collection was done using a questionnaire to prevent personal values and biasness which might influence the study and its results. The researcher believed that by using a questionnaire to collect data, the study will provide insightful statistical information to determine and describe the reality of knowledge and skills regarding curriculum development. Data was collected

from a population of NEs employed not less than two years in the Gauteng Province NEIs. The researcher also believed that NEs as respondents in the study, gave honest responses to statements relating to knowledge and skills regarding curriculum development as they played a cardinal role in being exposed to the process of developing a curriculum. NEs' responses provided a philosophical basis to determine knowledge and skills regarding curriculum development.

1.9. RESEARCH DESIGN AND METHODS

Polit and Beck (2017:735) defines research methods as "the steps, procedures and strategies for gathering and analysing data in a study." These include the population, sample and sampling, data collection and analysis, and data-collection techniques.

The researcher identified 41 accredited NEIs in the Gauteng Province from the SANC website (SANC 2021) and grouped the NEIs into subgroups according to their service level offering. The aim was to randomly sample 50% (refer to table 3.2). It is generally accepted that the larger the number of respondents included in the study, the more the chances to obtain a number that will be a representative of the target population, therefore; the researcher aimed at inviting as many NEs respondents as possible to the study. As the study took place during the time when the country was experiencing the COVID-19 pandemic and restrictions, the researcher could not access the NEIs (limitations described in chapter 4). Out of 18 NEIs that were contacted, nine (9) NEIs granted permission to collect data. The researcher shared the Participant Information and Informed Consent Leaflet (PIICL) together with the web-based survey link with the principals and the research ethics committees (administrators of the research activities where available) at the NEIs of the Gauteng Province. They assisted to invite NEs who met the criteria to participate in the study by distributing the PIICL together with the survey link to NEs through their in-house online meetings.

In this study the researcher conducted a non-experimental descriptive quantitative study using a web-based questionnaire. Data were analysed with the support of the statistician (refer to annexure G). More information on research methods and design followed in this study are discussed in chapter 3.

1.10. ETHICAL CONSIDERATIONS

The researcher adhered to all the ethical principles outlined in the research policy of the University of Pretoria. Approval of the researcher's proposal was granted. The ethical clearance was obtained from the research ethics committee faculty of Health Science of the University of Pretoria, ethics reference No: 35/2021 (refer to annexure A).

The researcher also obtained permission from the Gauteng Provincial Department of Health through the National Health Research Database (NHRD) to conduct the study in the Gauteng Province public NEIs and also for inclusion of the study in the research database (refer to annexure B).

Institutional permissions at NEIs were obtained from the persons in charge of the sampled NEIs as well as their research ethics committees (administrators of the research activities where available) at NEIs (refer to annexure C).

To adhere to the Nuremberg Code of 1947 and the Declaration of Helsinki, the researcher observed the following fundamental ethical principles in the determination to protect the rights of the respondents from risks and harm during a non-therapeutic research (World Medical Association 2013:2191; Polit and Beck 2017:30). These are listed and briefly discussed below.

(i) Justice

Brink, et al (2018:33) describe 'justice' as the researcher's fair selection of respondents. To ensure a clear and fair inclusion and exclusion in the study, respondents with knowledge of the curriculum were given equal opportunity to respond in the study. The researcher understood from Brink, et al (2018:126) that experienced NEs in teaching and training are directly related to the research problem and thus will be able to respond to the statements related to curriculum development.

(ii) Respect for the person

Brink, et al (2018:32) explain that humans should be treated as "self-directed agents who are capable of controlling their own activities." Furthermore, potential respondents can voluntarily decide whether to participate or not participate in the study without risk of prejudicial treatment or penalty. Respondents have the right to ask questions or obtain

clarification about the purpose of the study. They can also refuse and withdraw participation at any time (Brink, et al 2018:32). In the current study, the researcher ensured the right to voluntary responding. Partaking to the study was not coerced, and the decision to decline responding or withdrawing from the study was considered (refer to annexure D).

(iii) **Beneficence**

Polit and Beck (2017:139), and Brink, et al (2018:32) describe beneficence as the protection of respondents from physical or psychological harm and exploitation. In the current study, the risk of harming personal or organizational reputation was avoided. Names of NEs and NEIs were not required in the survey and the same was not discussed in the report. Prevention of psychological harm was ensured by using communication in official language of English in all written material to ensure that potential respondents understand the study and its process. As the study took place during the COVID-19 pandemic, the researcher accommodated the possibility of completing the questionnaire on their own time, taking into consideration the prevention of potential disruption of personal comfort, the maintenance of social distancing, the prevention of contact with contaminated surfaces at communal work areas, as well as the consideration of the NEIs' academic routine.

(iv) **Anonymity /Confidentiality**

The respondents were informed of the rights to anonymity and confidentiality. Brink, et al (2018:33) refer to anonymity as not divulging the respondents' identity. In the current study, the web-based survey did not divulge the respondents' names and other online identities, ensuring that no identifiable information appeared with the submitted responses. The name of the author of the questionnaire was also not identifiable to respondents. The researcher made sure to withhold any possible identifiable information when the results are made known. Collected data was shared only with authorised persons. Storage of soft (electronic/e-copies) copies of the collected data was saved at the University of Pretoria's online archives for 15 years.

1.11. STRUCTURE OF THE DISSERTATION

A dissertation is a valuable study (Durak, et al 2018:129). To ensure that the researcher's report provides valuable insight into the study and communicates the research plan this

study will be done in separate chapters followed by a list of references and relevant documents as outlined.

Chapter 1: Orientation to the study

The first chapter provides an overview of the study, the background, the problem statement, and the rationale of the research. It articulates the context of the research problem by clarifying the significance of the study, the aim and objectives, the definition of key terms, paradigm, research method and the ethical considerations.

Chapter 2: Literature review

The second chapter focuses on literature reviewed regarding the knowledge and skills of NEs regarding developing curricula for nurses.

Chapter 3: Research design and methods

The third chapter describes the research methodology, the selection criteria of respondents, ethical issues and a discussion on data collection and analysis.

Chapter 4: Discussion of results and literature control

The fourth chapter covers the presentation, the limitations and the analysis of the research findings. The findings are described and presented in graphs, charts, figures and tables aligned to the research statements.

Chapter 5: Results, summary of findings, recommendations, and conclusion

The fifth chapter provides the results, a summary of the findings, recommendations based on the research findings, and the conclusion. In this chapter the researcher also makes recommendations for further research of this nature.

1.12. SUMMARY

The first chapter served to introduce the study. An overview on the background of the research problem, the statement of the research problem, the aim and objectives of the study, the significance of the study, the definition of key concepts, and an overview of the research method was discussed. An overview of the structure of the dissertation was also highlighted. Chapter 2 will discuss the reviewed literature.

CHAPTER TWO

LITERATURE REVIEW

2.1. INTRODUCTION

Chapter 1 presented an outline of the study. Chapter 2 will provide an overview of literature relevant to addressing knowledge and skills regarding curriculum development, with a special focus on NEs. In the current study, the researcher studied the opinions and beliefs of various scholars, researchers, and authors. The approach to studying literature is supported by Brink, et al (2018:57) who describe literature review as “finding, reading, understanding, and forming conclusions about published research and theory as well as presenting it in an organized manner.”

Six (6) databases were searched namely: Public/Publisher MEDLINE (National Library of Medicine’s online Journals, Articles, and other biomedical database): PubMed, Ovid medical research platform: Ovid MEDLINE, Cumulative Index to Nursing and Allied Health Literature: CINAHL, Google Scholar engines as well as EBSCOhost intuitive online research platform. The following key words were used to guide the literature search: ‘curriculum development, knowledge, nurse educator, nursing education institution, and skills’. In addition, recently published textbooks, up-to-date articles published in primary sources, articles from the reference list of articles sourced and dictionaries were also sought. These sources provided an overview of literature relating to knowledge and skills needed regarding curriculum development. The information also contributed in guiding to develop a questionnaire, which was used to collect data for the purpose of the current study.

2.2. THE STRUCTURE OF THE LITERATURE REVIEW

The structure of the literature review is outlined as follows:

- Defining ‘curriculum’
- Defining ‘curriculum development’
- Knowledge and skills and its influence on the development of a curriculum
- The challenges of participation in curriculum development

2.2.1. Defining ‘curriculum’

Different authors in the analysed literature are found to define ‘curriculum’ differently, however; they are understood to be sharing similar beliefs. Keating (2015:181) refers to curriculum as “a specific educational program informed by a formal plan of study containing the logical underpinnings, goals, and guidelines.” Oerman, De Gagne, and Phillips (2018:2) describe curriculum as “a blueprint that articulates and communicates an optimal path to follow to achieve the outcome.” Bhuttah, Xiaoduan, Ullah, and Javed (2019:14) are found to be supporting the writers’ ideas by stating that ‘curriculum’ is a written document that communicates the mode of thought or skill in delivering a teaching and learning program. Schleiff, Mburugu, Cape, Mwenesi, Sirili, Tackett, Urassa, Hansoti, and Mashalla (2021:2) add technicalities in the deliberation and describe curriculum as the “academic content/subjects and lessons that are to be taught in a specific program.” Ard, et al (2019:A3) share the same belief by stating that curriculum is an inclusive program of study that comprises of the general education and courses; which includes the skills, knowledge, learning outcomes, learning activities, and evaluation methods. In expanding the expressions Matlakala and Maritz (2019:1) allude to curriculum as “the whole set of learning experiences constituting a particular qualification or module; and it includes key aspects of teaching and learning such as content, rationale, and the underlying philosophy, process, the structure of the learning process and how the learning will be demonstrated in creative ways.”

In light of these philosophical perspectives, definitions and sentiments, the researcher understood that in referring to ‘curriculum’, emphasis is put on a proposal which details what is supposed to be achieved. It also refers to a purposefully designed goal-oriented academic document. It should contain content that is inclusive of the general education syllabus and evaluation methods for a module. Nurse Educators (NEs) need to understand that curriculum is a didactic document that provides a clear framework for teaching. It helps to set boundaries, and provides a clear pathway that guard against losing focus during the development process.

2.2.2. Defining ‘curriculum development’

Keating (2015:182), Oerman, et al (2018:2), and Ard, et al (2019:A5) refer to curriculum development as a plan comprising of activities which include all prerequisite and co-

requisite for general education courses aiming to inform the overall program. Bhuttah, et al (2019:14) explain developing a curriculum as an exercise that is based on different models. These models evolve around a process of designing, implementation and evaluation to enable an all-inclusive developmental process. Despite curriculum development being a broad, time-consuming; and complex process, it is beneficial to achieving quality education and training of the students. Thus, Munna (2022:245), and Forero, et al (2022:2) recommend that NEs should voluntarily participate in this activity as it is part of their professional role.

Curriculum development is understood from the literature as a purposeful, progressive and an all-inclusive exercise that is carried out (in the context of this study) by NEs in an effort to compiling a training program. Although curriculum development is said to be an intricate and time-demanding exercise, engagement of NEs in this endeavour should be driven by the end goal in mind which is quality in education and training. Remarking about quality; Fitzgerald, McNelis and Billings (2020:4) reported a finding from a study conducted in America where lack of essential skills among expert clinicians was identified; and developing curriculum was one of the lacking skills. In SA, a qualification in nursing education is regarded as a specialization under the Regulation 118 of 1987, as amended (SANC 1987). Therefore, the training of NEs should equip them with competencies to develop a curriculum. Understanding curriculum and the significance of its development enable NEs to engage in curriculum development activities that are fruitful to the education and training program.

2.2.3. Knowledge and skills and its influence on the development of a curriculum

By virtue of training, NEs should have the indispensable knowledge and skills to execute their roles (Ozdemir 2019:1282). Further, Ozdemir (2019:1282) emphasises that individuals who are both well-educated and experienced in their field of study will find no problem to execute their roles and use developed keen intuition. Thus, knowledgeable and skilled NEs are in a powerful position to improve the quality of a curriculum.

‘Knowledge’ is a wide concept that is constantly progressing thus viewed differently by different writers. Kaba and Ramaiah (2020:2) comment that knowledge is nothing but a reality with true representation on how one sees the connection of an agreement or disagreement. Jasimuddin, Li and Perdikis (2019:170) elaborate on the constructs

surrounding knowledge characteristics being the “tacitnes (non-verbalised and intuitive, depending on the individual experience), the articulabilty (the extent of writing or expressing knowledge) and the embeddedness (knowledge residing in a firm’s systematic routines).” In the same literature, the authors further express that knowledge is transferrable, it is characterized by context, and it can be re-used, renewed or maintained (Jasimuddin, Li and Perdikis 2019:170).

As knowledge is related to the facts, theories, and principles that are taught, one can interpret knowledge to simply mean knowing or not knowing something. In the context of its application during curriculum development, the term ‘knowledge' refers to the ability to share familiarity of a subject, express critical comprehension and writing down facts about a given subject or content area with developing quality curriculum as the end goal. Nurse Educators (NEs) who teach a specific subject are at the best position to have the know-how and can share the familiarity of the subject with other NEs. Knowledge of a subject is therefore an important attribute that is required during curriculum development.

Understood from the literature, curriculum development as an activity is not only informed by knowledge but also by skills. ‘Skills’ are described by Ali, et al (2016:220) as “the practical know-hows/capabilities that are certainly learned to enable the performance of tasks.” Matlakala and Maritz (2019:2) was understood to be affirming the idea of skills by stating that knowledge enables one to learn and master the skills to perform tasks. Ozdemir (2019:1280) describes Patricia Benner’s model stating that nurses develop skill and clinical competence through a complete experiential learning process, from novice stage to expert stage. Kaba and Ramaiah (2020:6) also describe the Dreyfus and Dreyfus skill acquisition theory, by stating that individuals acquire skills through external instruction and normally go through stages from novice, advanced beginner, competence, skill, to expertise. The descriptions of the two (2) researchers confirm that education and training of NEs equips them with the ability to have the skills to develop a curriculum for a program and implement effective evaluation methods. Skills are therefore understood as the ability to learn, communicate, organize, lead, conduct research, undertake academic writing, and document compilation in the development of a curriculum. Skills and knowledge are inseparable therefore skills and knowledge are equally important influencers of curriculum development.

One of the most important aspects that demonstrate knowledge and skills in the process of developing a curriculum as identified from the analysed literature was found to be

communication. Nurse Educators (NEs) are expected to communicate effectively and work seamlessly with all the stake holders involved as they engage in developing curriculum (Oerman, et al 2018:303). In expressing communication, Matlakala and Maritz (2019:8), and Mohanasundaram (2018:S5) comment that based on the observations of the 21st century market, employers not only prefer employees who are able to communicate effectively, but who are also skilled to work effortlessly in teams as professional knowledge only is found to be inadequate. Skills and knowledge are therefore inseparable and can never be overemphasised. In addition to communication, the complexity of developing curriculum, also require skills such as critical thinking thus the need for the use of innovation grows. Keating (2015:182), and Ard, et al (2019:A6) explain that it is expected of NEs to have critical thinking skills to direct relevant discussions and contributions to the development of a vital, vibrant, contemporary, and researched curriculum. A high level of critical thinking skills is expected to enable putting together a curriculum that considers formal and informal activities as informed by frameworks set by the regulatory bodies (Zuyderduin, et al 2016:246; Fitzgerald, et al 2020:5; Kachapati and Ghimire 2019:73). Nurse Educators (NEs) as change agents are therefore expected to infuse a variety of instructional strategies, make informed choices, and make decisions aimed at the improvement of teaching and learning in the development of curriculum.

Furthermore; the literature recommends that apart from critical thinking, continuing education is also necessary to enable NEs to progress through the acquisition of knowledge stages so to achieve confidence in bringing innovations. Oermann, et al (2018:12), Daniels, Fakude, Linda and Modeste (2015:6), and Guraya and Chen (2019:688) recommend continuing professional development to maintain competence and liveliness in curriculum development. As Nurse Educators (NEs) continuously seek relevant and current information, they develop knowledge and understandings of the fundamentals in curriculum development; with eventual successful implementation of program objectives and thus embrace change and innovations in curriculum implementation (Rasebotsa 2017:3).

Keating (2015:393), Gyimah (2022:2), and Fawaz, Hamdan-Mansour and Tassi (2018:106) comment that to plan and implement educational curricula one needs to combine the art of the nursing science with the appropriate use of technological knowledge and technological approaches in teaching and training. Technological innovation is helpful in supporting educational needs to enrich successful performance (Gyimah 2022:2).

Literature further recommends that intensifying curriculum development processes can also be achieved through peer reviews. Nurse Educators (NEs) should volunteer in the process of peer-reviewing of curricula to improve their reviewing skills as well as ensuring that comprehensive and rigorous review of standards and criteria are in place (Keating 2015:181); (Ard, et al 2019:A4). During the review process, it is said that NEs will receive feedback that will assist in the improvement of standards. Literature on studies done by Figueiredo, et al (2015:1-2), and Kowalski (2017:445) report on the benefit of being informed about one's performance. Rasebotsa (2017:1) is of the opinion that effective communication skills increases the quality of any relationship and facilitates the implementation of curriculum changes.

Literature is found to highlight other applied capabilities that have an influence on knowledge and skills regarding curriculum development. Zlatanovic, Havnes, and Mausethagen (2017:202) mention subject competency, teaching capabilities, classroom management, and the professional understanding of ethical issues. Mohanasundaram (2018:S6) reports on a broadened knowledge base that covers the past, the present and the future societal needs in curriculum. Mukhalalati and Taylor (2019:2) comment on knowledge of theories and educational philosophies that they play a pivotal role in supporting knowledge required in curriculum. Oermann, et al (2018:7) support the idea by adding that knowledge is required to influence teaching and learning strategies. Zlatanovic, et al (2017:213) add professional attitudes such as passion, enthusiasm, self-control, flexibility, and accepting one's limitations and mistakes as skills that impact NEs' ability to develop curriculum.

Matlakala and Maritz (2019:8), Mohanasundaram (2018:S4), and Schneiderhan, et al (2019:1) emphasise that NEs are to read, to comprehend policies, understand contemporary theories, analyse published guidelines, use their academic writing skills, implement innovative teaching and training strategies and make premeditated decisions. Keating (2015:2) stress the importance of scholarly activities, and research in curriculum development. Empirical studies have identified that the training for nursing is evidence base; therefore without a thoroughly researched curriculum the program to prepare nurses and its care practices will not be evidence–base. The World Health Organization (WHO) and SANC confirm that these abilities in turn continue to shape and transform knowledge and practice as curriculum is constantly developed (WHO 2016:10; SANC 1987).

Funding is a critical aspect in curriculum development and can have high cost implications. Oerman, et al (2018:316) highlight the different areas of expenditure/cost drivers involved in the process of curriculum development. The writer further explains that NEs are not directly involved in budget planning or management thereof, however; they need to be cognisant of the sources of funding and consider the cost implications as they develop curriculum. The most important focal point which can never be overemphasised is to save on costs, avoid wasteful (extravagant) and fruitless (unproductive) expenditures during curriculum development.

Nurse Educators (NEs) are responsible for utilizing their knowledge and skills to develop curricula for programs offered at their NEIs of employment therefore; this calls for participation in the developmental activities. To guard against uncompromised curricula, NEs should use their critical thinking skills to develop nursing training programs that are responsive to the local health policies (Bvumbwe and Mtshali 2018:7). Erstad and Voogt (2018:20) agree with the observation that there's heightened economic and cultural value in knowledge and creativity in the NEIs. Knowledge and skills are therefore the foundational driving forces for the development and implementation of a study program (WHO 2016:10).

2.2.4. The challenges of participation in curriculum development

Literature reports multifactorial challenges suggesting that participation in curriculum development can become a daunting process when one does not have adequate knowledge and skills. With appropriate knowledge and skills one participates willingly. Mwanza, et al (2019:366) cite two (2) ways of participating in curriculum development. This can either be voluntary or mandatory. Both these approaches have influence on commitment. Voluntary participation is said to boost commitment in participation whilst on the contrary, mandatory participation can create resistance and discontent leading to negative impact on the quality of a program. Nurse Educators (NEs) that do not participate in meetings and consultations with various stakeholders will lack the necessary information and will be challenged to attain academic excellence and respond to the health policies (Oerman, et al 2018:303; Matlakala and Maritz 2019:2; Erstad and Voogt 2018:1).

Several factors contributing to challenges in curriculum development were identified in a study conducted in South Africa by Matlakala and Maritz (2019:3). First was lack of

commitment from NEs and reluctance in participation which can lead to slowed progress in curriculum development. The other challenge associated with slow progress with curriculum development was the lack of curriculum experts in the department. That seemed to have brought lack of commitment and fear of innovation, as evidenced by procrastination. Another factor of importance that affected knowledge was inconsistent organizational support and ineffective leadership. This brought about confusion regarding the rightful processes to be followed during curriculum development thus lead to differentiation in knowledge, and frustration, leading to resistance (Matlakala and Maritz 2019:7).

Bvumbwe and Mtshali (2018:2) also draw attention to the fact that a lack of know-how/competencies in curriculum development will yield a static and rigid curriculum, which will produce poorly inter-professionally prepared nurse graduates. Lack of know-how/competencies may also be attributed to failure to interpret policies and demonstrate critical thinking abilities in curriculum development which may result in hesitance in participation, delays, or involuntary participation (Mwanza, et al 2019:366).

The researcher analysed literature to gain an understanding of knowledge and skills regarding curriculum development as a call for investigation since knowledge and skills play a major role in curriculum development. The sourced literature that deliberated on the competencies in curriculum development for programs brought up the understanding that the development of knowledge and skills depend on successful researching, acquiring and sharing relevant information, experiences, support, creativity and evaluation to be able to acquire knowledge and skills. It is within this understanding that knowledge and skills are vital foundational driving forces that stimulate NEs to engage in curriculum development voluntarily as part of their role to achieve successful nursing educational programs.

2.3. SUMMARY

In this chapter, the literature review was discussed starting with a brief introduction followed by the definitions of curriculum and that of curriculum development. The impact of knowledge and skills in the development of curriculum was addressed as well as the challenges of participation in curriculum development. In chapter 3, an in-depth discussion of the research design and methods will be discussed.

CHAPTER THREE

RESEACH DESIGN AND METHODOLOGY

3.1. INTRODUCTION

Chapter 2 provided an overview of the reviewed literature of other researchers deliberating on the views around knowledge and skills regarding curriculum development. Chapter 3 will now discuss the research design and methods used in the current study. A quantitative, non-experimental, descriptive research design was followed. The research design as well as research method, which encompasses the research setting, population, sampling methods, data collection and data analysis as well as the quality control measures will be discussed in this chapter.

3.2. RESEARCH DESIGN

Polit and Beck (2017:735) describe research design as the steps, procedures and strategies for gathering and analysing study data. In explaining the strategies in research, Brink, et al (2018:86) mention two (2) broad approaches used which are quantitative and qualitative designs.

3.2.1. Quantitative study design

Brink, et al (2018:10) describe quantitative research design as an approach that focuses on aspects of measurable human behaviour using numerical data. In using this design one can be able to find patterns and averages, test underlying relationships, make predictions and generalization in cases where population is wide. In the current study the researcher aimed to assess NEs' knowledge and skills regarding curriculum development as well as to test for association between demographic variables and knowledge and skills. Therefore; the quantitative design was found relevant to enable collecting data, reporting on reliable and objective data, as well as making generalized predictions. Within the approach of quantitative design, a non-experimental, descriptive design was followed.

3.2.1.1. Non-experimental design

Brink, et al (2018:95) explain the design as aiming to describe, explore and explain the relationships between variables whilst Siedlecki (2020:8) comments that the design is purely observational and can be used in a natural setting. Furthermore; in this design the researcher has no power to control or manipulate the setting thus the occurrences are observed and described as they happen. In Gauteng Province, the NEIs already exist and they each have their own NEs. The NEs in this province have been engaged in curriculum development since 2013. The collected numerical data on knowledge and skills regarding curriculum development from these different NEIs enabled describing, exploring and explaining the relationships between variables. In this design the researcher was able to compare information collected from the existing variables.

3.2.1.2. Descriptive design

Descriptive design is described by Brink, et al (2018:96) as a method used to describe information required to justifying practices; or making judgements to determine on what other professionals are doing. It explores trends done retrospectively (practices that took place in the past), prospectively (current practices taking place during the study). Siedlecki (2020:8) further enlightens that the design can answer the 'what, where, when, why, who and how' regarding the research problem. For the purpose of this study, a descriptive approach was found suitable to describe the characteristics of the NEs as well as assessing their knowledge and skills. As NEs in the Gauteng Province have retrospectively and prospectively engaged in the process of curricula development at their NEIs, obtaining data would be attainable.

3.3. STUDY SETTING

Brink, et al (2018:47) describe study setting as "the specific place designated for data collection." This setting can either be natural (real life environment) that cannot be manipulated, or a partially controlled setting (modified environment), or a highly controlled setting (specifically developed for the research purpose). The choice of the setting should have been influenced by the research question and type of data needed to address the question.

In this study, the needed data were collected at a natural setting. This was the NEIs in the Gauteng Province where NEs are offering education and training programs for student nurses. In South Africa, Gauteng Province is divided into two (2) cities being Pretoria and Johannesburg (refer to figure 3.1). In these two (2) cities there are different types of NEIs. This includes public sector nursing colleges, a nursing college run by the Defence Force, public universities and, universities of technology, private nursing schools, and hospital group-based nursing schools. All these NEIs fall under the directorate of Gauteng Provincial Department of Health and are accredited by the SANC.

Figure 3.1: Map of Gauteng Province

Source: ***https://www.roomsforafrica.com/dest/south-africa/gauteng.jsp***

To be accredited by the SANC, the NEIs yearly update their institutional details as well as register their service level offering details with the SANC (SANC Nursing Act 2003). The researcher accessed the SANC website to identify the list of the accredited NEIs. The names of these accredited NEIs were found already grouped according to their operational classification namely: public, private, universities and hospital groups (SANC 2021). Forty (40) NEIs were identified comprising of seven (7) public nursing colleges, seven (7) universities, 12 private nursing schools and 14 hospital group-based nursing schools. Each Nursing Education Institution (NEI) has its own population of NEs employed either full-time or part-time and the numbers vary according to the level of service offered. These accredited NEIs were the focus on the study setting. The different settings and the average population in each setting are as reflected in table 3.1. The numbers are reported in

averages as some NEIs cited that their NEs were working remotely, while others indicated that they are in the process of scaling down staff numbers.

Table 3.1: Number of nursing education institutions (NEIs) and nurse educators (NEs) in the of Gauteng Province

NEI classification	**Number of NEIs in a classification**	**Average numbers of NEs in each classification**
Public Nursing Colleges	7	±20-150
Universities	7	±20- 50
Private Nursing Schools/Colleges	12	±10- 30
Hospital Group based NEIs	14	±10- 30
Total	**40 NEIs**	**±260 NEs**

3.4. STUDY POPULATION AND SAMPLING

3.4.1 Study population

Brink, et al (2018:116) define a study population as “all the elements (objects or people) that meet the inclusion criteria specified for the research study.” Furthermore; population is divided into two (2) categories being the target population and the accessible/study population. Target population is said to be the whole set of elements which meets the set criteria to inform generalization in research (Brink, et al 2018:116). The target population in the current study was therefore the NEs (theoretical/academic, clinical) and nurse managers (principals and heads of departments) who were employed at the NEIs in the Gauteng Province. Accessible/study population is said to be the element that the researcher is able to locate as it might not be possible to identify and find every element for the study (Brink, et al 2018:116). The accessible population was the NEs who met the inclusion criteria and were willing to respond to the study.

3.4.2. Sampling

Sampling is described by Brink, et al (2018:117) as “the researcher’s process of extracting a similar subset of elements that represents the entire target population of interest with the aim of obtaining information on which a conclusion regarding a phenomenon can be drawn.” Furthermore; the writers caution that sampling can have biasness and errors which may occur due to unplanned data variations and these are beyond the researcher’s control.

3.4.2.1. Sampling approach

Brink, et al (2018:119) highlight two (2) basic sampling approaches: probability or random sampling and non-probability sampling. The writers explain that a probability or random sampling gives an equal chance of population inclusion in the sample. The elements of the population have a much more likely chance of representation. The sample can reflect its population variations. It enables generalization to the population. A list of all elements will assist the researcher to choose the relevant sampling method(s) based on the aim of the study. This approach encompasses different techniques of which stratified random sampling is one of them.

In the current study, stratified random sampling was chosen as the preferred technique. The aim was to enable grouping the NEIs in the Gauteng province into subgroups to give equal chance of population inclusion in the sample. As 40 NEIs were obtained from the setting, a table was drawn according to their service level operational classification. Each classification was given a number from A to D and every alternate NEI were selected (refer to table 3.2, grey highlighted). Out of the 'A' classification, a random selection starting with the first NEI to pick was done and four (4) NEIs were sampled. Out of the 'B' classification, a random selection starting with the second NEI to pick was done and three (3) NEIs were sampled. Out of 'C' classification, a random selection starting with the first NEI to pick was done and six (6) NEIs were sampled. Out of 'D' classification, a random selection starting with the first NEI to pick was done and seven (7) NEIs were sampled. In total 20 NEIs were sampled and considered a fair representation.

Table 3.2: Stratified random sampling of nursing education institutions (NEIs) in the Gauteng Province according to their classified service level offering

NEI classification	Number of NEIs in a classification	Proportional sampling (50%)	NEI classification	Number of NEIs in a classification	Proportional sampling (50%)	NEI classification	Number of NEIs in a classification	Proportional sampling (50%)	NEI classification	Number of NEIs in a classification	Proportional sampling (50%)
A: Public Nursing Colleges	**A1**	4/3	**B: Universities**	B1	3/4	**C: Private Nursing Schools/Colleges**	**C1**	6/6	**D: Hospital Groups NEIs**	**D1**	7/7
	A2			**B2**			C2			D2	
	A3			B3			**C3**			**D3**	
	A4			**B4**			C4			D4	
	A5			B5			**C5**			**D5**	
	A6			**B6**			C6			D6	
	A7			B7			**C7**			**D7**	
							C8			D8	
							C9			**D9**	
							C10			D10	
							C11			**D11**	
							C12			D12	
										D13	
										D14	

It is worth mentioning that the study took place during the COVID-19 pandemic and was subjected to unintended variations from enforced pandemic regulations. Not all the 20 randomly sampled NEIs (as highlighted grey in table 3.2) responded to the requests, nor gave permission to access the NEs. The use of stratified random sampling thus had to be adjusted and the remaining alternate NEI that were not initially randomly sampled, were sampled as indicated in the green highlight (table 3.2). Consideration of fair representation of each classification was ensured as the sampling was adjusted.

Brink, et al (2018:124) further explain non-probability sampling as “a technique used when access to the participants is limited.” This approach requires judgement and selection of participants who are knowledgeable about the phenomenon and will be able to articulate discrepancies in their field of work. The approach also encompasses different techniques of which purposive sampling is one of them.

Once the NEIs were selected, the researcher used non-probability purposive sampling to select NEs who were eligible to participate in the study as they have the expertise in teaching and training and thus would meet the inclusion criteria.

3.5. ELIGIBILITY

Population eligibility is described by Brink, et al (2018:116) as a distinctive descriptor that the subject must possess for consideration as a member of the target population. This should determine whether the subject is eligible to be included or excluded in the study. The decision on eligibility was based on the following descriptors:

3.5.1. Inclusion criteria

The choice of the population was based on the postulation from Oerman, et al (2018:5) and CHE (2004b:10) that NEs with more years of teaching and training such as two (2) or more, have been adequately prepared for their academic roles and are experienced. In the current study, NEs had to meet the following inclusion criteria in order to respond to this study/questionnaire:

- Employed not less than two (2) years
- Have contributed in curriculum development activities

3.5.2. Exclusion criteria

Kaba and Ramaiah (2020:4) explain that employees who are newly qualified are beginners in their roles therefore have no experience. Nurse Educators (NEs) with less than two (2) years in employment were therefore excluded. The criteria of inclusion and exclusion was found appropriate as NEs in Gauteng Province with two (2) or more years have retrospectively and or prospectively been involved in curriculum development thus will be able to articulate variances in curriculum development. Based on the pandemic restrictions, the principals of the NEIs were requested to assist in selecting respondents who met the criteria and were willing to respond.

3.6. SAMPLING SIZE

Namulondo (2020:36) states that “a research size is determined by the number of individuals who are participants from the accessible population.” As advised by the statistician the sample size for the current study was planned to be 20 NEIs with an average of 260 respondents as outlined in table 3.1. The aim was to include 20 NEIs out of 40, (20/40) which would amount to 50% i.e. half of the NEIs were selected.

Despite the sampled NEIs, not all 20 could give permission to access NEs due to COVID-19 challenges. It was therefore imperative to prioritise the spread of accessible respondents across a variety of the NEI classifications more than just the total number of NE respondents. Nine (9) NEIs ended up giving written permission to access the institution. This led to an estimated sample size of 320, with 82 respondents and a response rate of 25.6% (table 3.3 summarises the response rate). A very low response rate was beyond the researcher's control.

Table 3.3: Response rate per classified nursing education institution (NEIs)

NEIs classification	Estimated Total population/sample	Respondents	Response rate
A1	79	29	36.7%
A3	115	0	0.0%
B2	20	10	50.0%
B4	15	8	53.3%
B6	12	0	0.0%
C1	20	7	35.0%
C3	13	9	69.2%
C5 (No written permission)	3	1	33.3%
D1	18	5	27.8%
D3	25	13	52.0%
Total	**320**	**82**	**25.6%**

3.7. DATA COLLECTION

Brink, et al (2018:133) describe data collection as "a technique used by researchers to collect pieces of information relevant for answering the research study." This is explained either through face-to-face or telephonic interviews, checklist instruments, developed and tested questionnaires, nominal, ordinal, interval, or ratio scales. For the current study, an instrument in the form of a questionnaire was used to collect data.

3.7.1. Development of the Questionnaire and the Participant Information and Informed Consent Leaflet (PIICL)

3.7.1.1. Questionnaire

A questionnaire is described by Brink, et al (2018:138), and Polgar and Thomas (2013:85) as a tool that can assist in the collection of specific information from respondents. For the

success of the tool the researcher is to consider the literacy level of the respondents; and their ability to access and use technology. For the current study, a questionnaire was found relevant based on the postgraduate qualifications of NEs.

- **Development of the questionnaire**

The researcher developed a seven-point Likert scale questionnaire based on the reviewed literature. The questionnaire had 39 structured descriptive statements subdivided into three (3) sections. Section A of eight (8) statements was used for collecting the biographic data. Sections B of 20 statements was related to knowledge regarding curriculum development; and section C of 11, statements was related to skills regarding curriculum development. Responding to section A required self-response whilst responding to section B and C required a choice from a 7- point Likert scale where a score of 1 represented “Strongly disagree” whereas a score of 7 represented “Strongly agree” (refer to annexure E).

- **Creating a survey**

The researcher created a web-based survey manually by loading the 39 statements on the Google Survey platform. The platform automatically populated the statements and converted them into a survey which was divided into three (3) sections. The Google platform then formatted a link. Aligning with Brink, et al (2018:138) the web-based survey was found appropriate as NEs use computers as part of their work responsibilities; use Wi-Fi connectivity and have access to emails in their work environments. This method satisfied the population target.

3.7.1.2. Participant Information and Informed Consent Leaflet (PIICL)

A PIICL was developed and used to inform and orientate potential respondents regarding the process for responding to the survey as data collection was mainly to be online due to COVID-19 pandemic. The leaflet had information about the research, the researcher, and supervisors’ details in case a respondent wished to ask any questions on any matter related to the study or discuss or make any comments (refer to annexure D).

3.7.2. Piloting

Brink, et al (2018:45) refer to piloting as a “dummy run” to test the use, identify unforeseen glitches and make adjustments. The researcher first subjected the self-developed questionnaire to piloting before it was converted onto a web-based survey. This ensured

achievement of content credibility, reliability and consistency. Identified problems were sorted before the main study commenced. Five (5) NEs who met the criteria and not employed at any of the sampled NEIs, were invited to respond in the pilot. The respondents first piloted the questionnaire manually and later piloted the same questionnaire which the researcher had converted to a Google Survey and shared with them via their emails. Corrections and amendments from both piloting approaches were implemented into the final web-based survey as this was to be the main data collection method for the study. Data collected from the pilot was not included in the main study.

3.7.3. The duration of filling the questionnaire

The survey required 15-20 minutes to complete.

3.7.4. Obtaining permissions for data collection

Apart from the ethical permission from the University of Pretoria, collecting data at any of the NEIs also required permission thus compliance had to be followed.

Permission for public NEIs was first obtained from the National Health Research Database which is a research division of Gauteng Provincial Department of Health. As one cannot overemphasise the pandemic implications and time constraints, the researcher had to wait for eight (8) months before permission could be obtained. Only then could the researcher request permissions from the public NEIs. In the interim, permissions from the other sampled NEIs were requested telephonically as well as through emails followed by formal/written applications to the principals of the NEIs.

As the year progressed, the disruptions from the COVID-19 pandemic and its restrictions became a reality. Access to the population became limited. The process of obtaining permissions from NEIs became severely hampered and prolonged. Regular follow ups of NEIs were done for a period of six (6) months, however; majority of the 20 sampled NEIs could still not respond to give permission to collect data. Despite the efforts to extending the period of obtaining permissions, the responses remained low leading to only nine (9) permissions from NEIs attained.

3.7.5. Sharing information with the potential respondents

As the COVID-19 pandemic restrictions took long to be lifted, the restrictions created limitations for face-to-face access with the NEs. The PIICL and the survey link were distributed to the sampled NEIs via emails. Coupled with the COVID-19 pandemic the researcher was also challenged by conforming to the Protection of Personal Information (POPI) Act 4 of 2013. Not all the sampled NEIs were comfortable to share the emails of their NEs. The researcher depended on the principals of the participating NEIs, and/or the contact person, or the research ethics committee (administrators of the research activities where available) at NEIs to communicate and share the survey link and the PIICL with the NEs who met the inclusion criteria; and who were willing to respond to the study. Other principals preferred to convey the messages themselves to NEs than to share their names with the researcher. A follow- up was done fortnightly with the principals through telephone calls, emails and online meetings to encourage responses. Respondents were given two (2) weeks to respond to the survey.

3.7.6. Achievement of confidentiality

The survey enabled achievement of confidentiality as it did not expose the respondents' names or any personal data that could be linked to their responses.

3.8. DATA COLLECTION AND ORGANIZATION

3.8.1. Data collection

The process of data collection was mainly through a web-based survey. The researcher considered an online response, which accommodated indirect contact and thus more COVID-19 friendly. Furthermore; it was less time consuming and less costly, done at the respondents' own time and space. This was found to be a better alternative to collect data as compared to conducting the questionnaire face-to-face (direct contact) which was going to be more time consuming, more costly; and expose respondents to health risks, bearing in mind the COVID-19 pandemic period.

3.8.2. Data organization

- **Accessing the survey link**

The survey was accessed through a link. The link was shared with the principals and or research ethics committee representatives (administrators of the research activities where available) at the NEI or contact person who in turn shared the link with NEs through their emails. To access the shared link the respondents connected to internet using their work or own Wi-Fi, then opened their emails to locate the survey link. On clicking the link, the questionnaire opened.

- **Responding to the survey**

Nurse educators (NEs) were to complete the survey and return responses via the same survey platform. The period to respond in the survey was opened four (4) months starting from the beginning of March 2021. The period was extended up to the end of July 2022 considering the COVID-19 pandemic challenges. This was 17 months longer than the four (4) months that was planned in the 2021 approved Gantt chart timeline (refer to annexure F). Despite the responding process in the study being inundated with many challenges, the researcher continued with data collection. Seeing that no more responses were forthcoming; the survey was closed end of July 2022. Only 82 responses were received – 25.6% response rate.

- **Change in study title**

During the process of prolonged data collection, the ethics approval of the study reached its expiry date on 26 February 2022. During the process of applying for extension of the ethics approval, the title of the study was also amended. The word '**twenty**', indicating the number of NEIs was removed from the title as the inclusion of 20 NEI's was not achieved. The change was approved. The title was then amended from:

Knowledge and skills of nurse educators regarding curriculum development in **twenty** NEIs in Gauteng Province, South Africa, to:

Knowledge and skills of nurse educators regarding curriculum development in NEIs in Gauteng Province, South Africa (refer to annexure A).

3.9. DATA ANALYSIS

Brink, et al (2018:165) explain that data analysis is a method of organising, exploring as well as analysing and interpreting raw data in order to attach meaning to it. In the study, the web-based survey automatically organised data to enable analyses. In the process of NEs responding to the statements, their responses were submitted directly on the survey platform that was in turn received and only seen by the researcher. In that process, the platform automatically consolidated all the responses and converted them into either a table or a pie chart depending on the type of the statement. Furthermore; the platform automatically prepared numerical data on excel-spreadsheets which were shared with the statistician.

Brink, et al (2018:166) confirm that in preparation for data analyses it is important for researchers to consult a statistician. The collected data were converted into numerical forms and statistically analysed with the expertise of the statistician. The statistician used the International Business Machine for Statistical Package for the Social Sciences, (IBM SPSS) Statistics version 28 software to analyse data. To test for construct/scales validity of the survey, exploratory factor analysis was performed. The Cronbach alpha together with the Spearman's rho was used to test associations between the constructs, furthermore; the Independent-Samples, Mann-Whitney U test; and Kruskal-Wallis test was used to determine if the distribution of the constructs score were the same between the demographic variables. More details on the analysis will be addressed in chapter 4.

3.10. RIGOUR / QUALITY CONTROL

Brink, et al (2018:31) refer to rigour as "the principle of truth value of the research outcome." Rigour demands that a systematic approach in data analysis be followed and data interpretation should not to be based on assumption thus the researcher ensured the following merits:

(i) Validity/reliability:

Brink, et al (2018:151) explain validity as the degree to which an instrument consistently and accurately measures what it is intended for. A questionnaire instrument addressing the knowledge and skills of NEs in curriculum development was developed. To ensure that the instrument is not manipulated the researcher used Google survey as a reliable instrument

that did not allow calibration and thus prevented adjustments during data collection and analysis. Cronbach's alpha was used to test reliability and the internal consistency of the measuring tool. More details on validity and reliability in the current study will follow in chapter 4.

(ii) Credibility/ Confirmability:

Credibility and confirmability are referred to by Brink, et al (2018:160) as "confidence in the truth of data and interpretation thereof to ensure that data provided by respondents is not contaminated and influenced by the researcher's assumptions/imagination." The researcher involved the statistician who used reliable statistical analyses methods.

(iii) Biasness

Brink, et al (2018:32) explain biasness as an intentional or unintentional influence that can affect the quality of evidence in the study. As the study evolves and progresses problems are bound to occur thus no study is perfect. Should the study not be carefully controlled, bias may impede validity and reliability (Brink, et al 2018:180).

The researcher reduced biases through adherence to prior piloting of data and its web-based tool, followed by modifications to ensure user-friendliness. The Google survey did not display personal details nor allow statements to be altered.

To observe the prevention of bias, the study population was confined to NEs who met the inclusion criteria. The researcher considered the impact of the COVID-19 pandemic outbreak and its restrictions on the overall study hence sampling was adjusted. Biases in data analysis were reduced through the support of statistician who carefully identified the suitable statistical procedures that would be used to analyse the raw data before construction of the final research instrument.

3.11. SUMMARY

In this chapter, the methodology used to collect information regarding knowledge and skills in curriculum development was described starting with a brief introduction of the steps taken. The chapter then addressed the research method, which encompasses the research setting, population, sampling methods, data collection and data analysis as well as the quality control measures. Chapter 4 will present the analysed data and the literature control.

CHAPTER 4

DISCUSSION OF RESULTS

4.1. INTRODUCTION

Chapter 3 addressed the research design and the methods used in the study. Chapter 4 will now present the findings from the demographic data as well as from the statements related to the knowledge and skill of NEs regarding curriculum development, with the purpose of answering the research aim and objectives.

The aim of this study was to assess the knowledge and skills of NEs regarding curriculum development in NEIs in Gauteng Province, South Africa.

The objectives of the study were:

- To assess the knowledge of NEs in the Gauteng Province regarding the development of a curriculum.
- To assess the skills of NEs in the Gauteng Province regarding the development of a curriculum.
- To test for association between demographic variables and knowledge and skills of participating NEs.

4.2. SUMMARY OF DATA COLLECTION METHOD AND DATA ANALYSIS

In the current study, data were collected through a survey using a web-based questionnaire. Responses were received online. The appropriateness of this method was described in chapter 3. The collected data were statistically analysed using the IBM SPSS statistics version 28 software. Exploratory factor analysis was used to achieve construct/scale validity in the survey. Cronbach alpha was used to describe data associations between demographic variables and the knowledge and skills of the NEs. The Spearman's rho correlation was used to test for association between demographic variables and the knowledge and skill of participating NEs. The Mann-Whitney U test and Kruskal-Wallis test were used to test if the levels of knowledge and skills differed by demographics levels.

4.3. DISCUSSION OF THE FINDINGS

The discussion that follows is based on the three (3) sections found in the questionnaire as outlined in annexure E. The findings of the results will therefore be presented according to the sections. First it will be the outline of section A which addresses the demographic data, followed by section B which addresses knowledge regarding curriculum development, then lastly section C about the skills regarding curriculum development. Literature is included in this chapter to support the findings. Furthermore; graphs, charts and tables will be used to present the findings visually. The findings will conclude with the discussion of the inferential statistics.

4.3.1. OUTLINE OF SECTION A - DEMOGRAPHIC DATA

Given the challenges as described in chapter 3, out of the total of 40 NEIs only nine (9) NEIs responded to give permission to access their institutions. From the nine (9) NEIs, *n*=83 NEs responded to the survey. Out of *n*=83 NEs, there was an exclusion of *n*=1. The exclusion was due to the respondent submitting blank responses as found in all the statements of all the three sections of the questionnaire. The *n*=1 was discarded and the survey was considered as successfully completed by 82 respondents. For the reporting in the current study, reference will be made to *n*=82 respondents.

Section A of the questionnaire consisted of questions related to the demographic profile of the respondents. The respondents' demographic profile was analysed of which the key basic attributes included: age, gender, employment status, and years of experience, highest academic qualification and home language. The researcher also analysed the programs developed and the type of programs accredited.

The attributes specified in the demographic profile will now be presented.

4.3.1.1. Age

The findings in this study revealed that there are young and old NEs employed at NEIs. The youngest age of the NEs who responded to the questionnaire was 34 years, whilst the eldest age was 71 years. Thus, the age group of respondents spanned/ranged from 34 to 71 years of age. Furthermore; the median age of 54 years was revealed by the data collected. Table 4.1 presents the analysed data.

Table 4.1: Ages of nurse educators (NEs) who responded in the study

N	Valid	81
	Missing	1
Mean		52.21
Median		54.00
Std. Deviation		9.404
Minimum		34
Maximum		71

The age differences in this study indicate that there may be a balanced age group mix which is expected to help balance the knowledge and skill required during curriculum development activities. The findings are consonant with the observation of Ghezzi, Probst, Petitta, Ciampa, Ronchetti, Di Tecco, Iavicoli and Barbaranelli (2020:2) who posit that in all work place environments there are a variety of age differences. Further in the literature Ghezzi, et al (2020:2) highlight that as age progresses, there are different coping strategy levels observed and this allows for management of job demands and work performance. Depending on their years of work experience, the eldest age of 71 years may assure that NEs might support one another to cope with the demands regarding curriculum development. The age disparity is assumed to allow the transference of knowledge and skills whereby the two parties can learn from one another as their experiences differ. Mukhalakhati and Taylor (2019:7), and Keating (2015:34) explain that learning and exchanging expertise between the young and the old employees is realised as support takes place. Ghezzi, et al (2020:3) share light that older staff tends to handle workload more efficiently than the younger ones leading to a balance in support. This confirms the saying that theoretical knowledge is formed by practice and consequently practice in turn is influenced. The finding in the current study is therefore relevant for the available young and old NEs in the NEIs. Based on this finding the age group mix will help balance the knowledge and skills required during curriculum development activities.

4.3.1.2. Gender

Figure 4.1 illustrates the distribution of gender amongst the respondents. Eighty seven point eight percent (87.8%) of the respondents were females, 11% were males and 1.2% did not respond to the statements hence reflected as missing.

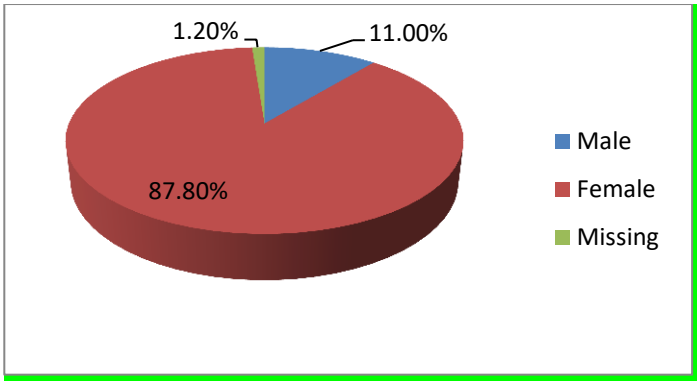

Figure 4.1: Gender of nurse educators (NEs) who responded in the study

The analysed data showed a high number of females as compared to males who responded to the study. Mosetlhe (2017:43), in the study conducted in SA identified a low representation of male students entering the nursing profession. Cho and Jang (2021:1), and Ndou and Moloko-Phiri (2018:1) respectively reported that male nurses remain in the minority in the nursing profession due to the stereotypes of nursing being traditionally perceived as a feminine profession. A study conducted by Boniol, McIsaac, Xu, Wuliji, Diallo and Campbell (2019:2) in 104 countries corroborates the findings as it is reported that an estimated 67% female workforce were found to be in the nursing profession. The demographic attribute of gender for the current study confirmed the rationale behind the high number of females who responded to the study, Therefore, the demographic attribute of the gender of the study was in line with the gender trend in the profession of nursing.

4.3.1.3. Employment status

Analysis of the attributes of employment status as reflected in figure 4.2 reflects that 87.8% of the respondents were employed on a full-time basis, whilst 9.8% were employed part-time. Two point four percent (2.4%) of the respondents who did not respond to the statements are indicated as missing.

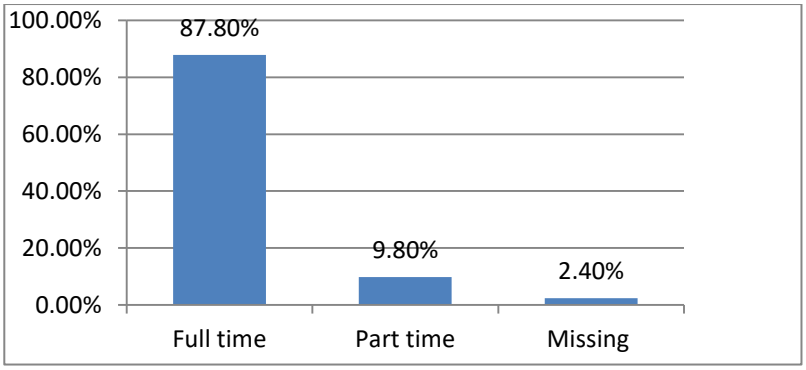

Figure 4.2: Employment status of nurse educators (NEs) who responded in the study

Cacicio, Shell and Tare (2022:58) reported that in the United States, the employment of part time NEs is still followed. In South Africa (SA), the CHE (2004b:11) requests a balance on the appropriate full-time and part-time staff for teaching and learning. Khan (2020:25) reported a raising a concern regarding part-time employment, and state that part-time employees when compared to full-time employees can take up less work time and can choose whether to participate in a task or not thus this has an impact on productivity. Borowczyk-Martins and Lale (2019:391) further share light on the analyses between part-time and full-time employment of which part-time was favoured as it saves on hiring and training costs. It is hereby not different that in the NEIs in Gauteng province, a mixture of employment statuses is found thus rendering this profession no exception.

4.3.1.4. Years in employment

In the current study the analysed data in table 4.2 reveals that the minimum years of employment as a NE is two (2) years and the maximum is 38 years. The median year of employment is 12 years.

Table 4.2: Number of years as a nurse educator (NE)

N	Valid	79
	Missing	3
Mean		13.42
Median		12.00
Std. Deviation		8.682
Minimum		2
Maximum		38

The Council on Higher Education of SA recommends the number of years in the education and training employment by stating that employers should ensure that the majority of academic staff in HEIs should have two (2) or more years of teaching experience to allow transference of experiences (CHE (2004b:10). Oswald-Egg and Renold (2021:3), and Mohanasundaram (2018:S5) comment that the labour market prefers and values experiences and skills in job excelling which is achieved from longer periods of stay at work. The authors are further found backing up experience by stating that experience supports coping and decision making abilities. As experience is also transferable, it lessons training and its costs.

Despite the three (3) respondents who did not declare their number of years in employment (reflected as data missing in table 4.2), the analysed data deduced that there are NEs who have stayed for more than 30 years in their employment, thus this can be associated with transferable professional experience that will impact positively on knowledge and skills required to develop a curriculum.

4.3.1.5. Academic qualifications

Figure 4.3 depicts a variety of highest academic qualifications achieved by NEs with the mostly achieved qualification being Bachelor's Degree at 53.7%, followed by Masters at 28%, Doctor of Philosophy (PhD) at 15.90% and Diploma in Nursing Education at 2.40%.

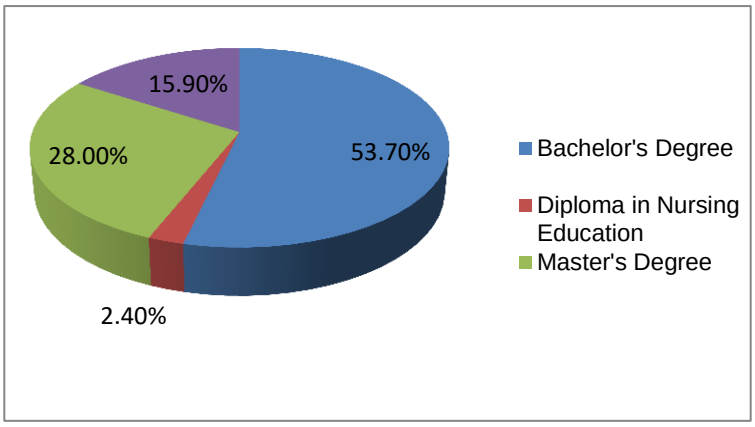

Figure 4.3: Highest academic qualifications of nurse educators (NEs) who responded in the study

In South Africa (SA) the CHE (2004b:10) requires that qualified academic staff should be the one designing the learning programs. Therefore; it is vital for NEs to consider that they have relevant academic qualifications higher than or on the same level of the exit level of the program they develop. Oermann, et al (2018:5) support the idea of qualification by stating that Master's degree and Doctoral degree achievement in NE serves as an added advantage to augment the knowledge and skills required during curriculum development. The findings of a variety of highest academic qualifications in the current study indicate that education plays a major role in knowledge and skills regarding development of curricula.

4.3.1.6. Home languages

Data represented in figure 4.4 revealed a variety of home languages mostly spoken by NEs from Afrikaans 17.1%, English 14.6%, isiXhosa 1.2%, isiZulu 7.3%, Sepedi 23.2%, Sesotho 8.5%, Setswana 18.3%, isiSwati 2.4%,Tshivenda 1.2% to Xitsonga 6.1%.

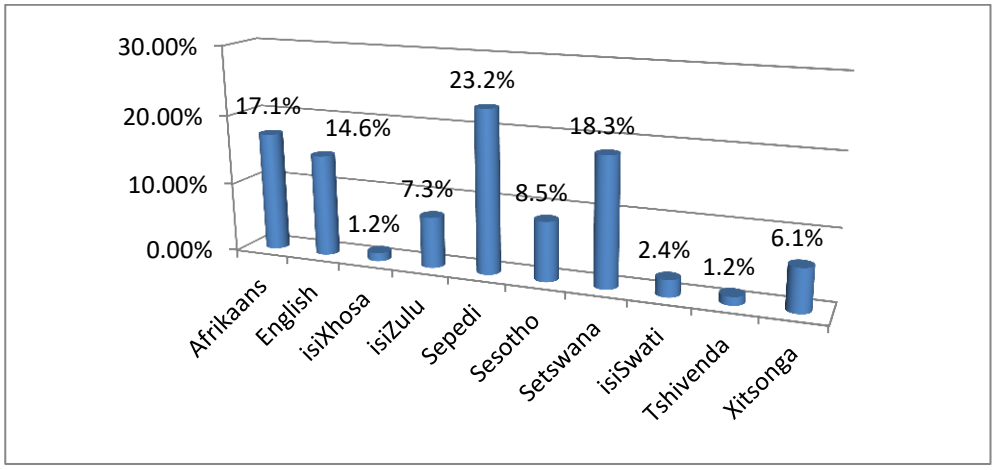

Figure 4.4: Home languages of nurse educators (NEs) who responded in the study

The analysed data demonstrate diversity in the languages spoken from indigenous to English and Afrikaans. The official language of operation at NEIs in Gauteng Province is English, however; the presence of a variety of indigenous languages and Afrikaans will help NEs support different classes of nationalities of students entering the nursing profession. Trahar, Timmis, Lucas and Naidoo (2020:932) cautions that NEIs need to pay attention to diversities because they enrol underrepresented nationalities of students, particularly from

marginalised communities who enter the profession with different demographics, different expectations, life experiences, and background. Mohanasundaram (2018:S4) indicates that paying attention to diversities will enable NEs to give criticism on students' writing, speeches, public speaking, and evaluate work. South African CHE (2004b:11) also emphasises the benefit of balancing academic staff diversity as it will enable achievement of exposing students to an assortment of ideas, styles, and approaches. The finding of different languages spoken by NEs in NEIs indicates the possibility of culturally responsive curricula which will be developed in such a way to support students in understanding subject matter and mastery of professional communication.

4.3.1.7. Programs developed

Figure 4.5 reflects the different programs that NEs in the Gauteng Province have developed. The first highest developed is Diploma in Nursing: General Nurse at 46.30%, then the Post Graduate Diplomas at 30.50%, followed by the Higher Certificate: Auxiliary Nursing at 12.20% and lastly, the 8.60% of Bachelor's Degree: Nursing and Midwifery. There was also a 2.40% of missing data.

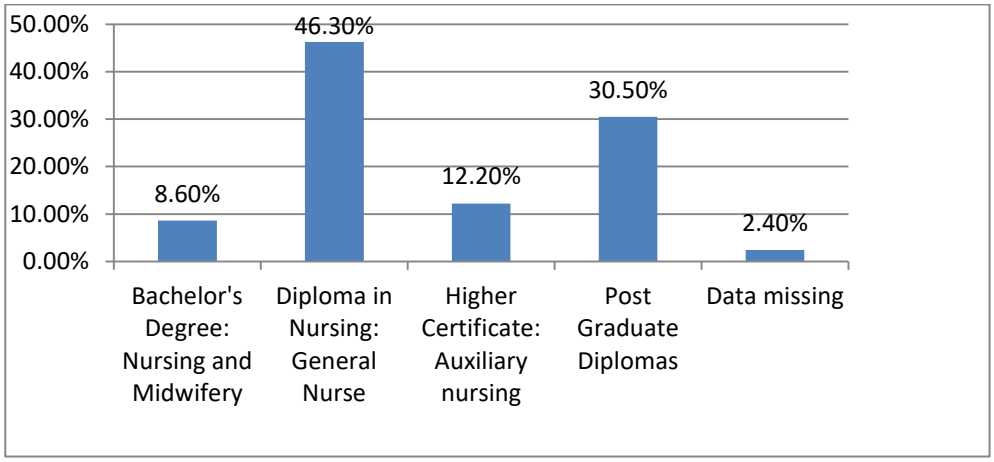

Figure 4.5: Programs developed by nurse educators (NEs)

Nyoni and Botma (2020:2) indicate that SA like other African countries such as Angola, Ghana, Kenya, Lesotho, Malawi, Rwanda, and Zambia, have been involved in curricula development since the last decades in an effort to introduce competency based curricula that is driven by primary health care. In these countries, nursing curricula have been content base hence NEs are involved in improving programs. In South Africa (SA), the DOH

(2013:21), and CHE (2004a:10) announced the type of programs that needed new curricula in the higher education band of the national qualifications framework. Given this background, there were thus a number of new qualifications that required curriculum development. In the current study, the respondents indicated the programs they have developed. The Diploma in Nursing: General Nurse (46.30%), reflected to be the program highly developed during curriculum development. This program aims to prepare an independent and competent general nurse who will be clinically focused and being service oriented (DOH 2019:10). The Post Graduate Diplomas (30.5%) aim to produce nurse specialists or midwife specialists who will be able to respond to Primary Health Care needs (Bvumbwe and Mtshali 2018:4). The Higher Certificate: Auxiliary Nurse (12.2%) aims to produce nurses who will render basic nursing care at various settings (DOH 2019:10). Lastly, the Bachelor's Degree: Nursing and Midwifery (8.6%), aim at producing a nurse and midwife who will contribute to the improvement of health outcomes for individuals, families, groups and communities through providing quality, culturally sensitive and evidence-based nursing and midwifery health services (DOH 2019:10). Despite the 2.40% of missing data as reflected in figure 4.5, the number of the developed programs demonstrates that NEs in Gauteng Province NEIs participated in curricula development.

4.3.1.8. Accreditation status

Analysed data in figure 4.6 indicates that different programs have been accredited in line with the SA legislative frameworks (CHE 2004a:7). Conditionally accredited programs are 13.4%. Fully accredited programs are 59.8%; programs in process of accreditation are 23.2% and programs not yet submitted for accreditation was 2.5%. Data missing was 1.2%

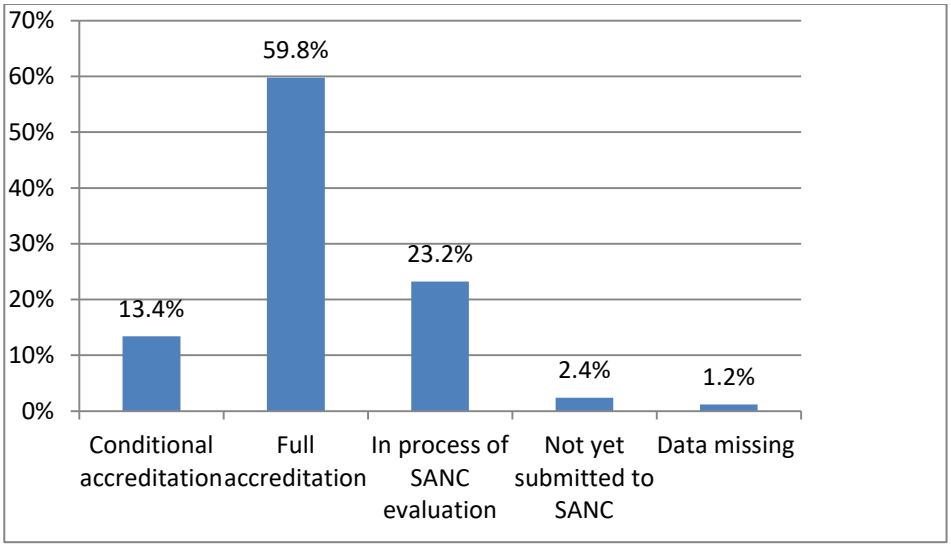

Figure 4.6: Status of program accreditation for the developed curricula

Despite the 1.2% of missing data, the finding of the accreditation progress from this data is evident that Gauteng Province NEs are contributing knowledge and skills in ensuring that the programs they are offering meet the qualification credibility in line with the SA requirements of the accreditation processes (CHE 2004a:7; SANC, 2014).

4.3.2. SUMMARY

The demographic data (section A) with attributes have been discussed. The discussion that follows will first outlines the findings of section B regarding knowledge in curriculum development and then followed by the findings of section C regarding skills in curriculum development.

4.3.3. OUTLINE OF SECTION B: KNOWLEDGE IN CURRICULUM DEVELOPMENT

The first objective of the study was to assess knowledge of NEs in the Gauteng Province regarding the development of a curriculum. In section B, of the questionnaire, the researcher asked 20 statements related to knowledge in curriculum development. The exploratory factor analysis of the factors and individual variables of knowledge was done based on the Likert scale. The outline that follows, discusses the responses as found on the Likert scale ranges reflected on annexure E. The Likert scales ranged from 1 to 7 (strongly

disagree to strongly agree). Reporting the frequencies and percentages (frequency table 4.3) was done by grouping the scales in the following manner:

- Disagree (allocated a rating of 1-3)
- Neutral (allocated a rating of 4) and
- Agree (allocated a rating of 5-7)

For the purpose of the interpretation and the discussions in this reporting, the statements that scored 85% and above will be grouped and the statements which scored below 85% will be the only ones that will be individually presented and discussed.

4.3.3.1. Discussion of statements which scored 85% and above on responding to knowledge in curriculum development

The responses to the statements which scored 85% and higher show that there were statements whereby the majority of the respondents seem to be in agreement, hence most of the statements scored 85% and higher. These responses were supported with literature. These high scores are observed in statement 5-10 and statement 12-18 and 20 (refer table 4.3).

Table 4.3: Frequency table for the 85 % and above in agreement related to knowledge in curriculum development

	Disagree		Neutral		Agree		Total	
	N	**%**	**N**	**%**	**N**	**%**	**N**	**%**
5. My knowledge of curriculum enables me to recognize when there is knowledge deficit amongst my team members regarding curriculum development.	7	8.5%	4	4.9%	71	86.6%	82	100.0%
6. My knowledge of adult teaching and training influence my ability to develop a curriculum that encourages critical thinking and open opportunities for lifelong learning in students.	8	9.8%	2	2.4%	72	87.8%	82	100.0%
7. My critical thinking and analytical abilities enable me to interpret Policies and guidelines relevant for a teaching, learning, and training program during the development of a curriculum.	2	2.5%	1	1.2%	78	96.3%	81	100.0%
8. My knowledge of nursing education theories supports my confidence in developing a curriculum that is relevant to the proposed program.	5	6.1%	6	7.3%	71	86.6%	82	100.0%
9. My ability to interpret Vision, Mission, Values and Philosophy of teaching and training enables me to develop a curriculum that aims to achieve the attributes of the futuristic students in the program.	4	4.9%	1	1.2%	77	93.9%	82	100.0%
10. My knowledge of formulating a conceptual or organizational framework enables me to develop a framework that is aligned to the vision and mission in a curriculum.	5	6.1%	3	3.7%	74	90.2%	82	100.0%
12. My knowledge of formulating learning outcomes enables me to develop study module/ units/workbooks /subject guides that are aligned with the exit level outcomes of the program.	5	6.3%	0	0.0%	75	93.8%	80	100.0%
13. My knowledge of teaching strategies enables me to formulate different teaching, and experiential learning strategies during the development a module in a curriculum.	3	3.7%	1	1.2%	77	95.1%	81	100.0%
14. My knowledge of setting assessments and use of Taxonomies for theory and Work Integrated Learning (WIL) enables me to develop appropriate assessments that asses the difficulty index of a question or levels of cognitive complexity of a question during curriculum development.	3	3.7%	1	1.2%	78	95.1%	82	100.0%
15. My knowledge of developing distribution of learning times for theoretical and WIL enables me to develop a curriculum that is integrated.	2	2.5%	0	0.0%	79	97.5%	81	100.0%
16. My knowledge of integrating theory and practice enables me to plan and develop clinical WIL placement activities in a curriculum.	1	1.3%	0	0.0%	79	98.8%	80	100.0%
17. My knowledge of aligning exit level outcomes with associated assessment criteria enables me to assess the application of the learning outcome in a module.	2	2.5%	1	1.2%	78	96.3%	81	100.0%
18. My knowledge of compiling a teaching and learning handbook/program guide enables me to develop training documents that are beneficial and informative to students and service users during curriculum development.	3	3.8%	3	3.8%	74	92.5%	80	100.0%
20. My knowledge of monitoring quality in a program enables me to plan the appropriate use of material and human resources for a program during curriculum development.	3	3.7%	9	11.0%	70	85.4%	82	100.0%

Statements 5-9 signify intrinsic acumen such as ability to recognize knowledge deficit, creativity, critical thinking, self-confidence, knowledge of theories and interpretational abilities as they boost the understandings in curriculum development. Curriculum requires entrepreneurial knowledge for it to be developed and in turn knowledge plays a major part in influencing creativity in developing a curriculum. Akhmetshin, Mueller, Yumashev, Kozachek, Prikhodko and Safonova (2019:8), and Hensley (2020:4) report that creativity enables the thinking process to be more robust thus enhancing viewing matters from different angles, formulate new solutions, and new connections. Kaba and Ramaiah (2020:10) posit that knowledge is realised as educators teach, conduct training, supervise students, and mentor activities and in turn it is improved. The sourced literature thus illustrates that creativity is formed by entrepreneurial thinking.

Statements 10-18 and 20 signify mindfulness and paying attention to details. The literature indicates that mindfulness and intuitiveness improve creative thinking and the development of productivity. Simply put mindfulness and intuitiveness help one to think differently (Hensley 2020:2). However; Erstad and Voogt (2018:2), and Kaba and Ramaiah (2020:3) express an observation on slow developments of knowledge and creativity in curriculum development. Further, the researchers state that knowledge and creativity have been of interest and highly valued since the last two decades. Erstad and Voogt (2018:3), and Akhmetshin, et al (2019:3) state that in education, knowledge and creativity drive professional teaching and learning and is influenced by the following personal qualities: “accountability, ingenuity, enthusiasm, hands-on attitude, sociability and tolerance to stress.” In light of the insinuations of the various writers, it is not surprising to find that the majority of NEs agree to the fact that knowledge is the foundational driving force in curriculum development. There are however few responses of disagreement whereby some NEs felt differently from these insinuations hence the noted low responses of disagreement and neutrality. Based on this, the researcher hereby draws a conclusion that NEs agree that knowledge influence curriculum development.

Even though the findings of the responses of disagree and neutral cannot be ignored, the scores were found to be far below 50% (refer to table 4.3). It is therefore expected that the percentages of disagree and neutral to be low since the majority of the respondents strongly agreed to the statements.

4.3.3.2. Discussion of statements which scored below 85% on responding to knowledge in curriculum development

The discussion that follows describes the interpretation of scores from the statements that scored below 85% on agreeing to knowledge in curriculum development as asked in the questionnaire. One will note that there are responses of neutral and disagree which scored between 2.4% and 12.2% and 10% and 32.9% respectively. The percentages of scores of disagree are relatively higher than those of neutral thus cannot be ignored. These responses demonstrate gaps needing further inquiry. The statements in question are 1-4, 11 and 19 as reflected in table 4.4.

Table 4.4: Frequency table for the percentages and scores of below 85% in agreeing to knowledge

	Disagree		Neutral		Agree		Total	
	N	%	N	%	N	%	N	%
1. The knowledge I have of curriculum development is a resultant of my nursing education and training	27	32.9%	5	6.1%	50	61%	82	100%
2. The knowledge I have of curriculum enables me to have a positive attitude in curriculum development activities	13	15.9%	2	2.4%	67	81.7%	82	100%
3. My knowledge of curriculum enables me to engage willingly in curriculum development discussions and activities	13	15.9%	2	2.4%	67	81.7%	82	100.0%
4. My knowledge of curriculum enables me to make informed choices and decisions during the development of a curriculum	10	12.3%	3	3.7%	68	84.0%	81	100.0%
11. My knowledge of developing course description using alphanumeric codes enables me to develop study modules in a curriculum	10	12.2%	10	12.2%	62	75.6%	82	100.0%
19. My knowledge of managing assets and the understanding of the implication of financial management in a program enables me to develop a curriculum that meets the organizational monetary controls.	8	10.0%	8	10.0%	64	80.0%	80	100.0%

4.3.3.2.1. Acquired curriculum development knowledge

The formation of competent NEs in curriculum development is the responsibility of the training institution. To this effect, the researcher asked a statement related to acquired knowledge.

An italic font is hereby used to indicate the statements.

Statement No 1: *The knowledge I have of curriculum development is a resultant of my training as a NE*

Response rate: A total of *n*=82 respondents =100% responded to this statement. There were *n*=50 (61%) who agreed with the statement, however *n*=27 (32.9%) disagreed and *n*=5 (6.1%) remained neutral.

In the current study, the researcher observed that a considerable number of respondents considered their NE training as not having prepared them for curriculum development. The finding of 32.9% who disagree and 6.1% who remained neutral resonates with the findings from a study conducted by Mulaudzi, Daniels, Direko and Uys (2012:3) in SA, whereby inadequate preparation of NEs in curriculum development was observed. The researchers report that despite the training of NEs in SA being offered at universities, these universities offer programs at different levels. Some offer a one year Diploma program, some a three year Bachelor's degree program, while others offer an Advanced Nurse Educator program at Master's degree level. As the training in these programs varies, they contribute to inconsistencies in training. Furthermore, the findings revealed that NEs felt that some of these programs did not prepare them adequately enough especially in curriculum development (Mulaudzi, et al 2012:3, 7). Other authors such as Akhmetshin, et al (2019:10) are of the opinion that a Master's degree is required for acquiring a complete set of specific knowledge to develop a focused project which could be aligned to acquiring knowledge of curriculum development. The finding of one third of the respondents that responded differently, 32.9% disagree and the 6.1% neutral in this current study is evident enough that NEs feel inadequately trained in curriculum development. The need for basic formation to prepare NE in the mastery of curriculum development is hereby a matter requiring further attention.

4.3.3.2.2. Demonstration of positive attitude

Zlatanovic, et al (2017:213) refer to observations of professional attitudes of passion, enthusiasm, self-control, flexibility, and accepting one's limitations and mistakes that they impact on a person‘s ability to execute tasks. Mohanasundaram (2018:S4) support the observations by stating that knowledge is a factor that enhances and grooms one’s outer and inner self thus impacting on positive attitude. The researcher asked the following statement related to attitude of NEs.

Statement No 2: *The knowledge I have of curriculum enables me to have a positive attitude in curriculum development activities*

Response rate: The statement was responded to by *n*=82 respondents=100%. Despite *n*=67 (81.7%) respondents that agreed to the statement, there was *n*=13 (15.9%) who disagreed and *n*=2 (2.4%) who remained neutral.

Contrariwise to positive attitude Zlatanovic, et al (2017:213) reported that lack of support from other educators in terms of communication, mentoring, and exposure to educational resources among others may lead to a negative attitude toward educational activities. The findings of 15.9% disagree and 2.4% neutral to the statement in the current study raise the suggestion that knowledge is not the only enabling factor for one to have a positive attitude but that there are other external factors which may influence the process.

4.3.3.2.3. Willingness to participate in curriculum development activities

Well-educated and experienced individuals do not have a problem in executing their roles therefore will participate willingly in matters of education and training. Ozdemir (2019:1282), and Mohanasundaram (2018:S5) emphasise that a well-educated and experienced person will have no problem to execute their roles and engage willingly in events. Enquiring into the knowledge and willingness to engage in curriculum development, the following research statement was asked.

Statement No 3: *My knowledge of curriculum enables me to engage willingly in curriculum development discussions and activities*

Response rate: The statement was responded by *n*=82 respondents=100%. A total of *n*=67 (81.7%) agreed, whilst *n*=13 (15.9%) disagreed and *n*=2 (2.4%) remained neutral.

Despite an 81.7%, percentage of positive responses, it is noted that 15.9% disagree and 2.4% remained neutral thus demonstrating that not only knowledge is the influence of willingness to engage. Ozdemir (2019:1282), and Mohanasundaram (2018:S5) indicate constant reading as a factor that boosts up willingness in engagement. This indicates that knowledge is not the only factor influencing willingness to participate in curriculum development discussions and activities.

4.3.3.2.4. Making informed choices and decisions

Nurse educators (NEs) are to constantly make deliberate decisions in an effort to effectively choose and implement relevant strategies for the development of a focused curriculum. Kaba and Ramaiah (2020:2-4) are found supporting the idea by stating that knowledge is based on the justification of ideas, true belief, actions and behaviour thus able to facilitate the ability to making decisions. The research statement related to the ability to make informed choices and decisions asked was:

Statement No 4: *My knowledge of curriculum enables me to make informed choices and decisions during the development of a curriculum*

Response rate: *n*=1 out of *n*=82 did not respond to the statement. *n*=81 respondents=100% responded to the statement. *n*=68 (84.0%) agreed, *n*=10 (12.3%) disagreed whilst *n*=3 (3.7%) remained neutral.

Rasebotsa (2017:4), and Bhuttah, et al (2019:15) remark that a lack of knowledge of distinct models as well as poor communication in curriculum development and implementation hamper the ability to make relevant choices and decisions, thus increasing the chances for uninformed decision-making. In addition, Mohanasundaram (2018:S5) recommends effective communication and continuous learning to enable making informed choices and decisions. The 12.3% disagreeing and 3.7% neutral indicate a possible lack of proper communication during the development of a curriculum.

4.3.3.2.5. Knowledge of developing study module

Developing a study module is a competency that an educator achieves during training. Olipas (2023:1078) highlights that educators are equipped through formal training with the necessary knowledge and skills to develop study modules and are timeously given support through workshops to reinforce knowledge and skills in developing and writing study modules. The researcher further states that a properly designed module requires appropriate and relevant material to ensure motivation to increase student's individual engagement and participation in learning and training (Olipas 2023:1077; Aufa, Iriani, Saadi, Hasbie, Fitri, and Yunita 2020:201). The statement related to course description asked was:

Statement 11: *My knowledge of developing course description using alphanumeric codes enables me to develop study modules in a curriculum*

Response rate: *n*=82 respondents=100% responded to the statement. The *n*=62 (75.6%) agreed, *n*=10 (12.2%) disagreed and *n*=10 (12.2%) remained neutral.

South African CHE (2004b:8) emphasises clear planning of modules or courses in the program to maintain a balance between theory and practice. The didactics of a curriculum require NEs to develop study modules that are inclusive of the general education syllabus and evaluation methods (Matlakala and Martiz 2019:1). Therefore, NEs need to understand that curriculum is a didactic document that provides a clear framework to enable focused teaching. The 12.2% of disagree and 12.2% of neutral demonstrates an area of concern for the development of study modules in a curriculum.

4.3.3.2.6. Knowledge in managing assets and finances

The 21st century requires careful planning and implementation of financial education in work places (Kaiser, Lusardi, Menkhoff and Urban 2022:257). In NEIs like other organizations, knowledge of financial management is necessary to boost confidence in finance matters as the running of programs is costed. Mohanasundaram (2018:S5) states that curriculum development requires identification and planning of human and material resources as well as the utilization thereof. Constant curriculum meetings should be held for evaluation and planning in line with the budget allocations. South African CHE (2004b:13) elaborates on the resources and infrastructure that need to be considered during curriculum development

as they impact on effective program accreditation. The statement related to managing assets asked was:

Statement No 19: *My knowledge of managing assets and the understanding of the implication of financial management in a program enable me to develop a curriculum that meets the organizational monetary controls*

Response rate: *n*=2 out of *n*=82 did not respond to the statement. *n*=80 respondents =100% responded. *n*=64 (80.0%) agreed, *n*=8 (10.0%) disagreed and *n*=8 (10.0%) remained neutral.

Zlatanovic, et al (2017:215) indicate that NEs have limited know-how in financial matters related to education and training of nurses. It is therefore not surprising that there was 10% that disagreed and a 10% that gave a neutral response to the statement. The finding supports the notion that there may be a lack of knowledge of finances and management of assets among the NEs who were involved in curriculum development.

4.4. SUMMARY

The findings of section B regarding knowledge in curriculum development have been presented. The analysed information revealed that NEs seem to strongly agree to the majority of the variable of knowledge in curriculum development as there were statements that scored 85% and more in agreeing. There were however NEs who differed in the statements evidenced by the scores in agreement of less than 85%. It was also identified that even though some NEs disagreed, some preferred to remain neutral.

4.5. OUTLINE OF SECTION C: SKILLS IN CURRICULUM DEVELOPMENT

The second objective of the study was to assess the skills of NEs in the Gauteng Province regarding the development of a curriculum. In section C of the questionnaire, the researcher asked eleven (11) statements related to skills in curriculum development. The statements that follow discusses the response ranges in the Likert scale which are statistically summarised according to the responses of disagree (rating of 1-3), neutral (rating of 4) and agree (rating of 5-7).

There were statements whereby the majority of the respondents seem to be in agreement to most of the statements as they scored higher than 85% as outlined in frequency table 4.5. For the purpose of explanation and discussion, the statements that scored above 85% (statement 2-9) will be discussed together and the statements that scored below 85% (statement 1, 10 and 11) will be the only ones that will be individually presented and discussed.

4.5.1. Discussion of statements which scored from 85% and above on agreeing to skills in curriculum development

The discussion that follows describes the statistical analysis and interpretation of scores from the statements of skills asked in the questionnaire. There are statements that scored 85% and above on agreeing. One will note that despite the high scores there are responses of neutral and disagree. This is in relation to statement 1-4, 11 and 19 (refer to table 4.6). Statement 1 cover innate acumen such as ability to communicate, organize and make decisions whilst statement 3-9 reflected on issues of practical/active engagement in curriculum development such as the development process, teaching, clinical practice, research, academic writing, leadership, and technological skills. The high scores are observed in statement 2-9. These statements were responded to positively by NEs and they each scored from 85% and above.

In a literature review, Zlatanovic, et al (2017:212) commented on studies done by other 15 different researchers where common discussions on NE's skill in clinical practice and different variables highlighted were identified. Nurse educators (NEs) are reported to differ in their mastered practical skills. Some are extremely skilled whilst others are not. It is on this basis that team support is encouraged. Zlatanovic, et al (2017:212), and Salminen, Tuukkanen, Clever, Fuster, Kelly, Kielé, Koskinen, Sveinsdóttir, Löyttyniemi, Leino-Kilpi, and PROCOMPNurse-Consortium (2021:1) share light on various factors building confidence as basic foundation for good clinical practice. The findings from the different variables for skills discussed by the researchers resonate well with the identified factors in the current study. One will note that certain variables scored high on agreement by the respondents. The variable of communication scored 95.1% for agree, 90.1% for attitude, 92.5% for interaction, and 91.1% for leadership. There are however statements that have

scored lower than 85% as the respondents' preferred to either remain neutral and or to disagree. This could be associated with low mastery of some skills. Fitzgerald, et al (2020:4) reported a finding from a study done in America where lack of essential skills among expert clinicians was identified; and the developing of a curriculum was one of the lacking skills. From the searched literature one could assume that a curriculum requires skills for it to be developed and in turn skills play a major part in influencing one's creativity in developing a curriculum.

Table 4.5: Frequency table with percentages for the scores of 85% and above for skills in curriculum development

	Disagree		Neutral		Agree		Total	
	N	%	N	%	N	%	N	%
2. My communication and organizational skills enable me to interact with various stake holders at the micro, meso and macro levels, to achieve informed decisions in curriculum development.	1	1.2%	3	3.7%	77	95.1%	81	100.0%
3. My curriculum development skills enable me to have a positive attitude, act ethically and professionally during the curriculum development processes.	5	6.2%	3	3.7%	73	90.1%	81	100.0%
4. My teaching skills enables me to develop interactive study material that meet the teaching, learning and training needs of the students.	3	3.8%	3	3.8%	74	92.5%	80	100.0%
5. My evidence- based practice skills enable me to develop theoretical and WIL activities that comprehensively covers the learning outcomes of the program.	1	1.2%	4	4.9%	76	93.8%	81	100.0%
6. My research skills enable me to source various and relevant information and material that will enable decision making in curriculum development.	7	8.6%	4	4.9%	70	86.4%	81	100.0%
7. My academic writing and document compilation skills enables me to develop a curriculum that is of quality standard	4	5.1%	6	7.6%	69	87.3%	79	100%
8. My leadership skills enable me to recognize when there is skills deficit amongst my team members regarding curriculum development.	3	3.8%	4	5.1%	72	91.1%	79	100.0%
9. My skills of managing technology during teaching and training enable me to develop interactive study material during curriculum development.	5	6.3%	4	5.0%	71	88.8%	80	100.0%

4.5.2. Discussion of statements which scored below 85% on responding to skills in curriculum development

Table 4.6: Frequency table with percentages for the scores below 85% for agreeing to skills

	Disagree		Neutral		Agree		Total	
	N	%	N	%	N	%	N	%
1. My curriculum development skills are a resultant of my nursing education and training.	28	34.6%	3	3.7%	50	61.7%	81	100.0%
10. My curriculum reviewing skills enables me to participate in peer reviews sessions to allow corrections and modifications during the curriculum development processes.	9	11%	5	6%	66	83%	80	100.0%
11. My communication and presentation skills enable me to confidently present the developed curriculum to the co-workers, my supervisors and stake holders.	7	8.8%	6	7.5%	67	83.7%	80	100.0%

4.5.2.1. Acquired skills to develop curriculum

In South Africa (SA) nursing education is a specialty that is obtained at HEIs. The training is aligned to WHO competencies of which Core Competency 2 emphasises the importance of mastering skills to develop curriculum for the training of NEs (WHO 2016:12). The statement related to acquiring skills asked was:

Statement No 1: *My curriculum development skills are a resultant of my nursing education and training*

Response rate*: n*=1 out of *n*=82 did not respond. *n*=81 respondents =100% responded to this statement. *n*=50 (61.7%) agreed with the statement, however *n* =28 (34.6%) disagreed and *n*=3 (3.7%) remained neutral.

Salminen, et al (2021:2) report an observation of inequalities in the training of NE, that the training seem not to achieve uniformity in competencies as this depends on where and how training is arranged. The study conducted by Mulaudzi, et al (2012:7) in SA revealed inadequate skills preparation of NEs in curriculum development. The study further revealed that to bridge this gap, NEs depend on formal mentoring, in-house training and conference attendance (Mulaudzi, et al 2012:8). It is perhaps imaginable that one might find a gap in curriculum development skills.

The finding of 34.6% of disagrees and the 3.7% of neutrality in the current study demonstrates that the NEs might be uncertain about their preparation in skills regarding curriculum development.

4.5.2.2. Ability to improve curriculum standards through reviews

Reviewing or evaluating curriculum as referred differently in various literature, is an essential methodological step in curriculum development. Bhutta, et al (2019:14) explain that this step aims to improve the standard of the existing curriculum; and in itself requires to be carried out by skilful NEs. The statement related to reviewing skills asked was:

Statement No 10: *My curriculum reviewing skills enables me to participate in peer reviews sessions to allow corrections and modifications during the curriculum development processes*

Response rate: *n*=2 respondents out of *n*-82 did not respond to this statement. *n*=80 respondents =100% answered this statement, *n*=66 (83%) agreed with the statement, however *n*=9 (11%) disagreed and *n*=5 (6%) remained neutral.

As training of NEs varies according to levels of programs, inadequacies are observed thus this affect skill and consequently confidence (Matlakala and Maritz, 2019:3; Mulaudzi, et al 2012:9, 11). Skilful NEs should therefore not hesitate to participate in the review of curriculum (Mwanza, et al 2019:366; Matlakala and Maritz 2019:3). The World Health Organization (WHO) Core Competency 2 requires NEs to be competent in evaluating programs (WHO 2016:12). In the current study 83% is observed to agree that skills influence participation in reviews of curricula. However; there's also a response of disagreeing (11%) and neutral (6%). This can be assumed that the review of a curriculum is an area that needs further attention during the training of NEs.

4.5.2.3. Communication and presentation abilities

Literatures posit that education and training is a continuous process from which one acquires basic skills to enable attaching meaning to activities. Confidence in curriculum development communications stems from proper training and orientation (Mulaudzi, et al 2011:5). In line with WHO (2016:14) Core Competency 5, NEs are expected to be equipped with professional communication skills to be able to demonstrate competence in clearly

communicating the aspects of a curriculum. The statement related to communication and presentation skills asked was:

Statement No 11: *My communication and presentation skills enable me to confidently present the developed curriculum to the co-workers, my supervisors and stake holders*

Response rate: *n*=2 respondents out of *n*=82 did not respond to this statement. *n*=80 respondents =100% answered this statement. *n=67* (83.7%) agreed with the statement, however *n=7* (8.8%) disagreed and *n*=6 (7.5%) remained neutral.

Despite the 83.7% that agree with their communication and presentation skills, 8.8% disagreed and 7.5% remained neutral. This shows that not all NEs who responded in the study are confident enough in communication and presentation skills. This can be assumed that the communication and presentation skills of a curriculum are areas that need further attention during the continuing professional development of NEs.

4.6. SUMMARY

Section C focussed on skills needed in curriculum development was presented. One will note that despite the high scores in relation to skills, there are responses of neutral and disagree which demonstrates gaps needing further inquiry.

4.7. INFERENTIAL STATISTICS

The discussion that follows describes the interpretation of Objective 3 that tested the association between demographic variables and knowledge and skills of participating NEs. The researcher analysed data using the IBM SPSS version 28. Exploratory factor analysis was done and factors were extracted. The scores were calculated to identify underlining dimensions. The Cronbach alpha, the Spearman's rho, the Independent-Samples, Mann-Whitney U test; and Kruskal-Wallis test were used to test associations between the constructs as well as determining if the distribution of the constructs score were the same between the demographic variables. Statistical data was described and summarised in percentages and frequencies.

4.8. FACTOR ANALYSIS

Shrestha (2021:4) explains factor analysis as a multivariate or multiple regression statistical technique which is applied during data analysis of a single set of variables to determine which variables in the set can be grouped together so to form logical subsets which are relatively independent of one another.

4.8.1. Factor analysis process

The process of factor analysis in this study involved two major steps.

The first step was the assessment of the suitability of data which included sample size and strength of the relationship among items of the collected data. In this study, the minimum amount of collected data for factor analyses was satisfied with a final sample size of *n*=82 (25.6%). Shrestha (2021:6) supports the sufficiency of a smaller sample size with solutions recording several high loading marker variables <0.80. The variables with large loadings values indicate representation of the factor. Furthermore; the writer advices on the significant value <0.05 as required in Bartlett's Test by indicating that such value may be worthwhile for the data set in factor analysis (Shrestha 2021:6). The minimum amount of data for factor analysis was satisfied with a final sample size of *n*=82 (25.6%). Even though the sample size was 25.6%, data were found sufficient and suitable for the study. Solutions had several high loading values for knowledge in curriculum development variables p-value <0.001, and significance (Sig) <0.000 for skills.

4.8.2. Correlation of Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of Sphericity

The second step was the Kaiser-Meyer-Olkin (KMO) test which was used to test suitability of data set for factor analysis. Shrestha (2021:5) describes KMO test as a measure aiming to test the sample size adequacy by quantifying the suitability of data for factor analysis. An average value >0.6 is said to be acceptable for a sample size <100. The KMO Measure of Sampling Adequacy for this study was 0.873. This implied that the assumption was commendable as it was above the recommended value of >1. Furthermore; Shrestha (2021:7) supports the adequacy of the assumption by stating that it is considered to be significant, and it indicates that more common variance than unique variance is explained

by the factor. The statements asked in this study were thus relevant in addressing the aim and objectives of the study.

4.8.3. Bartlett's Test of Sphericity

Shrestha (2021:5) describes Bartlett's Test of Sphericity as a test to examine the recommendation. The Bartlett's Test of Sphericity for determining the relations between the demography of NEs and knowledge in curriculum, with a Chi-square = 1168.357 was obtained with degrees of freedom (df) being 153 whilst the Significance (Sig) was 0.000 (p-value <0.001). To visualize the proposed factors and their relative eigenvalues, the Bartlett's Test of Sphericity was used. To determine the number of factors to retain, the scree plot was used. The performed test showed a significant correlation (refer to table 4.7).

Table 4.7: Kaiser-Meyer -Olkin and Bartlett's Test for knowledge

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.873
Bartlett's Test of Sphericity	Approx. Chi-Square	1168.357
	df	153
	Sig.	0.000

The Bartlett's Test of Sphericity for determining the relations between demography of NEs and skills in curriculum, with a Chi-square = 539.557 was obtained with degrees of freedom (df) being 45 whilst the Significance (Sig) was 0.000 (p-value <0.001) (refer to table 4.8). To visualize the proposed factors and their relative eigenvalues the Bartlett's Test of Sphericity was used. To determine the number of factors to retain, the scree plot was used. The performed test showed a significant correlation between demography of NEs and skills in curriculum.

Table 4.8: Kaiser-Meyer -Olkin and Bartlett's Test for skills

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.888
Bartlett's Test of Sphericity	Approx. Chi-Square	539.557
	df	45
	Sig.	0.000

The factor loading matrix of all the communalities extracted on knowledge and skills was all above 0.30, as reflected in table 4.9 and 4.10 respectively, therefore were all retained.

Table 4.9: Communalities on knowledge

	Initial	Extraction
2. The knowledge I have of curriculum enables me to have a positive attitude in curriculum development activities.	0.876	0.905
3. My knowledge of curriculum enables me to engage willingly in curriculum development discussions and activities.	0.901	0.911
4. My knowledge of curriculum enables me to make informed choices and decisions during the development of a curriculum.	0.827	0.767
5. My knowledge of curriculum enables me to recognize when there is knowledge deficit amongst my team members regarding curriculum development.	0.769	0.697
6. My knowledge of adult teaching and training influence my ability to develop a curriculum that encourages critical thinking and open opportunities for lifelong learning in students.	0.661	0.514
7. My critical thinking and analytical abilities enable me to interpret Policies and guidelines relevant for a teaching, learning, and training program during the development of a curriculum.	0.644	0.434
8. My knowledge of nursing education theories supports my confidence in developing a curriculum that is relevant to the proposed program.	0.752	0.459
9. My ability to interpret Vision, Mission, Values and Philosophy of teaching and training enables me to develop a curriculum that aims to achieve the attributes of the futuristic students in the program.	0.757	0.597
10. My knowledge of formulating a conceptual or organizational framework enables me to develop a framework that is aligned to the vision and mission in a curriculum.	0.875	0.735
11. My knowledge of developing course description using alphanumeric codes enables me to develop study modules in a curriculum.	0.718	0.554
12. My knowledge of formulating learning outcomes enables me to develop study module/ units/workbooks /subject guides that are aligned with the exit level outcomes of the program.	0.772	0.618
14. My knowledge of setting assessments and use of Taxonomies for theory and Work Integrated Learning (WIL) enables me to develop appropriate assessments that asses the difficulty index of a question or levels of cognitive complexity of a question during curriculum development.	0.757	0.548
15. My knowledge of developing distribution of learning times for theoretical and WIL enables me to develop a curriculum that is integrated.	0.848	0.784
16. My knowledge of integrating theory and practice enables me to plan and develop clinical WIL placement activities in a curriculum.	0.665	0.476
17. My knowledge of aligning exit level outcomes with associated assessment criteria enables me to assess the application of the learning outcome in a module.	0.597	0.490
18. My knowledge of compiling a teaching and learning handbook/program guide enables me to develop training documents that are beneficial and informative to students and service users during curriculum development.	0.756	0.661
19. My knowledge of managing assets and the understanding of the implication of financial management in a program enable me to develop a curriculum that meets the organizational monetary controls.	0.790	0.624
20. My knowledge of monitoring quality in a program enables me to plan the appropriate use of material and human resources for a program during curriculum development.	0.710	0.568

Table 4.10: Communalities on skills

	Initial	Extraction
2. My communication and organizational skills enable me to interact with various stake holders at the micro, meso and macro levels, to achieve informed decisions in curriculum development.	0.574	0.414
3. My curriculum development skills enable me to have a positive attitude, act ethically and professionally during the curriculum development processes.	0.722	0.692
4. My teaching skills enables me to develop interactive study material that meet the teaching, learning and training needs of the students.	0.576	0.480
5. My evidence- based practice skills enable me to develop theoretical and WIL activities that comprehensively covers the learning outcomes of the program.	0.623	0.506
6. My research skills enable me to source various and relevant information and material that will enable decision making in curriculum development.	0.736	0.713
7. My academic writing and document compilation skills enables me to develop a curriculum that is of quality standard.	0.680	0.689
8. My leadership skills enable me to recognize when there is skills deficit amongst my team members regarding curriculum development.	0.635	0.570
9. My skills of managing technology during teaching and training enable me to develop interactive study material during curriculum development.	0.594	0.554
10. My curriculum reviewing skills enables me to participate in peer reviews sessions to allow corrections and modifications during the curriculum development processes.	0.776	0.701
11. My communication and presentation skills enable me to confidently present the developed curriculum to the co-workers, my supervisors and stake holders.	0.723	0.602

Extraction Method: Principal Axis Factoring.

4.8.4. Kaiser's (Eigenvalue) Criterion and the Scree Test

Shrestha (2021:7) describe an eigenvalue as a ratio between the common variance and the specific variance explained by a specific factor extracted. The writer further explains the Scree Test as a graphical test for identifying the optimum number of factors that can be extracted before the amount of unique variance begins to dominate the common variance structure. The decision to retain the factors was assisted by using two techniques, the Kaiser's (Eigenvalue) Criterion and the Scree Test. In the current study table 4.11 indicates the total initial eigenvalues which explains the extracted sums of squared loadings for knowledge >1, with a total 55.645 %. Two statements were excluded from the analyses because they had factor loadings <0.30 for knowledge–related statements. The extracted and rotated % variance reflected in table 4.12 is 53.678 and the % cumulative is 53.678. Figure 4.7 indicates the Scree plot.

Table 4.11: Eigenvalue - Knowledge in curriculum development

	Initial Eigenvalues		
Factor	Total	% of Variance	Cumulative %
1	10.016	55.645	55.645
2	1.951	10.839	66.485
3	0.947	5.259	71.744
4	0.843	4.683	76.427
5	0.775	4.308	80.735
6	0.633	3.519	84.254
7	0.495	2.751	87.005
8	0.471	2.616	89.621
9	0.357	1.982	91.604
10	0.327	1.819	93.423
11	0.290	1.612	95.035
12	0.230	1.280	96.315
13	0.182	1.011	97.326
14	0.129	0.718	98.043
15	0.124	0.688	98.731
16	0.103	0.573	99.305
17	0.066	0.368	99.673
18	0.059	0.327	100.000

Table 4.12: Extracted and rotated loadings

Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
Total	% of Variance	Cumulative %	Total
9.662	53.678	53.678	9.012
1.680	9.334	63.012	6.883

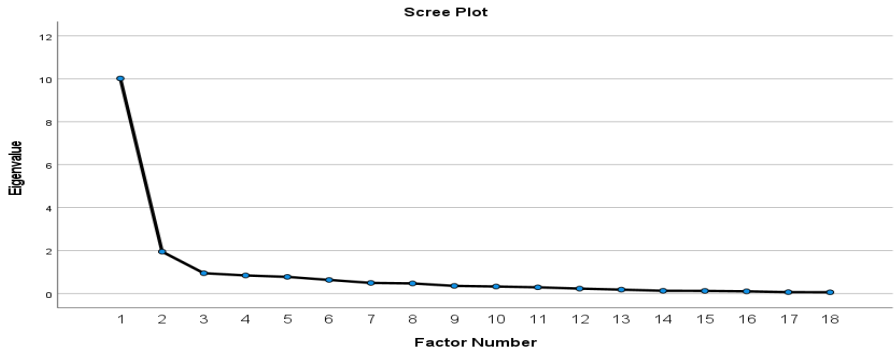

Figure 4.7: Scree Plot - Knowledge

The total initial eigenvalues reflected in table 4.13 for skills explain the extracted sums of squared loadings with a total 5.922. One statement was removed because it had factor loading <0.30 for skills-related statements. The extracted and rotated % variance reflected in table 4.14 is 59.219 and the % cumulative is 59.219. Figure 4.8 indicates the scree plot.

Table 4.13: Eigenvalue - Skills in curriculum development

	Initial Eigenvalues		
Factor	Total	% of Variance	Cumulative %
1	6.315	63.145	63.145
2	0.906	9.060	72.205
3	0.623	6.235	78.440
4	0.551	5.512	83.952
5	0.470	4.705	88.657
6	0.310	3.105	91.761
7	0.279	2.794	94.555
8	0.225	2.250	96.805
9	0.193	1.927	98.732
10	0.127	1.268	100.000

Table 4.14: Extracted and rotated loadings

Extraction Sums of Squared Loadings		
Total	% of Variance	Cumulative %
5.922	59.219	59.219

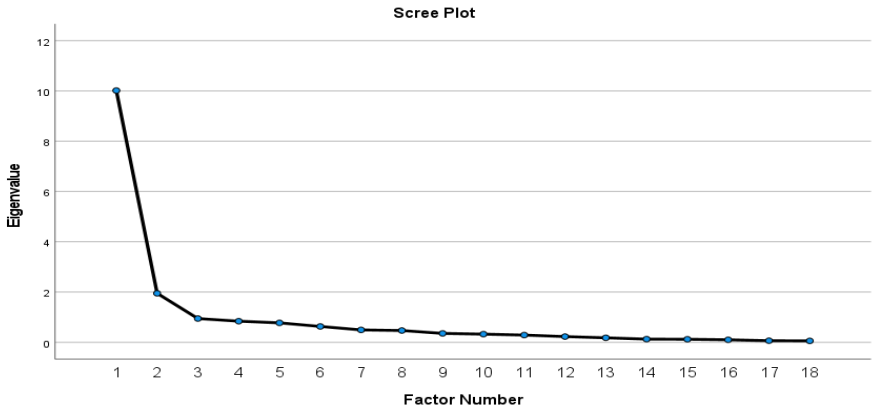

Figure 4.8: Scree Plot - Skills

To enable extractions, data related to knowledge and skills of NEs regarding curriculum development was first collected by the use of a questionnaire which had two (2) sections (one (1) section on knowledge and one (1) section on skills). After responses were received, the researcher analysed the strength of the relationship among the items measuring knowledge and those measuring skills of NEs. Exploratory factor analysis with principal axis extraction method was then used. The aim was to examine whether the statements asked in the questionnaire represented identifiable factors related to knowledge and to skills regarding curriculum development. The grouped variables enabled establishing a minimum amount of statistical data which provided insightful statistical information from which to decipher a view representing the respondents. Two (2) factors were extracted from the knowledge section and one (1) factor from the skills section. The naming of the factors was derived from the interconnectedness of the items asked in a cluster as they represented the underlying capabilities representing confidence in the development of a curriculum. Keating (2015:34) elaborates in details these capabilities required for curriculum development. The rationale for naming the factors was based on the following *communalities*:

- Factor analysis in table 4.15 refers to active engagement in curriculum development processes based on knowledge. The following communalities demonstrate active engagement in curriculum development processes: the ability to formulate conceptual or organizational framework; compile teaching and learning handbook; formulate learning outcomes; integrate theory and practice; interpret policies and guidelines, set assessments, monitor quality and managing assets.
- Factor analysis in table 4.16 refers to intrinsic acumen in curriculum development processes based on knowledge. The communalities of positive attitude, engage willingly, make informed choices and decisions, recognize when there is knowledge deficit, encourages critical thinking, all demonstrates knowledge in curriculum development processes.
- Factor analysis for skills in table 4.17, refers to intrinsic acumen in curriculum development processes based on skills. This factor was derived from the interconnectedness of the items asked in a cluster as they represented the underlying capabilities representing skills in the development of a focused curriculum. The named factors as indicated suited the extraction and were retained.

Table 4.15: Factor analysis: Active engagement based on knowledge in curriculum development processes

19. My knowledge of managing assets and the understanding of the implication of financial management in a program enable me to develop a curriculum that meets the organizational monetary controls.	0.871
15. My knowledge of developing distribution of learning times for theoretical and WIL enables me to develop a curriculum that is integrated.	0.860
17. My knowledge of aligning exit level outcomes with associated assessment criteria enables me to assess the application of the learning outcome in a module.	0.788
10. My knowledge of formulating a conceptual or organizational framework enables me to develop a framework that is aligned to the vision and mission in a curriculum.	0.773
20. My knowledge of monitoring quality in a program enables me to plan the appropriate use of material and human resources for a program during curriculum development.	0.764
18. My knowledge of compiling a teaching and learning handbook/program guide enables me to develop training documents that are beneficial and informative to students and service users during curriculum development.	0.720
12. My knowledge of formulating learning outcomes enables me to develop study module/ units/workbooks /subject guides that are aligned with the exit level outcomes of the program.	0.705
16. My knowledge of integrating theory and practice enables me to plan and develop clinical WIL placement activities in a curriculum.	0.703
9. My ability to interpret Vision, Mission, Values and Philosophy of teaching and training enables me to develop a curriculum that aims to achieve the attributes of the futuristic students in the program.	0.700
11. My knowledge of developing course description using alphanumeric codes enables me to develop study modules in a curriculum.	0.694
8. My knowledge of nursing education theories supports my confidence in developing a curriculum that is relevant to the proposed program.	0.676
14. My knowledge of setting assessments and use of Taxonomies for theory and Work Integrated Learning (WIL) enables me to develop appropriate assessments that asses the difficulty index of a question or levels of cognitive complexity of a question during curriculum development.	0.619
7. My critical thinking and analytical abilities enable me to interpret Policies and guidelines relevant for a teaching, learning, and training program during the development of a curriculum.	0.595

Table 4.16: Factor analysis: Intrinsic acumen based on knowledge in curriculum development processes

2. The knowledge I have of curriculum enables me to have a positive attitude in curriculum development activities.	-0.989
3. My knowledge of curriculum enables me to engage willingly in curriculum development discussions and activities.	-0.919
4. My knowledge of curriculum enables me to make informed choices and decisions during the development of a curriculum.	-0.892
5. My knowledge of curriculum enables me to recognize when there is knowledge deficit amongst my team members regarding curriculum development.	-0.690
6. My knowledge of adult teaching and training influence my ability to develop a curriculum that encourages critical thinking and open opportunities for lifelong learning in students.	-0.648
Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization.	
Rotation converged in 4 iterations.	

Table 4.17: Factor analysis: Intrinsic acumen based on skills in curriculum development

	Factor
	1
6. My research skills enable me to source various and relevant information and material that will enable decision making in curriculum development.	0.844
10. My curriculum reviewing skills enables me to participate in peer reviews sessions to allow corrections and modifications during the curriculum development processes.	0.837
3. My curriculum development skills enable me to have a positive attitude, act ethically and professionally during the curriculum development processes.	0.832
7. My academic writing and document compilation skills enables me to develop a curriculum that is of quality standard.	0.830
11. My communication and presentation skills enable me to confidently present the developed curriculum to the co-workers, my supervisors and stake holders.	0.776
8. My leadership skills enable me to recognize when there is skills deficit amongst my team members regarding curriculum development.	0.755
9. My skills of managing technology during teaching and training enable me to develop interactive study material during curriculum development.	0.744
5. My evidence- based practice skills enable me to develop theoretical and WIL activities that comprehensively covers the learning outcomes of the program.	0.711
4. My teaching skills enables me to develop interactive study material that meet the teaching, learning and training needs of the students.	0.693
2. My communication and organizational skills enable me to interact with various stake holders at the micro, meso and macro levels, to achieve informed decisions in curriculum development.	0.643

Extraction Method: Principal Axis Factoring.

4.8.5. Factor rotation and interpretation

The researcher concluded factor analysis with rotation and interpretation. Extraction method used was the Principal Axis Factoring and the Rotation Method of Oblimin with Kaiser Normalization. Rotation converged in four (4) iterations. Listwise deletion was also used. Out of range values were identified and were extracted enabling examination of the factorability of the items of both sections B and C of the questionnaire.

This empirical method assisted the researcher to disentangle complex interrelationships so to identify the communalities of variables going together as unified concepts or factors.

4.8.6. Validity and reliability

- **Construct validity**

The questionnaire instrument was found to be the accurate instrument measuring knowledge and skills of NEs regarding curriculum development (refer to chapter 3). Polit and Beck (2010:379) describe construct validity as a key criterion for assessing the quality of a study.

- **Criterion related validity**

On measuring biographic data, criterion related validity assessment was used to establish the relationship between scores from the questionnaire to the knowledge regarding curriculum development. This method assisted to establish a relationship as NEs differ in their present status. The significance of KMO and Bartlett's Test was p-value <0.001 with most of them above .00 and .70 of the desirable range (Polit and Beck 2010:378). The criterion related validity gave assurance that the questionnaire was valid and the results will enable to make effective, fair, and valid generalizations. All constructs can be summarised that there is adequate reliability and convergent validity of the instrument used.

- **Internal consistency**

Cronbach's alpha was used to examine the internal consistency of the questionnaire by providing a way to measure the reliability of the scores. Cronbach's alpha coefficient is referred by Shrestha (2021:5) as a measurement approach used for reliability and internal consistency of an instrument that comprise of multiple items. The questionnaire used for the

study had multiple statements enquiring about different items measuring knowledge and skills regarding curriculum development. When coefficient was calculated, the internal consistency of the questionnaire was found to be higher than the normal ranges of between .00 and +1.00 and thus was accurate. Composite reliability was above the 0.70 level and recommendable as outlined in table 4.18 and 4.19. The questionnaire was acceptable as Shrestha (2021:5) states that Cronbach's alpha value of more than 0.7 is acceptable.

Table 4.18: Reliability analysis-Knowledge

Construct	N items	Cronbach alpha	Composite reliability
Active engagement in curriculum development processes	13	0.943	0.937
Intrinsic acumen	5	0.923	0.920

Table 4.19: Reliability analysis-Skills

Construct	N items	Cronbach alpha	Composite reliability
Skills in curriculum development	10	0.932	0.935

Following the factor analysis, the composite scores for the identified factors were computed. A composite score (average) based on the items measuring the factors of the two (2) factors was calculated. The composite score ranged between one (1) and seven (7). The mean scores for the constructs range between 5.53 and 5.75. The mean for active engagement is 5.70 and standard deviation (sd) is .874 with skills in curriculum having the highest mean and the intrinsic acumens have the lowest score. It appears that the participants tend to agree more with the statement that measures active engagement and skills in curriculum development. The average scores are >5. The skewness and the kurtosis values are outside the range -1 and 1, which suggest that the data is not normally distributed (refer table 4.20).

Table 4.20: Descriptive statistics

Item	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Active Engagement	82	2	7	5.70	.874	-1.459	4.909
Intrinsic acumens	82	1	7	5.53	1.347	-1.715	2.892
Skills in Curriculum Development	81	2	7	5.75	.975	-1.322	2.303
Valid N (listwise)	81						

4.8.7. Correlation analysis

The non-parametric correlations were performed to test for correlations between the variables; age, number of years as educator and active engagement, intrinsic acumens and skills in curriculum development as reflected in table 4.21 and 4.22.

- Correlation coefficient's between age, number of years as educator and active engagement, intrinsic acumens and skills in curriculum development are not significant (p >0.05). This implies that the two demographic findings are indirectly affecting the variables influencing curriculum development.
- Correlations coefficient between active engagement, Intrinsic acumens and skills in Curriculum Development were significant (p <0.05). This implies that the variables directly influence curriculum development.
- The null hypothesis tested in the study is: there are no statistical differences between the different categories of gender, employment and education levels in their scores an active engagement, intrinsic acumen and skills in curriculum development.

Table 4.21: Correlations of age and years as a nurse educator with active engagement, intrinsic acumen and skills in curriculum development

			1. What is your age?	4. How many years have you been a nurse educator?
Spearman's rho	4. How many years have you been a nurse educator?	Correlation Coefficient	.705**	
		Sig. (2-tailed)	<,001	
		N	79	
	Active Engagement	Correlation Coefficient	.021	.037
		Sig. (2-tailed)	.851	.744
		N	81	79
	Intrinsic acumens	Correlation Coefficient	.036	.084
		Sig. (2-tailed)	.752	.463
		N	81	79
	Skills in Curriculum Development	Correlation Coefficient	-.085	.001
		Sig. (2-tailed)	.452	.991
		N	80	78

Table 4.22: Correlations of years as a nurse educator with active engagement, intrinsic acumen and skills in curriculum development

			Active Engagement	Intrinsic acumens
Spearman's rho	4. How many years have you been a nurse educator?	Correlation Coefficient		
		Sig. (2-tailed)		
		N		
	Active Engagement	Correlation Coefficient		
		Sig. (2-tailed)		
		N		
	Intrinsic acumens	Correlation Coefficient	.584**	
		Sig. (2-tailed)	<,001	
		N	82	
	Skills in Curriculum Development	Correlation Coefficient	.741**	.639**
		Sig. (2-tailed)	<,001	<,001
		N	81	81

**. Correlation is significant at the 0.01 level (2-tailed).

4.8.8. Test for differences among demographic variables in knowledge and skills of participating NEs

The nonparametric test Mann-Whitney test was done to test if the distribution of the scores differed across gender, employment status and highest educational level. There were no statistical differences between gender, employment, highest educational level and knowledge and skills, with the p-values >0.05 displayed. The distribution of the scores was found to be the same across all categories. The fact that there are differences found implies that the demographic variables do not play a role on how NEs perceive knowledge and skills in curriculum development. The null hypothesis of the Mann-Whitney test is stated in table 4.23, 4.24 and for education, the Kruskal-Wallis test was used and the null hypothesis is stated in table 4.25. One of the factor analyses assumption tested is that there is correlation between items. Bartlett's test of sphericity is used to test that assumption. The null hypothesis tested is that there is no correlation between items.

Table 4.23: Hypothesis Test Summary - What is your gender?

	Null Hypothesis	Test
1	The distribution of Active Engagement is the same across categories of 2. What is your gender?	Independent-Samples Mann-Whitney U Test
2	The distribution of Intrinsic acumens is the same across categories of 2. What is your gender?	Independent-Samples Mann-Whitney U Test
3	The distribution of Skills in Curriculum Development is the same across categories of 2. What is your gender?	Independent-Samples Mann-Whitney U Test

Hypothesis Test Summary Significance

	Sig.[a,b]	Decision
1	.572	Retain the null hypothesis.
2	.634	Retain the null hypothesis.
3	.626	Retain the null hypothesis.

a. The significance level is .050.
b. Asymptotic significance is displayed.

Table 4.24: Hypothesis Test Summary - What is your employment status?

	Null Hypothesis	Test
1	The distribution of active engagement is the same across categories of 3. What is your employment status?	Independent-Samples Mann-Whitney U Test
2	The distribution of intrinsic acumens is the same across categories of 3. What is your employment status?	Independent-Samples Mann-Whitney U Test
3	The distribution of skills in curriculum development is the same across categories of 3. What is your employment status?	Independent-Samples Mann-Whitney U Test

Hypothesis Test Summary Significance

	Sig.[a,b]	Decision
1	.574	Retain the null hypothesis.
2	.192	Retain the null hypothesis.
3	.575	Retain the null hypothesis.

a. The significance level is .050.
b. Asymptotic significance is displayed.

Table 4.25: Hypothesis Test Summary - What is your highest educational level?

	Null Hypothesis	Test
1	The distribution of Active Engagement is the same across categories of 5. What is your highest educational level?	Independent-Samples Kruskal-Wallis Test
2	The distribution of Intrinsic acumens is the same across categories of 5. What is your highest educational level?	Independent-Samples Kruskal-Wallis Test
3	The distribution of Skills in Curriculum Development is the same across categories of 5. What is your highest educational level?	Independent-Samples Kruskal-Wallis Test
Hypothesis Test Summary Significance		
Sig.[a,b]		Decision
.853		Retain the null hypothesis.
.365		Retain the null hypothesis.
.479		Retain the null hypothesis.
a. The significance level is .050. b. Asymptotic significance is displayed.		

4.9. SUMMARY

In this chapter, the researcher followed the empirical research steps in statistically analysing the obtained data regarding knowledge and skills of NEs regarding curriculum development. Data was presented, described and discussed starting with a brief introduction followed by the analytical methods used. The discussion was supported by literature. The findings from the demographic data as well as from the statements related to knowledge and skill of NEs regarding curriculum development enabled achievement of answering the research question and the aim and objectives of the study. The findings will inform the conclusion and the recommendations as discussed in chapter 5.

CHAPTER 5

SUMMARY OF RESEARCH FINDINGS, RECOMMENDATIONS, LIMITATIONS, AND CONCLUSION

5.1. INTRODUCTION

Chapter 4 presented the findings from the demographic data and the statements related to the knowledge and skill of NEs regarding curriculum development, with the aim of answering the research question and the aim and objectives of the study. Chapter 5 provides a conclusion of this study. The research findings, recommendations, limitations of the study, will form part of the discussion followed by a conclusion.

The researcher undertook a study to assess knowledge and skills of NEs regarding curriculum development based on the experiences described in chapter 1. In the current study, a quantitative research approach using a descriptive survey design was undertaken. The aim was to assess knowledge and skills of NEs regarding curriculum development in NEIs in Gauteng Province, South Africa. The objectives of assessing the knowledge of NEs in the Gauteng Province regarding the development of a curriculum assessing the skills of NEs in the Gauteng Province regarding the development of a curriculum; and testing for an association between demographic variables and knowledge and skills of participating NEs were achieved. Data was collected through the use of a web-based questionnaire. Data was statistically analysed. The outcome of the analysed data was comprehensively discussed.

5.2. SUMMARY OF THE RESEARCH FINDINGS

Summary of the findings on the demographic data will be presented first, followed by a summary of the findings on knowledge and skills in curriculum development.

5.2.1. Findings on demographic data

The objective for collecting demographic data was to determine the association between demographic variables and knowledge and skills of the NEs in the Gauteng Province. Data analysis commenced with analysing section A of the questionnaire (refer to appendices). The key demographic attributes that were analysed included age, gender, employment status, years of experience, highest academic qualification and home language. The type of programs developed by NEs and the types of accredited programs were also analysed.

The association amongst variables of the demography of NEs and the knowledge and skills in the curriculum, was assessed through the use of a Chi-square test. Correlation coefficients between age, number of years as an educator and active engagement, intrinsic acumens and skills in curriculum development were found not significant ($p > 0.05$).

This section was well responded to, though; there were few questions where a small percentage of respondents chose to remain neutral (refer to chapter 4). Irrespective of the responses of neutralities, the impartialities did not impact negatively on making conclusions to the findings.

5.2.1.1. Profile of age categories at the NEIs

The finding revealed age group mixes of young and old NEs employed at NEIs. The youngest age was 34 years whilst the eldest age was 71 years. The median age was 54 years. With these age differences, differing experiences are recognized. The NEIs could therefore benefit from the transference of knowledge and skills-based. Mukhalakhati, et al (2019:7), and Keating (2015:34) explain that learning and exchanging expertise between the young and the old employees is realized as support progresses. From the finding, it is therefore evident that the NEIs of Gauteng Province have age categories that will enable the sharing of knowledge and skills required during curriculum development processes.

5.2.1.2. Profile of gender in the NEIs

The analysed data indicated 87.8% females as compared to 11% males. There was however a 1.2% no response to the question on gender. The demographic attribute of more females was found to be in line with the reported gender stereotypes in the nursing profession as found in various studies (Namulondo 2020:99; Mosetlhe 2017:43; Cho and Jang 2021:1; Ndou and Moloko-Phiri 2018:1; Boniol, et al 2019:2). It is therefore correct to state that more female NEs in NEIs of Gauteng Province (because of the majority responses) participated in curriculum development.

5.2.1.3. Employment statuses of NEs in the NEIs

The South African (SA) Council on Higher Education (CHE) posits a balance of appropriate full-time and part-time staff for teaching and learning as NEs are the ones to develop a curriculum (CHE 2004a:11). Despite the 2.4% of the respondents who did not respond to the statement asked in the current study, full-time employment was found to be 87.8%, whilst part-time was 9.8%. The finding revealed that Gauteng Province NEIs do have a mixture of employment statuses to accommodate flexible participation during curriculum development.

5.2.1.4. Number of years of employment in the NEIs

The minimum years of employment in the current study were found to be two (2) years and the maximum being 38 years, with 12 years being the median year of employment. Despite the three (3) respondents who did not declare their number of years in employment the analysed data deduced that there are NEs who have stayed for more than 30 years in their employment. The respondents' years of employment are therefore sufficient to impact positively on knowledge and skills in curriculum development. The study showed a possible transferable professional experience that may impact positively on knowledge and skills required to develop a curriculum.

5.2.1.5. Profile of academic qualifications of NEs in NEIs

Nurse Educators (NEs) are trained to be the essential influencers for curriculum development (Bhutta, et al 2019:19). By virtue of their training, they achieve qualifications that are supposed to build their academic confidence in developing curriculum (CHE 2004b:10; Oermann, et al 2018:5). In the current study the NEs were found to have a variety of qualifications such as Bachelor's Degree 53.7%, Master's Degree 28%, PhD 15.90% and Diploma in Nursing Education 2.40%. This finding can be assumed to play a major role in support of knowledge and skill regarding curricula development.

5.2.1.6. Influence of diversified home languages spoken by NEs at NEIs

Namulondo (2020:99) encourages a balance of academic staff diversity to contribute positively to developing a curriculum that will support the understanding of subject matter and mastery of professional communication. In the current study, it was identified that NEs

do speak a variety of indigenous languages, including English and Afrikaans. The diversified spoken languages will enable the development of curricula that considers the ethnicity categories of student and their level of subject understanding and professional communication.

5.2.1.7. Impact of developed programs at NEIs

The program which showed the highest level of NE participation in curriculum development was found to be the Diploma in Nursing: General Nurse 46.3% followed by the Post Graduate Diplomas 30.5%, then Higher Certificate: Auxiliary Nursing at 12.2% and lastly Bachelor's Degree: Nursing and Midwifery at 8.6%. Despite the 2.40% of missing data, it is fit to report that knowledge and skills of NEs played a pivotal role as NEIs developed programs for teaching and learning.

5.2.1.8. Status of programs accredited at NEIs

Despite the 1.2% of missing data, different programs were found accredited at the NEIs of Gauteng Province who responded to the study. Fully accredited programs were 59.8%, whilst conditionally accredited were 13.4%. There were 23.2% of programs in the process of being accredited and 2.4% programs not yet submitted for accreditation. From the finding, it can be assumed that NEs have contributed their knowledge and skills to ensure that the programs they are offering, meet the qualification credibility in line with the accreditation processes required in SA (CHE 2004a:7; SANC 2014).

The demographic data with attributes have been discussed; now a summary of the findings of knowledge and skills in curriculum development will be presented.

5.2.2. Findings on knowledge and skills in curriculum development

Knowledge influence skills and in turn skills influence knowledge. The two are co-dependent therefore inseparable. From the sourced literature, the researcher understood that knowledge will enable sharing learnt familiarity of a subject, enable expressing critical comprehension and writing down facts about a given content area. Skills on the other hand are the practical know-how/capabilities that are certainly learned to enable the performance of tasks (Ali and Akayuure 2016:220; Bhutta, et al 2019:15).

The finding regarding knowledge and skills as described in chapter 4, demonstrated high scores of positive responses in relation to heightened intrinsic acumen, interpretational abilities and paying attention to details during curriculum development. In response to skills, intrinsic acumen and practical/active engagement demonstrated high scores of positive responses. Varied responses were however identified from some of the statements. Correlations coefficient between active engagement, intrinsic acumens and skills in curriculum development were significant ($p<0.05$).

The discussion that follows outlines the contrasts identified from the responses where NEs differed.

5.2.2.1. Acquiring knowledge and skills in curriculum development from training

Teachers are by virtue of their training the ones who should develop curriculum (Bhutta, et al 2019:19). Even though the positive finding in the current study reveals that NEs do agree to have knowledge and skills acquired from training, i.e. 61% of knowledge and 61.7% of skills, there are NEs who differed. Thirty-two point nine percent (32.9%) of NEs disagreed to have acquired knowledge in curriculum development whilst 6.1% remained neutral. Regarding the skills, 34.6% disagreed to have acquired skills and 3.7% remained neutral. The NEs who remained neutral might be associated with indecisiveness. The negative finding thus reveal that the preparation/training of NEs is a matter needing further inquiry as it reflects NEs to have not been adequately prepared in the area of knowledge and skills in curriculum development.

5.2.2.2. Demonstration of professional attitude during curriculum development

Zlatanovic, et al (2017:213) reported that a person‘s ability to execute tasks is influenced by professional attitudes such as passion, enthusiasm, self-control, flexibility, and accepting one's limitations and mistakes. The finding to professional attitude in the current study revealed that despite the 81.7% of NEs that agree to have attributes of professional attitude there are 15.9% of NEs who disagree and 2.4% who remained neutral. This difference indicates that not only knowledge enables one to have a positive attitude but other external factors which calls for further inquiry.

5.2.2.3. Ability to participating willingly in curriculum activities

Ozdemir (2019:1282), and Mohanasundaram (2018:S5) emphasize that a well-educated and experienced person will have no problem to execute their roles and engage willingly in events. Despite the 81.7% of NEs who agreed to their ability to participate in curriculum development, there were 15.9% who disagreed and 2.4% who preferred to remain neutral. This indicates that not only knowledge influences participation but other factors also and this calls for further inquiry.

5.2.2.4. Making proper choices and decisions

Proper communication and intermittent learning in curriculum development was remarked by Rasebotsa (2017:4), and Mohanasundaram (2018:S5) that it improves the ability to make choices and decisions. Eighty four percent (84%) of NEs agreed to this statement whilst 12.3% disagreed and 3.7% remained neutral. The negative responses to proper communication serve as an indication of further study.

5.2.2.5. Knowledge of developing study module

Educators undergo formal training to be equipped with the necessary knowledge and skills to develop study modules. Support to reinforce the compiling of study modules is also timeously given through workshops (Olipas, 2023:1078). Seventy five point six percent (75.6%) of NEs agreed however 12.2% disagreed and 12.2% remained neutral. This demonstrates an area of concern that calls for further inquiry.

5.2.2.6. Knowledge of managing assets and finances

Mohanasundaram (2018:S5) states that to develop a curriculum successfully requires identification and planning of human and material resources as well as the utilization thereof. Constant curriculum meetings should be held for evaluation and re-planning in line with the budget allocations. The finding in the current study demonstrated that 80% of NEs agreed whilst 10% disagree and 10% remained neutral. Zlatanovic, et al (2017:215) reported that NEs have limited know-how in financial matters related to the education and training of nurses therefore it is not surprising that there are NEs who differed. This area calls for further enquiry as education and training activities are costed in line with the processes of assets and financial management.

5.2.2.7. Ability to improve curriculum standards through reviews

Developing a curriculum is a process that follows a systematic method. Therefore, it requires to be developed and be reviewed by skilful NEs (Mwanza, et al 2019:366; Matlakala and Maritz 2019:3). Core Competency 2 of WHO requires NEs to be competent in evaluating programs (WHO 2016:12). The observation in the current study revealed that 83% of NEs agreed that skills influence participation in curricula reviews. There were however 11% that disagreed and 6% that remained neutral. Matlakala and Maritz (2019:3), and Mulaudzi, et al (2012:11) remark that poor skills lead to poor confidence in reviewing roles. It is not unexpected from the finding that some NEs responded negatively thus this area is a matter for further inquiry.

5.2.2.8. Communication and presentation abilities

Proper training and orientation equip NEs with confidence to communicate matters related to developing a curriculum (Mulaudzi, et al 2012:5). World Health Organization (WHO) Core Competency 5 encourages HEIs to equip NEs with skills on professional communication (WHO 2016:14). Rasebotsa (2017:76) conducted a study at a South African school and identified challenges of communicating curriculum changes. The finding in the current study put NEs in the similar situation of challenges. Irrespective of the 83.7% that agreed to confidence in communication and presentation skills; there were 8.8% that disagreed and 7.5% that remained neutral. This is indicative that not all NEs are confident enough in communication and presentation skills.

5.3. RECOMMENDATIONS

The development of curriculum depends on knowledge and skills of the developers. In the NE profession, NEs are trained to develop curriculum at HEIs. The findings in the current study enabled the understanding that knowledge and skills in curriculum development are acquired during training. To enhance formation, constant participation, and communication, practice and reviews are necessary to boost confidence in curriculum development. Therefore; inadequate training and engagement in developing curriculum create deficits in demonstrating knowledge and skills. The following recommendations have been made for the preparation of nurse educators, the nursing profession, additional research, and for Department of Health (DOH) policymakers.

5.3.1. Recommendations for the preparation of nurse educators

- Higher education institutions should revise the training programs for NEs and incorporate curriculum development as a module in line with WHO Core Competencies. Content such as how to develop a study module, curriculum reviewing, confidence in communication and presentation skills, costing education and training activities, are among topics that need to be reinforced for developing a curriculum. With appropriate training it is envisaged that the knowledge and skills of NEs will be improved. Knowledgeable and skilled NEs will confidently participate in curriculum development.
- Nursing Education Institutions (NEIs) should robustly support NEs to constantly and systematically build knowledge and skills in developing curricula that are responsive to local health policies.

5.3.2. Recommendations for the nursing profession

- Nurses are trained and prepared by NEs to achieve their nursing qualifications. NEs should therefore develop a curriculum that will focus on the needs of the people that nurses are meant to serve.
- The NEIs should support NEs to enable achievement of a focused curriculum that will enable preparation of adequately trained and prepared inter-professional nurses who will receive quality education and be graduated. The nursing profession will thus receive quality output of nurse graduates and will in turn transform the quality of the nursing practice in general.

5.3.3. Recommendations for additional research

- The findings in this study can be used as baseline to stimulate further studies on knowledge and skills regarding curriculum development to add to the body of knowledge. It would really be a humbling reward to stimulate more researches related to knowledge and skills in curriculum development so that curriculum in NE can be dynamic to suit the needs of the people the nursing profession serve.
- Furthermore; the findings could be shared with the Gauteng Provincial Department of Health through the National Health Research Database so to be used as a baseline for other similar studies.

5.3.4. Recommendations for the Department of Health policymakers

- The findings will provide policy makers with the information that will influence policies for continuous training in curriculum development thereby encouraging the understanding of the knowledge and skills required for curricula development.
- The findings will also increase the review of the support given to NEs on curriculum development.

5.4. CONTRIBUTION TO THE BODY OF KNOWLEDGE

Curriculum is a purposefully designed goal-oriented academic document. Nurse educators (NEs) need to understand that curriculum is a didactic document that provides a clear framework for teaching. It helps to set boundaries, and provides a clear pathway that guard against losing focus during the development process. Curriculum needs to be developed. In South Africa (SA), NEs are the developers of curriculum at NEIs of their employment. It is vital the HEIs train NEs relevantly and adequately to enable them to develop focused curricula. As NEs teach and train nursing students they become conversant with subject content thus become experienced and skilful. A well-developed curriculum is said to give meaning and have a far reaching impact on the quality of a program. From the study the researcher understood that NEs with knowledge and skills will participate willingly and confidently in curriculum development activities.

Knowledge and skills are indispensable competencies that influence the execution of roles. The World Health Organization (WHO) expects training institutions to adequately train NEs so to gain knowledge and skills (WHO 2016:6). Knowledge and skills are of particular importance because these competencies help NEs to confidently participate in developing a curriculum for accreditation of a program. Nurse educators (NEs) are therefore informed by knowledge and skills to execute their roles.

To develop a curriculum that is focused and meet the rapidly changing health needs of communities, fundamentals such as critical thinking, consultations, knowledge of teaching and learning theories, peer reviews and continuing professional development are required.

Other factors such as balanced age groups mixes in employment, enable sharing of knowledge and skills in curriculum development. Having been employed for a long time also has benefits with the aim of transferable competencies. Full time employment appears to enable meeting of targets. The variety of spoken indigenous languages, as well as English and Afrikaans demonstrates a balance of academic staff diversity which will impact positively on developing curriculum that considers the level of student support and understanding of subject matter and mastery of professional communication.

It is within reason that failure of the NEs to demonstrate knowledge and skills regarding curricula development will result in unachievable curricula impacting negatively on the quality of education and the preparation of student nurses.

5.5. LIMITATIONS

Amid the successes during the period of the study, there were several limitations that must be acknowledged. These limitations were beyond the researcher's control. Brink, et al (2018:180) remind us that "No study is perfect", thus the current study shares the same sentiment. The outbreak of the COVID-19 pandemic in 2020 and the compliance to the POPI Act No. 4 of 2013 brought about unprecedented disruptions and interruptions in the study. These disruptions and interruptions negatively affected the researcher's plans and progress to access the Gauteng Province NEIs. Obtaining permissions for data collections took longer than it was planned. Sampling approach and communications for sharing data were severely disrupted. Not many NEIs ended up giving permission for data collection. Responding to the survey took longer with not many responses forthcoming. Imbalances in the number of respondents per classifications were identified and were beyond the researchers control as some of the few NEIs that gave permission had more NEs than the others (detailed explanation in chapter 3). It is on this basis that the findings of the study could only be generalized to Gauteng Province NEIs who responded in the study. The findings could therefore not represent the holistic view and perhaps also the differences that we were unable to measure in other ways.

5.6. FINAL CONCLUSION

The aim of the study was to assess knowledge and skills of NEs regarding curriculum development at the NEIs in Gauteng Province. A quantitative approach was followed using a seven-point Likert scale questionnaire to answer 39 structured descriptive statements in

the study. The questionnaire was divided in three (3) sections, i.e. section A of biographic data, section B of statements related to knowledge regarding curriculum development; and section C of statements related to skills regarding curriculum development.

The findings from the analysed biographic data revealed that the youngest age of NEs was 34 years whilst the eldest age was 71 years. Female gender was found to be higher than the male gender. Mixtures of full time and part time employment statuses were identified. Years of employment was found to be from two (2) years to 38 years. A variety of nurse educator academic qualifications such as diploma in nursing education, bachelor's degree, master's degree, and doctor of philosophy (PhD) were found. There were a variety of home languages spoken from Afrikaans, English, isiXhosa, isiZulu, Sepedi, Sesotho, Setswana, isiSwati, Tshivenda to Xitsonga. The developed programs were diploma in nursing, post graduate diplomas, higher certificate: auxiliary nursing and the bachelor's degree: nursing and midwifery. Though the biographic data demonstrated that NEs employed at the Gauteng Province NEIs were involved in curricula development the statistical differences found implied that the demographic variables do not play a role on how NEs perceive knowledge and skills in curriculum development

Nurse educators (NEs) are to constantly make deliberate decisions in an effort to effectively develop a focused curriculum. Even though the information obtained could not be generalised due to a participation of 82 respondents (25.6%) of NEs employed at NEIs in the Gauteng Province, the findings from the analysed data regarding knowledge and skills, demonstrated that NEs were able to use their knowledge and skills regarding curriculum development. It was identified that, there were areas which they were confident in and others not confident in. This was identified by responses where despite others agreeing, there were others who disagreed whilst others chose to remain neutral. NEs demonstrated their entrepreneurial thinking as they were able to recognize knowledge deficit, creativity, critical thinking, self-confidence, knowledge of theories and interpretational abilities as these boost their understanding in curriculum development. Notwithstanding the positive indications, it was identified that there were feelings of inadequate training with knowledge and skills to develop curriculum, lack of positive attitudes, lack of confidence in communicating curriculum and the ability to organize and make decisions and presentation skills, lack of knowledge and skills in developing study modules, reviewing of curriculum, and lack of management of finances and assets.

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Annexure A
A1: University of Pretoria ethical clearance certificate

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences

Institution: The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.

- FWA 00002567, Approved dd 22 May 2002 and Expires 03/20/2022.
- IORG #: IORG0001762 OMB No. 0990-0279 Approved for use through February 28, 2022 and Expires: 03/04/2023.

26 February 2021

Approval Certificate
New Application

Ethics Reference No.: 35/2021
Title: Knowledge and skills of nurse educators regarding curriculum development in the twenty Nursing Education Institutions in Gauteng Province, South Africa

Dear Mrs ML Digangoane

The **New Application** as supported by documents received between 2021-01-25 and 2021-02-24 for your research, was approved by the Faculty of Health Sciences Research Ethics Committee on 2021-02-24 as resolved by its quorate meeting.

Please note the following about your ethics approval:

- Ethics Approval is valid for 1 year and needs to be renewed annually by 2022-02-26.
- Please remember to use your protocol number (35/2021) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, monitor the conduct of your research, or suspend or withdraw ethics approval.

Ethics approval is subject to the following:

- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

Yours sincerely

Dr R Sommers
MBChB MMed (Int) MPharmMed PhD
Deputy Chairperson of the Faculty of Health Sciences Research Ethics Committee, University of Pretoria

The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes, Second Edition 2015 (Department of Health)

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Fakulteit Gesondheidswetenskappe
Lefapha la Disaense tša Maphelo

Annexure A
A2: University of Pretoria ethical clearance certificate

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences

Institution: The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.

- FWA 00002567, Approved dd 22 May 2002 and Expires 03/20/2022.
- IORG #: IORG0001762 OMB No. 0990-0279 Approved for use through February 28, 2022 and Expires: 03/04/2023.

Faculty of Health Sciences **Research Ethics Committee**

18 March 2022

Approval Certificate
Amendment

Dear Mrs ML Digangoane,

Ethics Reference No.: 35/2021 – Line 4
Title: Knowledge and skills of nurse educators regarding curriculum development in nursing education institutions in Gauteng Province, South Africa.

The **Amendment** as supported by documents received between 2022-02-25 and 2022-03-16 for your research, was approved by the Faculty of Health Sciences Research Ethics Committee on 2022-03-16 as resolved by its quorate meeting.

Please note the following about your ethics approval:

- Please remember to use your protocol number (35/2021) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, monitor the conduct of your research, or suspend or withdraw ethics approval.

Ethics approval is subject to the following:

- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

Yours sincerely

On behalf of the FHS REC, Dr R Sommers
MBChB, MMed (Int), MPharmMed, PhD
Deputy Chairperson *of the Faculty of Health Sciences Research Ethics Committee, University of Pretoria*

The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes, Second Edition 2015 (Department of Health).

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Fakulteit Gesondheidswetenskappe
Lefapha la Disaense tša Maphelo

Annexure A
A3: University of Pretoria ethical clearance certificate

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences

Institution: The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.
- FWA 00002567, Approved dd 18 March 2022 and Expires 18 March 2027.
- IORG #: IORG0001762 OMB No. 0990-0278 Approved for use through August 31, 2023.

Faculty of Health Sciences **Research Ethics Committee**

23 March 2023

Approval Certificate
Annual Renewal

Dear Mrs ML Digangoane,

Ethics Reference No.: 35/2021 – Line 6
Title: Knowledge and skills of nurse educators regarding curriculum development in nursing education institutions in Gauteng Province, South Africa.

The **Annual Renewal** as supported by documents received between 2023-03-01 and 2023-03-15 for your research, was approved by the Faculty of Health Sciences Research Ethics Committee on 2023-03-15 as resolved by its quorate meeting.

Please note the following about your ethics approval:
- Renewal of ethics approval is valid for 1 year, subsequent annual renewal will become due on 2024-03-23.
- Please remember to use your protocol number (35/2021) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, monitor the conduct of your research, or suspend or withdraw ethics approval.

Ethics approval is subject to the following:
- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

Yours sincerely

On behalf of the FHS REC, Professor C Kotze
MBChB, DMH, MMed(Psych), FCPsych, Phd
***Acting Chairperson**: Faculty of Health Sciences Research Ethics Committee*

The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes, Second Edition 2015 (Department of Health).

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Lefapha la Disaense tsa Maphelo

Annexure B:
Gauteng National Department of Health ethical clearance certificate

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

OUTCOME OF PROVINCIAL PROTOCOL REVIEW COMMITTEE (PPRC)

Researcher's Name	Mrs. Charlotte Digangoane
Organization / Institution	University of Pretoria
Contact number	072 595 7465
Research Title	Knowledge and skills of nurse educators regarding curriculum development in twenty Nursing Education Institutions in Gauteng Province, South Africa
Protocol number	GP 2021103 029
Sites	SG Lourens Campus and Ann Latsky Campus

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

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

[X] Permission granted

[ ] Permission denied

Serongwa
Mr LR Serongwa
Dir. Nursing Practice / Dir. Nursing Education and Training
Date: 06/10/2021

GAUTENG HEALTH DEPARTMENT
PRIVATE BAG X385 MARSHALLTOWN 2107
NURSING EDUCATION & TRAINING
DATE: 06/10/2021

Annexure C
C1: Nursing education institution permission for data collection

ESDA NURSING EDUCATION INSTITUTION
(Section 21 Company registration number 2006/031176/08)
SANC Accreditation number 5867
DHET Provisional Accreditation No 2019/HE08/001
BOYES STREET; NEW STATE AREAS; SPRINGS; 1559
P.O.BOX 15185; RIVERFIELD; 1564
TEL: 011-817 2395 FAX: 086 521 8182
info@esdanursing.co.za

Researcher's name: Ms. Mamokete Lydia Charlotte Digangoane

Student Number: 20794402

Dear Ms Mamokete

Request to conduct research project at the Esda Nursing Education Institution

Refer to your request to conduct research study at our institution, I hereby grant you permission to proceed.

Kind Regards

Yolanda Els

Principal of ENEI

21/5/2021

Annexure C
C2: Nursing education institution permission for data collection

RESEARCH APPLICATION – MAMOKETE LYDIA CHARLOTTE DIGANGOANE

Date: 10 June 2021

FOR APPROVAL

G VAN WYK Chief Human Resources Officer

NOTES

Locality	• Nurse educators at the Tshwane- and Norther Region Learning Centre
Value of Study	• Yes
Employee	• No
Topic/Title	• KNOWLEDGE AND SKILLS OF NURSE EDUCATORS REGARDING CURRICULUM DEVELOPMENT IN TWENTY NURSING EDUCATION INSTITUTIONS IN GAUTENG PROVINCE, SOUTH AFRICA.
Impact	• Nurse educators at the learning centres in the Northern Region
Supported by	• DR AE van Zyl

Annexure C
C3: Nursing education institution permission for data collection

Netcare Hospitals (Pty) Ltd
Tel: + 27 (0)11 301 0000
Fax: Corporate +27 (0)11 301 0499
76 Maude Street, Corner West Street, Sandton, South Africa
Private Bag X34, Benmore, 2010, South Africa
www.netcare.co.za

RESEARCH OPERATIONS COMMITTEE FINAL APPROVAL OF RESEARCH

Approval number: UNIV-2021-0034

Ms MLC Digangoane

E mail: digangoanem@gmail.com

Dear Ms Digangoane

RE: KNOWLEDGE AND SKILLS OF NURSE EDUCATORS REGARDING CURRICULUM DEVELOPMENT IN TWENTY NURSING EDUCATION INSTITUTIONS IN GAUTENG PROVINCE, SOUTH AFRICA

The above-mentioned research was reviewed by the Netcare Research Operations Committee's delegated members and it is with pleasure that we inform you that your application to conduct this research at Netcare Education Gauteng North East and Gauteng North West Campuses, has been approved, subject to the following:

i) Research may now commence with this FINAL APPROVAL from the Netcare Research Operations Committee.

ii) All information regarding Netcare will be treated as legally privileged and confidential.

iii) Netcare's name will not be mentioned without written consent from the Netcare Research Operations Committee.

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

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

vi) Netcare must be furnished with a STATUS REPORT on the progress of the study at least annually on 30th September irrespective of the date of approval from the Netcare Research Operations Committee as well as a FINAL REPORT with reference to intention to publish and probable journals for publication, on completion of the study.

vii) A copy of the research report will be provided to the Netcare Research Operations Committee once it is finally approved by the relevant primary party or tertiary

institution, or once complete or if discontinued for any reason whatsoever prior to the expected completion date.

viii) Netcare has the right to implement any recommendations from the research.

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

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

- This approval granted applies strictly to the proposal as stipulated in the original application received.
- Should any amendments or variation to the materiality of the content of the research study become necessary during the course of the study, the principal investigator/researcher must apply for approval of these amendments/changes to the Netcare Research Operations Committee, prior to implementation.
- Any extension of the duration, and / or site, and / or investigators of the authorisation granted in this approval must be applied for in writing timeously for consideration by the Netcare Research Operations Committee in order to ensure continuity of the study/research.

We wish you success in your research.

Yours faithfully

19/8/21

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

Dr Shannon Nell
Chairperson: Netcare Research Operations Committee
Netcare Hospitals (Pty) Ltd
Date: 26/8/2021

Annexure C
C4: Nursing education institution permission for data collection

7 June 2021

Dear Ms. Digangoane

Permission is hereby granted for you to conduct the study, the title of which reads thus: ***Knowledge and skills of nurse educators regarding curriculum development in twenty nursing education institutions in Gauteng. South Africa.***

With this permission, is also the freedom to use whatsoever method you choose to collecting data. You will provide the required instructions to access the link. Failure to do this will only lead to further delays.

Thank you

SEFAKO MAKGATHO HEALTH SCIENCES UNIVERSITY

Prof S M Mogotlane
Department of Nursing Science
Molotlegi Drive
Medunsa
0204
Tel: (012) 521 4402
Cell: 082 885 0879
Email: sophie.Mogotlane@smu.ac.za

KNOWLEDGE FOR QUALITY HEALTH SERVICES

Annexure C
C5: Nursing education institution permission for dada collection

uKwazi
SCHOOL OF NURSING
YOUR HEALTH CARE EDUCATORS

Dear Ms. Digangoane

RE: Your quantitative study on Knowledge and skills of nurse educators regarding curriculum development in twenty Nursing Education Institutions in Gauteng Province, South African.

Permission is hereby granted for you to conduct your research at Ukwazi School of Nursing.

Kind Regards,

Mr. S.v.d.Merwe

Principal/Director

Ukwazi School of Nursing

uKwazi School of Nursing
Your Health Care Educators
SAQA Number 51497
TEL (011) 760-3098 FAX (011) 760-5567
FAX 086 542 5385
P.O. BOX 3177 WILROPARK 1724
1st FLOOR, MATT OFFICE PARK
C/O PHEASANT ST. & UNITDEKKERS
SERVICE ROAD, HORISON, ROODEPOORT

Annexure C
C6: Nursing education institution permission for data collection

UNIVERSITY OF THE WITWATERSRAND JOHANNESBURG | DEPARTMENT OF NURSING EDUCATION

Ms Mamokete Lydia Charlotte Digangoane
University of Pretoria
Department of Nursing Sciences

15th June 2021

RESEARCH STUDY FOR DEGREE PURPOSES: Mamokete Lydia Charlotte Digangoane – 20794402

This serves to confirm permission is hereby granted to **Mamokete Lydia Charlotte Digangoane** to assess the knowledge and skills of nurse educators regarding curriculum development in twenty NEIs in Gauteng Province, (South Africa).

Title: *"Knowledge and skills of nurse educators regarding curriculum development in twenty nursing education institutions in Gauteng Province, South Africa,."*

Please discuss with the lecturer irene.kearns@wits.ac.za of a convenient time when the study will be conducted.

Best wishes for a successful research report.

Kind regards

Professor S Schmollgruber
Head: Department of Nursing Education

Cc. Dr. Irene Kearns- University of the Witwatersrand
Dr VM Bhana-Pema and Professor RS Mogale
University of Pretoria

Department of Nursing Education | School of Therapeutic Sciences | Faculty of Health Sciences
7 York Road, Parktown, 2193, South Africa, Tel: +27 11 488-4272 | Fax: +27 11 488-4195
www.wits.ac.za/therapeuticsciences/nursing

Annexure C
C7: Nursing education institution permission for data collection

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences

28 October 2021

The Chair
Research Ethics Committee
Faculty of Health Sciences
University of Pretoria

Ethical approval for student participation in research project

This serves to confirm that I am supportive of the following registered for Nursing

Mamokete Lydia Charlotte Digangoane u20794402

who has applied for ethical approval for a project entitled:

Knowledge and skills of nurse educators regarding curriculum development in twenty nursing education institutions in Gauteng province, South Africa

I have no objection to the request to conduct an online survey at the Department of Nursing Science at the Health Science Faculty of the University of Pretoria.

Kind regards

Prof V Steenkamp
Deputy Dean: Teaching and Learning

Deputy Dean: Teaching and Learning
Room 5-20.1, Level 5, Health Sciences Building
University of Pretoria, Private Bag X323
Arcadia 0007, South Africa
Tel +27 (0)12 319 2174
Email vanessa.steenkamp@up.ac.za
www.up.ac.za

Fakulteit Gesondheidswetenskappe
Lefapha la Disaense tša Maphelo

Annexure C
C8: Nursing education institution permission for data collection

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

GAUTENG COLLEGE OF NURSING

Enquiries: Ms. SS Bokaba
Tel+(27) 011 644 8944 / 079 307 3711
Email: Stellah.bokaba@gauteng.gov.za

Dear Ms. C Digangoane

Subject: **DATA COLLECTION FOR A RESEARCH STUDY AT ANN LATSKY CAMPUS**

The Researcher's interest in conducting data collection for a research study at Ann Latsky Campus is acknowledged.

The following documents were received:

- The research proposal
- Ethics Committee approval from the University of Pretoria (Ethics no.35/2021)
- Approval from the National Health Research Data Base (NHRD), Protocol No. GP2021103029
- Information letter about the research study
- Consent form

Permission is hereby granted to conduct data collection for your study at Ann Latsky Campus. You are requested to contact the Campus Research Committee Chairperson to make arrangements for the information session, on the contact details provided.

The Campus requests that upon completion, to invite you to share the results of your study during the Campus Annual Research Presentation Day, on a date that will be communicated in due course.

Kind regards

Ms. SS Bokaba

Date:13.12.2021
Campus Research Committee Chairperson

Ms. PL Mohoaduba
Ann Latsky Campus Head
Date: 14.12.2021

DEPARTMENT OF HEALTH
ANN LATSKY CAMPUS HEAD
P.L. Mohoaduba
14 -12- 2026
011 644 8915 / 083 453 3384 / 076 814 7401
PRIVATE BAG 40
AUCKLAND PARK, 2006

Annexure C
C9: Nursing education institution permission for data collection

GAUTENG PROVINCE
REPUBLIC OF SOUTH AFRICA

GAUTENG COLLEGE OF NURSING

Enquiries : Ms. NB Mothokoa
Tel Number : 012 319 5730
Fax Number : 012 319 5742
Cell Phone : 082 774 8100
Email : Noma.Mothokoa@gauteng.gov.za

Ms. MLC Digangoane
Protocol number: GP 2021103029

SUBJECT: APPROVAL FOR DATA COLLECTION AT GAUTENG COLLEGE OF NURSING (GCON): SG LOURENS CAMPUS

This serves as a response to your request in undertaking the study on "Knowledge and skills of nurse educators regarding curriculum development in twenty Nursing Education Institutions in Gauteng Province, South Africa."

Permission is hereby granted for collection of data as indicated in your proposal.
Please take note of the following:

- All information and data collection should be treated as confidential and ethical considerations adhered to as stated in the proposal.
- At the end of the study kindly furnish the Campus with the study results.
- On completion of your research study, you are requested to donate a hard copy of your Dissertation to the Campus library.
- The research committee might invite you to present during their annual research day.

Kind regards

NB Mothokoa (Ms.): _____ Date: 03 · 01 · 2022
Research Committee HOD

MM Jasop (Ms.): _____ Date: 03/01/2022
Deputy Campus Head

SG LOURENS CAMPUS
03 JAN 2022
GAUTENG COLLEGE OF NURSING

'ONSOLO' APPROVAL FOR DATA COLLECTION 2021

Annexure D
Participant's information and informed consent leaflet

PARTICIPANT'S INFORMATION AND INFORMED CONSENT LEAFLET

Researcher's name: Ms. Mamokete Lydia Charlotte Digangoane
Student Number: 20794402
Contact details: 0725957465.
Email address: digangoanem@gmail.com
Supervisor's details: Dr Varshika Bhana-Perna Tel: 0123563171 or Cell: 0784121540

Dear Participant

INTRODUCTION

You are invited to volunteer for a research study. I am doing this research for Masters' Degree purposes at the University of Pretoria. The information in this document is provided to help you to decide if you would like to participate. Before you agree to take part in this study, you should fully understand what is involved. If you have any questions, which are not fully explained in this document, do not hesitate to ask me or my supervisor. You should not agree to take part unless you are completely happy with the kind of questions that will be asked.

THE TITLE OF MY RESEARCH STUDY:
Knowledge and skills of nurse educators regarding curriculum development in twenty Nursing Education Institutions in Gauteng Province, South Africa.

NATURE AND PURPOSE OF THE STUDY
The aim of the study is to assess the knowledge and skills of nurse educators regarding curriculum development in twenty Nursing Education Institutions in Gauteng Province, South Africa.

EXPLANATION OF PROCEDURES AND WHAT WILL BE EXPECTED FROM PARTICIPANTS
This study involves answering some questions regarding your knowledge and skills regarding curriculum development.
I would like you to complete a web-based questionnaire. It will take approximately 15 to 20 minutes of your time. The questionnaire will be completed online. A link to the questionnaire will be sent

to you by email. Please answer the questions online and return the completed questionnaire using the provided link in the survey platform. You will be given two weeks to complete the questionnaire. A reminder will be sent by email after a week.

The completed questionnaire will be kept in a safe place to make sure that only people working on the study have access to it. This will ensure that your answers are kept confidential. Results and reports will be published in accredited scientific journals and presented in such a manner that your identification as a participant will remain anonymous.

RISK AND DISCOMFORT INVOLVED

There are no risks nor remuneration for participating in the study. Although you will not benefit directly from the study, the results of the study will enable us to understand the knowledge and skills of nurse educators regarding curriculum development in twenty Nursing Education Institutions in Gauteng Province, South Africa.

As your participation in this study is voluntary, you can decline to participate or stop at any time without giving any reason or incurring any penalty. As you do not write your name on the questionnaire, you give me the information anonymously. Once you have submitted the questionnaire, you cannot recall your consent as I will not be able to trace your questionnaire.

Note: The implication of submitting the web-based questionnaire is that informed consent has been given by you, thus any information derived from your questionnaire (which will be totally anonymous) may be used for publication, by the researchers.

ETHICS APPROVAL

My Protocol was submitted to the Faculty of Health Sciences Research Ethics Committee, University of Pretoria, Medical Campus, Tswelopele Building, Level 4-59, Telephone numbers 012 356 3084 / 012 356 3085 and written approval has been granted by that committee. The study has been structured in accordance with the Declaration of Helsinki (last update: October 2013), which deals with the recommendations guiding doctors in biomedical research involving humans. A copy of the Declaration may be obtained from the investigator should you wish to review it.

INFORMATION

If you have any questions concerning this study, please contact:

Principal researcher: +27 725957465

Supervisor: Dr VM Bhana-Pema: +27 12 356 3171

Co-supervisor: Professor RS Mogale: +27 12 356 3156

CONFIDENTIALITY

All records from this study will be regarded as confidential. All results will be published or presented in such a way that it is not possible to identify the participants.

COMPENSATION

You will not be paid to take part in the study. There are no costs involved for you to be part of the study.

I sincerely appreciate your participation.

Yours truly

Ms. MLC Digangoane

Annexure E
Data collection questionnaire

DATA COLLECTION QUESTIONNAIRE

Researcher's name: Ms. Mamokete Lydia Charlotte Digangoane

Student Number: 20794402

Contact details: 0725957465.

Email address: digangoanem@gmail.com

Supervisor's details: Dr Varshika Bhana-Pema Tel: 0123563171 or Cell: 0784121540

SECTION A: BIOGRAPHIC DATA
Please respond to the following eight (8) questions using a tick (√). Select the most appropriate answer

1. How old are you?						
2. Gender	**Male**		**Female**		**Other (Specify)**	
3. How many years have you been a nurse educator?						
4. Employment status	Full time	Part time				
5. Highest educational level	Diploma in Nursing Education		Bachelor's degree	Masters	PhD	
6. Home language	Afrikaans	English	isiXhosa	Sesotho	isiNdebele	isiZulu
	Sepedi	Setswana	siSwati	Tshivenda	Xitsonga	Khoi San
7. Curriculum being developed /are developing	Higher certificate: Auxiliary nurse	Diploma in Nursing: General nurse	Bachelor's Degree: Nursing and Midwifery	Postgraduate Diploma		
8. Status of accreditation	Not yet submitted to SANC	In progress of SANC evaluation	Conditional accreditation	Full accreditation		

SECTIONB B: KNOWLEDGE IN CURRICULUM DEVELOPMENT

Relate the following statements about your knowledge regarding curriculum development by selecting the most appropriate answer using a tick (√)	**1 (=strongly disagree), 2(=partially disagree), 3(=disagree), 4(=neither agree nor disagree), 5(=agree), 6(=partially agree),7(=strongly agree)**						
	1	**2**	**3**	**4**	**5**	**6**	**7**
1. The knowledge I have of curriculum development is a resultant							

of my nursing education and training							
2. The knowledge I have of curriculum enables me to have a positive attitude in curriculum development activities							
3. My knowledge of curriculum enables me to engage willingly in curriculum development discussions and activities							
4. My knowledge of curriculum enables me to make informed choices and decisions during the development of a curriculum							
5. My knowledge of curriculum enables me to recognize when there is knowledge deficit amongst my team members regarding curriculum development							
6. My knowledge of adult teaching and training influence my ability to develop a curriculum that encourages critical thinking and open opportunities for lifelong learning in students							
7. My critical thinking and analytical abilities enable me to interpret Policies and guidelines relevant for a teaching, learning, and training programme during the development of a curriculum							
8. My knowledge of nursing education theories supports my confidence in developing a curriculum that is relevant to the proposed programme							
9. My ability to interpret Vision, Mission, Values and Philosophy of teaching and training enables me to develop a curriculum that aims to achieve the attributes of the futuristic students in the programme							
10. My knowledge of formulating a conceptual or organizational framework enables me to develop a framework that is aligned to the vision and mission in a curriculum							
11. My knowledge of developing course description using Alphanumeric codes enables me to develop study modules in a							

curriculum							
12. My knowledge of formulating learning outcomes enables me to develop study module/ units/workbooks /subject guides that are aligned with the exit level outcomes of the programme							
13. My knowledge of teaching strategies enables me to formulate different teaching, and experiential learning strategies during the development a module in a curriculum							
14. My knowledge of setting assessments and use of Taxonomies for theory and Work Integrated Learning (WIL) enables me to develop appropriate assessments that asses the index of difficulty in a question or levels of cognitive complexity of a question during curriculum development							
15. My knowledge of developing distribution of learning times for theoretical and WIL enables me to develop a curriculum that is integrated							
16. My knowledge of integrating theory and practice enables me to plan and develop clinical WIL placement activities in a curriculum							
17. My knowledge of aligning exit level outcomes with associated assessment criteria enables me to assess the application of the learning outcome in a module							
18. My knowledge of compiling a teaching and learning handbook/programme guide enables me to develop training documents that are beneficial and informative to students and service users during curriculum development							
19. My knowledge of managing assets and the understanding of the implication of financial management in a programme enables me to develop a curriculum that meets the organizational monetary controls							
20. My knowledge of monitoring							

quality in a programme enables me to plan the appropriate use of material and human resources for a programme during curriculum development							

SECTION C: SKILLS IN CURRICULUM DEVELOPMENT

Relate the following statements about your skills regarding curriculum development by selecting the most appropriate answer using a tick (√)	**1 (=strongly disagree), 2(=partially disagree), 3(=disagree), 4(=neither agree nor disagree), 5(=agree), 6(=partially agree),7(=strongly agree)**						
	1	**2**	**3**	**4**	**5**	**6**	**7**
1. My curriculum development skills are a resultant of my nursing education and training							
2. My communication and organizational skills enable me to interact with various stake holders at the micro, meso and macro levels, to achieve informed decisions in curriculum development							
3. My curriculum development skills enable me to have a positive attitude, act ethically and professionally during the curriculum development processes							
4. My teaching skills enables me to develop interactive study material that meet the teaching, learning and training needs of the students							
5. My evidence- based practice skills enable me to develop theoretical and WIL activities that comprehensively covers the learning outcomes of the programme							
6. My research skills enable me to source various and relevant information and material that will enable decision making in curriculum development							
7. My academic writing and document compilation skills enables me to develop a curriculum that is of quality standard							
8. My leadership skills enable me to recognize when there is skills deficit amongst my team members regarding curriculum development							
9. My skills of managing technology							

during teaching and training enables me to develop interactive study material during curriculum development							
10. My curriculum reviewing skills enables me to participate in peer reviews sessions to allow corrections and modifications during the curriculum development processes							
11. My communication and presentation skills enable me to confidently present the developed curriculum to the co-workers, my supervisors and stake holders							

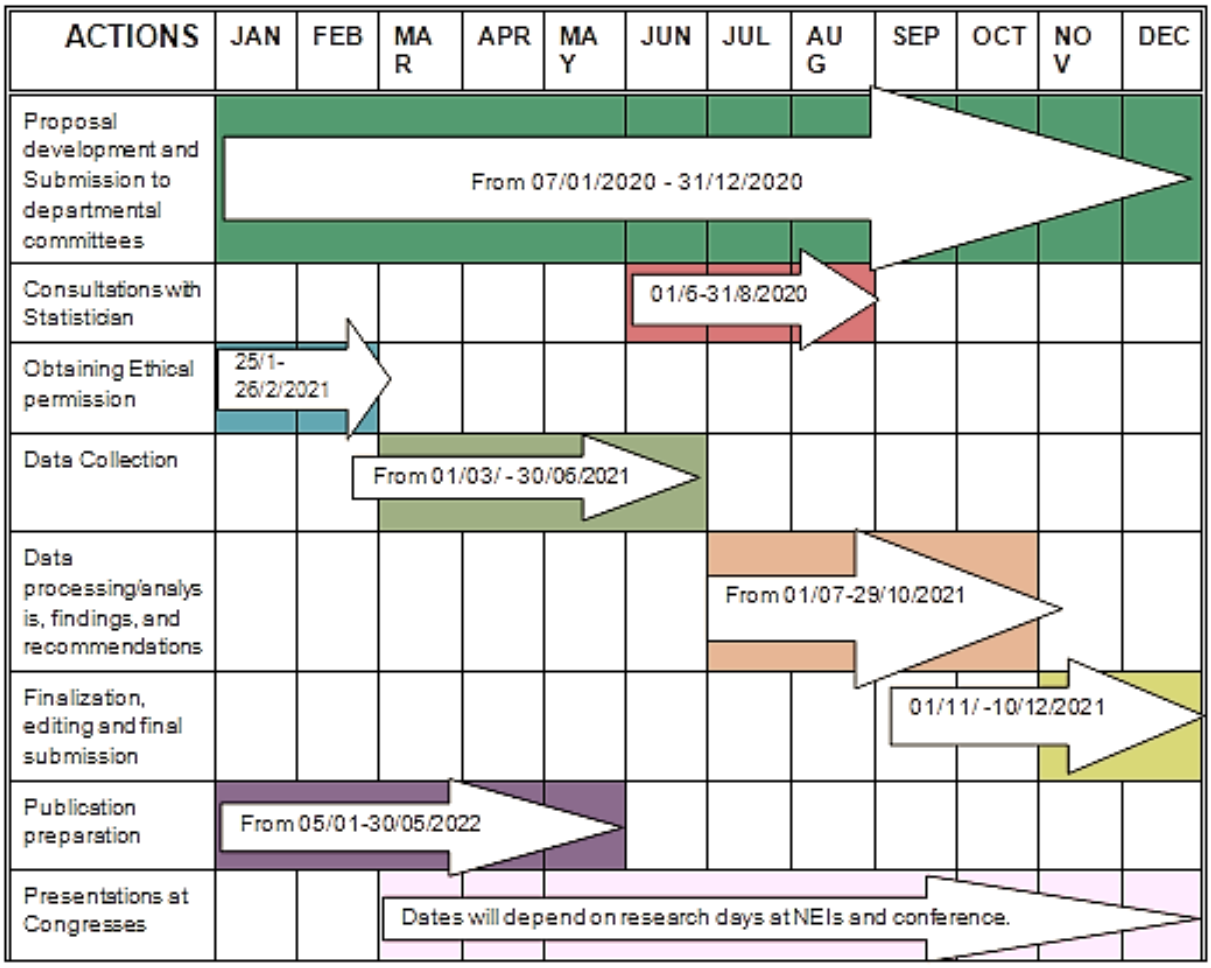
THE END

THANK YOU FOR YOUR PARTICIPATION AND CONTRIBUTIONS

5

Annexure F
Gantt chart

GANTT CHART



Annexure G
Letter for statistical support

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

DEPARTMENT OF STATISTICS

LETTER OF STATISTICAL SUPPORT

Date: *22/01/2021*

This letter is to confirm that **Ms. M.L.C Digangoane** studying at the University of Pretoria discussed the project with the title "**KNOWLEDGE AND SKILLS OF NURSE EDUCATORS REGARDING CURRICULUM DEVELOPMENT IN TWENTY NURSING EDUCATION INSTITUTIONS IN GAUTENG PROVINCE, (SOUTH AFRICA)** " with me.

I hereby confirm that I am aware of the project and undertake to assist with the statistical analysis of the data generated from the project.

The SAS v.9.4 software will be used to perform the analysis. The data analysis will consist of: Exploratory Factor Analysis (EFA) to validate the constructs/scales, reliability analysis (Cronbach alpha) to test the internal consistency of the items measuring the constructs/scales, the descriptive statistics (means and standard deviations) for continuous variables and frequency tables (counts and percentages) for categorical variables to describe the data. The Pearson chi-square test will be performed to test for association between demographic variables and knowledge and skills of the nurses. If the expected count within the categories is less than 5, the Fisher exact test will be performed to test the associations.

The sample size will consist of approximately 260 nurses who meet the inclusion criteria and are willing and available to participate in the study.

NAME :

A. Masenge

Mr. Andries Masenge

Department of Statistics
Internal Consultation Service
Tel 012 420 3645

Annexure H
Proof of language editing

B-Square Synergy Consultants

Tax no: 93 087 48 228

Idea.Concept.Product

LETTER FOR EDITING OF THE DISSERTATION OF MAMOKETE LYDIA CHARLOTTE DIGANGOANE

KNOWLEDGE AND SKILLS OF NURSE EDUCATORS REGARDING CURRICULUM DEVELOPMENT IN NURSING EDUCATION INSTITUTIONS IN GAUTENG PROVINCE, SOUTH AFRICA

A dissertation submitted in fulfilment of the requirements of the degree of

MASTERS IN NURSING SCIENCE

In the subject Nursing Science at: Faculty of Health Sciences, School of Health Care Sciences,

Department of Nursing Science

11 April 2023

To whom it may concern

I have edited the dissertation of Mamokete Lydia Charlotte Digangoane, for her degree Masters in Nursing Science at the University of Pretoria

Kind regards

Dr. Liesl Brown, Ph.D.